

**An Assessment
of the
Pleistocene collections from the cave and rockshelter sites
in the
Creswell Area**

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1. Introduction and Background

1.1 The Assessment

This assessment project was initiated by Creswell Heritage Trust with funding from English Heritage Archaeology Division. The rationale for the project was inspired from current work to establish research agendas for specific regions and to establish specific research themes for particular periods in response to the publication of *Exploring our Past : strategies for the archaeology of England* by English Heritage in 1991 and subsequent research reviews by English Heritage (English Heritage 1997). Of particular relevance to Creswell Crags was the need to carry out a base line published audit which could inform research agendas for the East Midlands and the wider national research framework for the period. Also, such a study would provide information which could help to support the management and preservation of this Pleistocene resource as well as assisting with the promotion, appreciation and increased enjoyment of Palaeolithic archaeology by the general public through increased access and interpretation to the collections.

This survey set out to establish the location, range, quantity, quality and condition of Creswell Pleistocene archaeology. A key aim was to publish the findings of the survey in order that future research and presentation has an assembled corpus of information on which to draw. The study is the first step to more detailed assessments, analyses and future management of the collections.

In summary:

- Excavation at Creswell Crags and nearby caves and rockshelters span the last 130 years (Table 1).
- During the period of excavation within the Creswell Heritage Area more than 100,000 objects are now extant within museum collections (Table 2).
- Collections and archives from the Creswell caves and rock shelters are currently stored in 38 different museum departments spread over England, Scotland and Ireland with a strong possibility for material extant within European and American museums (Table 2).
- Six of the museums curate about 90% of the collections and two museums, Creswell Crags and Manchester, care for about 82% of the material.
- Archives from particular archaeological events are often distributed over more than one museum creating difficulties of access for research (Table 3).
- Historical excavation archives associated with the finds archives are generally poor with minimal detailed stratigraphic information.
- The range and quality of excavated objects creates a high potential to use Creswell Crags and the Creswell archive within innovative presentations and interpretation (Table 4).

1.2 The Resource

Creswell Crags and Heritage Area is one of the most significant Pleistocene archaeological landscapes in this country. Within the Creswell Heritage Area there are 21 sites associated with Palaeolithic material (fig 1). Other caves and rock shelter sites are known but are currently unexplored and add to the potential for further Pleistocene deposits. Nationally these sites represent a significant proportion of the Palaeolithic Scheduled Ancient Monuments in this country. Creswell Crags itself is designated a Scheduled Ancient Monument and a Geological SSSI for its national importance as a Pleistocene resource. The group value of these sites is therefore high.

Context

Archaeological research in the Creswell area began in the 1870s. This work created substantial archaeological archives comprising Middle and Upper Palaeolithic artefact assemblages including the type assemblage for the Creswellian Upper Palaeolithic stone industry, Mesolithic and later prehistoric assemblages. Cultural assemblages from the Palaeolithic include some of the most prestigious bone art engravings in this country. In addition to archaeological material, a huge body of faunal material has been recovered extending back to at least the Ipswichian interglacial.

Creswell Crags and other cave and rockshelter sites in the Heritage Area contain information about landscapes and lifestyles that have accumulated over 100,000 years. In particular, the evidence they provide for life after the last Ice Age some 12,000 years ago when England was re-colonised is of international significance. The sites provide data on how our ancestors coped with survival in environments recovering from the effects of glaciation and with communities of plants and animals which were also in the process of re-establishing themselves. The evidence from Creswell can help to answer questions about the behaviour of human and animal species at the extremes of their geographical ranges, about adaptive responses of human and animal species to extreme change in climate and biome, and about processes and trends in animal extinctions.

During the Ice Age people living at Creswell were among the most northerly human beings on earth. The archaeological and environmental evidence records what they did and how they survived. It is a detailed record that is in need of co-ordinated management having been excavated over many years and by many different people. It would benefit from being supplemented by new excavation and research designed to explore the links between the archaeological sites in the region.

Creswell Crags and area is one of the key locations for future study of the Pleistocene and prehistoric hunter gatherer adaptive responses to dramatic environmental change.

1.3 Potential

The collections from Creswell Crags and other sites within the Creswell area present a number of opportunities. The list of excavators who have been and continue to be involved with these sites includes many notable Palaeolithic specialists. The most recent excavations in Pin Hole at Creswell Crags clearly demonstrated the quality of the resource for Palaeolithic research. The archaeological and palaeontological evidence found in the caves and rock shelters of the Creswell area are widely cited in text books and research publications and a large proportion of the collections are accessible within a number of museums. The Magnesian Limestone belt in which the caves and rock shelters occur has itself been informally designated as the Creswell Crags Heritage Area (fig 1).

Given the level of interest, the research value, and the statutory protection, it might be expected that Creswell is one of our best understood and most comprehensively published archaeological sites. Unfortunately this is not the case. Creswell suffers from a superficial knowledge. There is a lack of detailed understanding as was the case with Stonehenge until the publication by English Heritage of the twentieth century excavations that took place there. With regard to the Creswell sites, the most comprehensive publication is a British Archaeological Report (Jenkinson 1984), which deals primarily with the fauna from early excavations. More recent research has led to a number of PhD, MPhil and Undergraduate dissertations but none of these have resulted in a major publication. Small scale work continues on extant collections but with no pulling together of the results.

Since 1986 Creswell Crags has been a candidate for World Heritage Status and more recently the central plank in a regional scheme for the regeneration of the coalfields known as the Creswell Initiative. The nationally and internationally important heritage landscape has the potential to enhance the image and identity of the area. This requires the highest possible standards of conservation and management of the key archaeological sites and their collections. The Creswell Initiative is supported enthusiastically by the private, public and community sectors. Seven Trent Water is contributing £4.2 million to relocate the sewage works at Creswell Crags and Redland Aggregates have recently agreed to fund the relocation of the B6042 road through the Creswell Crags gorge.

Creswell Limestone Heritage Area

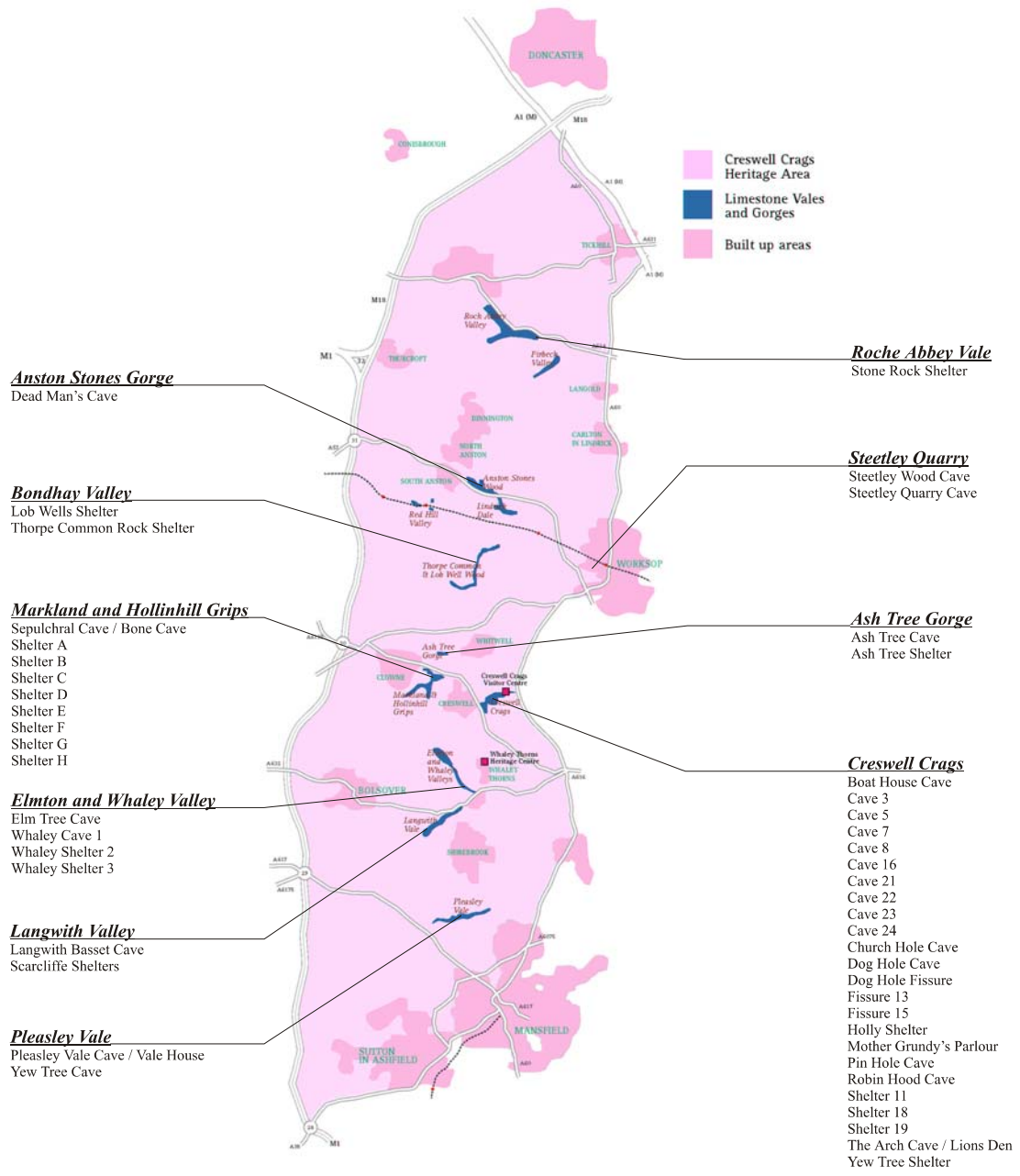


Figure 1.

2. Assessment Project

A major first step towards a much deeper understanding and synthesis of the Creswell material and the creation of strategic policies relating to the management and research of these sites, will be through an audit of the excavation archives. This study provides the results of an initial audit to establish fundamental information on which future research and interpretation can take place. The results will provide a platform from which research and management initiatives can be more effectively targeted and programmed.

2.1 Aims and Objectives

The aims of the project were:

- To provide an information platform for future management prescriptions at specific sites in the Heritage Area
- To provide an information platform for future regional and potentially national research frameworks for the Palaeolithic and future publications
- Create an inventory for Palaeolithic archives from the Creswell Area
- To provide a platform for more effective interpretation and presentation of the Palaeolithic

A number of objectives were identified:

- identify museums that currently curate archaeological collections from Pleistocene sites within the Creswell Heritage Area.
- identify the size, range and condition of the archives
- identify the history of research through the creation of a bibliographic list for research in the Creswell Heritage Area.
- clearly establish the status of current research on the collections
- identify the value and future potential of the collections for research, management and interpretation.
- disseminate the results of the assessment

2.2 Outputs

The following outputs were identified:

- an index of known collecting institutions
- records which indicate the range, size and condition of the various collections
- archive assessment records for each collection
- a bibliographic index of published and unpublished reports
- a report and published note on the results which includes overall statements and recommendations regarding the value of the collection for future management, research and interpretation

2.3. Study Method

2.3.1 Information Type

It was proposed to collect a standard set of information. This was an initial audit of the collections and therefore sought to recover baseline information. Information collected included:

- The date of fieldwork at specific sites
- The person responsible for the fieldwork
- Details about the collection including its:

Location
Extant documentary records
Size
Range of both documentary and collection archive
Physical condition
Quantity of provenanced and unprovenanced material
Indicative content of paper records
Storage

- Generation of a comprehensive bibliography for Creswell research

The audit was primarily concerned with collecting information about Pleistocene and immediate post glacial material. The presence of later prehistoric and historic material from the caves and rockshelters was recorded when that information was readily available, but detailed information about those collections was not recorded.

2.3.2 Data Collection

Information was recorded on paper records and transferred to a computerised spreadsheet format. It is anticipated that a computerised database will eventually hold all of the information recovered.

2.3.3 Assessment

In addition to collecting the audit data the study also made some primary assessments and recommendations. To assist with the assessments a series of levels were established with supporting statements.

Assessment of Storage / Collection Condition

Assessment of the condition of the collections used a scoring system. This was a modification of the assessment score used by English Heritage and was applied to the collection as a whole. These broad scores were supported by additional statements on specific objects when necessary.

Level 1.	Collection is in an excellent condition and needs no immediate attention apart from routine museum collection management.
Level 2	Collection is in a good condition and a small number of items were noticed as needing minor treatment or supporting documentation was not adequate.
Level 3	Collection is in a stable condition although a number of items or supporting documentation required urgent attention.
Level 4	Collection is in a poor condition and if not given urgent attention will deteriorate.

Assessment of Research Value

The research value of a collection was to be assessed through information which identified the level of integration between the collection and documentary contextual records. Unfortunately, the fragmentary nature of the information and the level of detail necessary to develop a true assessment of the records was beyond the scope of this audit and was identified as a key recommendation for future work.

Assessment of Interpretive and Education Potential

The value of the collections to public archaeology and opportunities for display was also assessed during the audit. Evidently the interpretive value of the material will be dependant on the messages and themes of future specific media displays and therefore this assessment was based purely on the visual impact of the material and whether it had the potential to excite audiences. The assessment was scored as 'High' 'Medium' or 'Low' and supported by statements which identified specific objects if this was appropriate.

3. Results

3.1 Creswell Heritage Area excavation history summary

Excavation in the caves and rockshelters on the Magnesian Limestone and subsequent research on the collections and archives span approximately 130 years (Table 1). An archaeological interest in the Creswell area began in the middle of the 19th century. As early as 1862 workmen in Pleasley Vale Gorge working behind William Hollins' house broke into a cave and recovered Pleistocene fauna, material currently stored at Keyworth. This sparked the interest of Dr Ransom who excavated Yew Tree Cave in 1865 producing the first evidence of Lynx in Britain. During the same decade interest in Creswell Crag was developing after Pleistocene fauna had been recovered from Pin Hole with subsequent discoveries in Church Hole during the 1870s. Creswell Crag in the 1870s felt the impact of Victorian antiquarian interest. The Rev. Megan Mello realised the potential of the caves and pooled resources with the curator of Derby Museum, Thomas Heath. Excavation began in Pin Hole in 1875 with trial explorations carried out at Church Hole. Neither Mello or Heath had experience of Pleistocene fauna so they enlisted the help of Professor George Busk of the Royal College of Surgeons to report on the mammal fauna from the sites. On account of disappointing results from Pin Hole attention turned to Church Hole in 1876 (Mello 1877, Dawkins 1877) and Robin Hood Cave (Dawkins 1876, 1877, Mello 1876, 1877). This attracted the attention and involvement of Boyd Dawkins who had already published on Creswell. Mother Grundy's Parlour was excavated by Donald Knight in 1878, excavations later reported by Dawkins and Mello in 1879.

Following the major excavations during the 19th century, small scale unorganised specimen collecting occurred during the following twenty years of which very little is known.

By the late 1880's Dr Robert Laing had carried out excavations at Dog Hole and Robin Hood Cave (Laing 1890). None of these collections survive today.

Further excavations were carried out by Duckworth and Swainson, two Cambridge geologists working out of the Sedgwick museum. They partially excavated Ossiferous Fissure Cave adjacent to Robin Hood Cave recovering bone and artefacts (Duckworth and Swainson 1895). The exact location of the excavation by Duckworth and Swainson is unclear. C8 is one possible location (Jenkinson 1984), although C7 is an equally likely candidate. Artefacts figured by Jenkinson (1984 fig33) are from Robin Hood Cave and an unrecognised non-British locality, material which is currently stored in The University of Cambridge, Department of Archaeology and Anthropology. No artefacts were recovered from Duckworth and Swainson's work.

At the turn of the century the Rev. E.Mullins began excavating Langwith Basset Cave in 1903. The end of this excavation marked the time when geologists and clergy ceased to be involved with cave exploration in Derbyshire. In 1922 the British Association for the Advancement of Science formed the Committee for the Archaeological Exploration of Derbyshire Caves. This committee oversaw all archaeological work in Derbyshire caves and appointed Albert Leslie Armstrong as field archaeologist and J.W. Jackson as palaeontologist. Armstrong's team included Arthur Court, J. Himsworth and J.Hanbury. This team dominated Derbyshire cave archaeology from the 1920s until Armstrong's death in 1958. Armstrong excavated Mother Grundy's Parlour (Armstrong 1923) and Pin Hole almost simultaneously. Pin Hole (1924-1936) appears to have dominated the work although Armstrong carried out excavations at other locations at Creswell Crag, Markland and Hollinhill Grips, in the Whaley Valley and at Ash Tree Cave. He was joined occasionally by Dorothy Garrod at Mother Grundy's Parlour in 1924 and 1925, Garrod also carrying out her own excavations at Langwith Basset Cave in 1927.

Following Armstrong's death, work continued at Ash Tree Cave under the supervision of Derrick Riley and later West, curator of Sheffield City Museum. At the same time Charles McBurney began digging the platform at Mother Grundy's Parlour in 1959 and 1960 through work sponsored by the Prehistoric Society. McBurney later joined West at Ash Tree Cave.

Elsewhere in the Creswell area, Radley excavated Whaley Shelter in the 1960s. Further to the north George White, an interested local amateur, carried out excavations at Lob Wells Shelter recovering a

Neolithic or later prehistoric assemblage. In the 1960s White also excavated at Thorpe Common Rockshelter in the Bondhay valley and Dead Man's Cave at Anston Stones Gorge. At Thorpe Common and Dead Man's Cave Paul Mellars provided White with assistance.

During the late 1960s John Campbell carried out excavation at Mother Grundy's Parlour (Campbell 1970a, 1970b), Robin Hood Cave and Holly Shelter, the latter site proving sterile. Following this work Campbell produced the first comprehensive synthesis of Creswell (Campbell 1977).

Simon Colcutt, a student of Campbell, carried out further excavations in 1974 in areas which looked at the general chronology and stratigraphy of various sites including Mother Grundy's Parlour, Pin Hole, Boat House Cave, The Arch, Dog Hole, and Church Hole. Unfortunately none of this archive was located during this study.

Renewed interest in Creswell developed during the late 1970s. Dr Rogan Jenkinson working from Creswell Crags Museum and Education Centre co-ordinated research teams consisting of university lecturers and students and Manpower Services Commission employees. This research involved varied approaches including coring cave deposits in Robin Hood Cave, a programme of speleothem dating (Rowe 1986) and pollen analysis (Coles 1988), research into sedimentology (Griffin 1989), geophysics to locate extensions to caves such as The Arch (Samson and Jenkinson 1979), excavation at Dog Hole Fissure following a rock fall (Jenkinson et al 1982) and detailed excavation at Pin Hole 1984-1989, C22 and C23. Much of this work remains unpublished.

Elsewhere in the Heritage Area small scale excavations were carried out by Brian Dolby of the Hunter Society at Stone Mill Rockshelter near Maltby in the 1970s. During 1986/87 a team from Sheffield University and Creswell Crags Museum and Education Centre reopened White's trenches at the rock shelter on Thorpe Common for sediment samples.

3.2 The Collections

The collections and associated archives that developed as a result of over a century of excavation are currently stored in a mixture of 38 museums / university departments (Table 2). The eventual location of this material often relates to the workplace of the researcher / fieldworker. For example a large proportion of the antiquarian collection was deposited at Manchester University Museum since William Boyd Dawkins worked at the university and became the Professor of Geology. Material from Heath's excavation is now stored at Derby Museum where he was curator. Objects were also transferred to other museums and specimens were swapped to enable curators to enhance their displays. Material from the early excavations might equally be in a private collection which was then donated to a museum on the death of the collector. Tracking the movement of objects and assembling detailed information about the movement of material can help to re-establish the relative context of material.

For much of the collection, associated site archives are generally poor. Records were either not kept during fieldwork or do not survive today. Consequently it is often detail, either on the specimen labelling or annotation on the object itself, which provides the only information about an objects provenance. The use of distinctive labels or a particular system of annotation can often enable a find to be traced to a particular researcher and a particular cave. Magens Mello for example used distinctive octagonal labels approximately 1cm wide with a blue border. During the 1876 excavations in most of the larger caves at Creswell Crags, Dawkins and others used distinctive rectangular labels which were part printed and part hand written. These often provide information to cave provenance. Additional information comes from both pencil and ink annotation applied directly to the specimens. More difficult but also informative is the study of a particular handwriting on labels or applied direct to bone. The detail on the object records a range of information from the identification of the species, the layer description, to the cave or valley complex where the object originated. Pencil annotation on the bone finds and flint artefacts by Leslie Armstrong often provides the only information about the location of an object within the cave stratigraphy. Armstrong used a system of letters and numbers codes to identify the section of the cave, the relative height above the datum and distance into the cave.

3.3 Collection Audit Results by Musuem

A total of 35 museum were visited or corresponded with and the collections assessed. Several of these museums have material divided among different museum departments. The location and recording of the archives is probably not an exhaustive list and more small collections may come to light in the future. However the survey is confident that all major collections were visited and assessed.

This section presents a museum by museum account of the collections. The museums are alphabetically arranged. The survey was carried out using the methodology described in the previous section. This summary information is described under the following subheadings:

Collection History	a brief account of the originator of the collection and how it came to be stored in that location
Collection Archive	the quantity, range and event / site provenance of the collection
Documentary Archive	the quantity and range of documentary material
Storage / Collection Condition	specific statements on the storage and collection condition which supports the assessment rating (Table 4)
Interpretive Potential	specific statements on the interpretive potential which support the assessment rating (Table 4)
Recommendations	a brief statement recommending future work where appropriate

A distinction is made in this summary between 'collection archives', used to define artefacts and ecofacts, and 'documentary archives' used to define any documentary material including photographic and digital data.

Specific information on the collection range and quantity held by a museum and the relative site event is presented in Table 2. In the following account only a general statement on quantity is given which uses the following criteria:

Very Small Collection:	50 or less objects
Small Collection:	100 or less objects
Medium Collection:	Several hundred objects
Large Collection:	Several thousand objects

3.3.1 Bolton Museum and Art Gallery

Collection History

A collection originating from Castleton, Derbyshire as part of the Rooke Pennington Collection after his death in 1887.

Collection Archive

A small collection comprising fauna, flint and quartzite assemblages as well as one piece of amber. Pottery assemblages were present from more recent deposits.

All of the material was excavated during the 19th century and 80% of the collection is only given a general provenance to Creswell Crags with approximately 20% associated with either Robin Hood Cave or Church Hole via 1876 cave exploration labels.

Storage / Collection Condition

Accession codes are currently absent from all of the faunal material although lists drawn up by previous researchers provide a summary of extant material. None of the faunal specimens are uniquely identified. The lithic assemblage have accession numbers but these numbers were not associated with the objects.

The fauna is stored within cut-outs and although a number of the specimens have suffered in the past through drilling and fixing for display all are well protected. All of the stone artefacts are stored in bags with acid free tissue. The bags are unsealed.

Interpretive Potential

Particular specimens which enhance the interpretive potential include juvenile mammoth teeth, a range of antler fragments, hyaena jaws and coprolites. Lithics provide good display objects including long blades, an end scraper, a long blade core, and one long bone javelin with a bevelled end. One flint blade was embedded in breccia.

Recommendations

Uniquely identify faunal specimens and stone artefacts within the collection. Transfer artefacts to self-sealed bags.

3.3.2 Birmingham City Museum

A survey of West Midlands Museums was carried out by the West Midlands Archaeological Collections Research Unit (Watson 1985) and included museums in the counties of Herefordshire, Shropshire, Staffordshire, Warwickshire, West Midlands and Worcestershire. This survey indicated that Birmingham was the only museum holding Creswell material in the West Midlands.

Collection History

The collection at Birmingham developed from two sources. Material was donated from Manchester University Museum from the Dawkins' collection and is therefore 19th century in origin. Material was also donated from the University of Birmingham Medical School although it is not clear how material came to be deposited with either the museum or the medical school.

Collection Archive

A very small collection comprising 19th century excavated material including flint artefacts and fauna. The material is either given general provenance to Robin Hood Cave, Church Hole, and more broadly to Creswell Crags. The fauna was marked with blue painted numbers indicating their origination from the Boyd Dawkins 'P' catalogued collection at Manchester. Further information on provenance may be available through the 'P' catalogues at Manchester (see Manchester Museum below).

The material donated from Birmingham University is a very small flint assemblage from Armstrong's excavation in Mother Grundy's Parlour in 1923. Provenance to this cave was indicated through associated museum label in addition to 'MGP' annotated onto the specimens in pencil. Two of the flints had depth measurements written onto the artefacts in pencil.

Storage / Collection Condition

All material is accessioned and stored in individual bags. The fauna is protected through the bag storage but is not provided with any extra support. Teeth in the collection are starting to laminate.

Interpretive Potential

A small collection with a low visual quality.

Recommendation

Limited handling of the flint artefacts to preserve Armstrong's pencil code and carry out minor treatment on the teeth specimens.

3.3.3 Brew House Yard Museum, Nottingham

Collection History

Material entered Brewhouse Yard in 1972 during the reorganisation of Nottingham City museum service. Only a small amount of documentation was associated with the collection when it was transferred.

Collection Archive

A small collection comprising mainly quartzite and flint artefacts with a small quantity of breccia, bone and pottery. The pottery includes Medieval and Roman sherds.

Information on provenance is general to a particular cave, with approximately 50% of the collection provenanced generally to Creswell Crags. Site association is indicated through pencil annotation on the artefacts and also fixed labels including Mello's blue octagonal labels.

Storage / Collection Condition

A well curated and stable collection. All of the collection is registered with accession numbers assigned to each object. Each item is stored individually in small plastic bags. Nottingham Museum Service are currently upgrading their computerised collection database.

Interpretive Potential

Good example of blades and a point in addition to quartzite flakes. Upper Palaeolithic blades, quartzite and bone are embedded within breccia.

Recommendations

Replace all open bags with self-sealable bags to safeguard against labels becoming disassociated with objects.

3.3.4 British Geological Survey, Keyworth

Collection History

The collection includes Magens Mello's material from 19th century excavations deposited with the Geological Society in London and moved to Keyworth after the relocation of the Geological Survey headquarters.

Collection also includes a small amount of material labelled 'Stobbs Collection' provenanced to Creswell Crags although a note with this material suggests it may be from Devon (RM Jacobi 1995).

Collection Archive

A small collection of mainly fauna with smaller amounts of flint, quartzite, breccia, stones and sediment. Most of the material is provenanced to Creswell Crags with approximately 50% of the bones

divided among Pin Hole (also referred to as Rock Fissure Cavern), Robin Hood Cave and Church Hole. Provenance is indicated through various sources including the Geological Survey specimen label, Mello's octagonal blue labels, as well as research through cited and figured examples.

Collection also includes 40 faunal specimens from Pleasley Vale. There is no indication of a particular site provenance, a possible location being Vale House cave excavated in 1862 during the construction William Hollins' house. The fauna is generally of large mammals plus a small collection of microfauna.

A small collection of artefacts within the Mello Collection includes quartzite and flint artefacts and possible worked bone.

Storage / Collection Condition

All objects or group of objects are accessioned and easily accessible. The collection is stable even though there is a shortage of space.

Interpretive Potential

Large faunal fragments have some display potential especially gnawed specimens. The quartzite is worthy of display indicating minor flake removals.

Recommendations

Some of the large faunal specimens may benefit from increased support.

3.3.5 The British Museum, Department of Prehistory and Early Europe

Collection History

The British Museum holds several hundred specimens from Armstrong's work at Mother Grundy's Parlour in 1924 (Armstrong Collection). There is also a small quantity of 19th century antiquarian material from Mello and Dawkins's work donated to the museum in the 1870s. This material was donated to the British Museum as part of the Christy collection or was received from individual collectors such as Alan Sturge and Hazzledine Warren in the 1920s and 1950s respectively. A small assemblage of flint and quartzite exist which are not associated with a particular event or site but have a general provenance to Creswell Crags. As part of the collection the museum holds organic artefacts including the art engravings and worked bone.

Collection Archive

A medium sized collection comprising the following:

Armstrong Collection

Stone objects, primarily flint micro-debitage from Mother Grundy's Parlour, as well as quartzite artefacts, unmodified limestone and sandstone. Collection also includes ochre, a small amount of fauna and fish scales, and Holocene material including Iron Age and Post Medieval pottery. Worked and engraved bone accounts for the organic artefact counts.

This material has been thoroughly reordered and sorted. Sorting has included dividing material into context and year where this was known. A little over 50%, was originally boxed as Mother Grundy's Parlour but had no other associated documentation and may have limited research potential.

Pencil and ink annotation on the items records site "M.G.P." followed by a general description of the layer for example "base", "middle", and "top middle". Armstrong also recorded depth measurements within these broad layers. The majority of this collection is not coded directly and can only be generally attributable to Mother Grundy's Parlour.

19th Century Collections

The 19th century excavated collections are small and comprise primarily flint and quartzite assemblages.

Provenance is indicated through Mello labels and Dawkins' annotation displaying 'RHC' and 'R' for Robin Hoods Cave and 'C' for Church Hole. A number of specimens have the 1876 Cave Exploration labels. Provenance to a site can also be traced through the slip catalogues which were completed as material entered the museum.

Documentary Archive

As part of the Armstrong Collection documentary material includes publication illustrations of cave sections and artefacts, a small collection of photographic prints of caves, finds in situ and drawings, plus scraps of notes by Armstrong and Jackson, news paper cuttings, labels, articles, sketch sections by Armstrong for Mother Grundy's Parlour, and photostat copies of articles.

A number of photographs are of 19th century excavations at Robin Hood Cave and Church Hole.

Storage / Collection Condition

The collection is all stable and well stored material either resting on polystyrene/plastazote or in cut-outs.

Registration and cataloguing is through the slip catalogues for the 19th century excavated material and through the Antiquities Register for 1937 for the Armstrong Collection. The Antiquities Register lists material thought important enough to register or figured items with numbers runs 1 to 200. A note in the register describes an 'Unregd. Remainder', largely the micro-debitage from Mother Grundy's Parlour.

All of the documentary archive is individually stored in plastic wallets.

Interpretive Potential

The potential of this collection is enhanced through the organic artefacts, the art engravings as well as the worked bone needle, ivory point and possible marrow probes.

The collection provides wide examples of tool types in flint and quartzite as well as clay ironstone. The ironstone hand axe provides a good visual to the range of material used for making artefacts.

Recommendations

Pencil codes are extremely vulnerable. Minimal handling of this material will ensure that the pencil annotation is preserved.

3.3.6 The Natural History Museum

Collection History

Most of the collection was deposited at the Natural History Museum during the 19th century after it was transferred from Manchester University Museum. It is largely an antiquarian collection with material originally in private collections of Christy and Frank Corner. Corner may have acquired material from Mullins after his excavation at Langwith Basset Cave. The Christy Collection was transferred here from the Department of Prehistoric and Romano-British Antiquities in the British Museum.

In addition to the 19th century material, the museum holds a small quantity of Armstrong's material from Pin Hole and Mother Grundy's Parlour.

The museum is temporarily holding two human specimens, a human mandible from Ash Tree Cave thought to be either Neolithic or Bronze Age and the human skull from Langwith Basset Cave dated to the Iron Age.

Collection Archive

This is a medium sized collection of several hundred faunal specimens from Armstrong's excavation at Mother Grundy's Parlour and Pin Hole. This is an important assemblage containing the largest collection of horse for that period attributed to Mother Grundy's Parlour.

The collection includes a very small number of flint and quartzite artefacts including cores and hammerstones, blades from Robin Hood Cave and two flints, part of the Armstrong Collection from Whaley 2 Rockshelter. The range of material includes coprolites, breccia, and fragments of travertine.

The provenance of the 19th century collection is generally to caves and valley locations. This is largely an undocumented collection and more work needs to be carried out to establish the provenance of the material. A proportion of the Armstrong collection is annotated with pencil location data while most of the Mother Grundy material has no stratigraphic information.

Documentary Archive

Associated with the material was a small amount of archive consisting of a note from Armstrong with details of provenance.

Storage / Collection Condition

The material is mostly stable although storage is cramped with specimens stored two deep in trays. The Armstrong Collection is boxed with very little protection and support. There were some casualties presumably as a result of insufficient storage space. Flaking and cracking were observed on some specimens as they were drying out.

Some material was attached to mounting blocks possibly from past displays and a number of specimens continue to be stored on cotton wool. Some of the microfauna is stored in original tins and match boxes.

Interpretive Potential

A small collection with some notable specimens such as quartzite tools of medium interpretive potential.

Recommendations

The partial curation of this collection is acknowledged by the museum through drawer notes 'this draw contains uncurated or partly curated material with original packaging, labels or documentation'. The recommendation is that the curation of this material is completed and the specimens which are deteriorating are given urgent treatment. The collection would benefit from being transferred to more spacious storage.

As part of work establishing the provenance of the material research should include checking back to the Christy Slip Catalogues to establish site origin.

3.3.7 British Museum (Research Laboratory)

This collection was not visited during this survey.

Collection History

Represents material which was moved to the research laboratory from the Donald Baden-Powell Research Centre as part of a dating programme. The material was never returned to Oxford.

Collection Archive

Collection includes a selection of fauna from Mother Grundy's Parlour (11 specimens) and Robin Hood Cave (12 specimens).

Storage / Collection Condition

Unknown

Interpretive Potential

Unknown

Recommendations

The material be returned to Oxford and incorporated into the core collection.

3.3.8 Buxton Museum and Art Gallery

Collection History

This collection principally comprises the Jackson Collection from Dorothy Garrod's work at Langwith Basset Cave as well as a small amount of Armstrong material from Pin Hole. There is also a small quantity of fauna from 19th Century excavations which was a gift to the museum by Boyd Dawkins.

The museum also holds a large documentary archive as part of the Boyd Dawkins' collection and as part of the Jackson collection.

Collection Archive

A medium sized collection including large fragments of fauna from 19th century excavations generally provenanced to Creswell Crags but with no clear indication of a particular cave site. Pencil marking on this material occasionally records species identification. Includes large fauna fragments.

The Jackson Collection is largely small vertebrates from Armstrong's work in Pin Hole including a large amount of microfauna, bird bones and fish scales. Some of this material has Armstrong pencil plot information. Jackson's material also includes a large quantity of fauna from Langwith Basset Cave. This fauna has ink codes applied to the specimens presumably relating to a generalised stratigraphy. A large part of the Langwith Basset Cave material is badger, suggesting substantial disturbance within the cave and making future interpretation problematic.

Documentary Archive

The documentary archive as part of the Jackson Collection comprises a series of four boxes. The material includes correspondence between Armstrong and others (1939-1946), notes for journal papers, references to donation of material to other museums, notes on find spot location within Pin Hole and Mother Grundy's Parlour, manuscripts, original black and white photographs of Mello's finds from Robin Hood Cave and Pin Hole, 19th century field drawings / sketch sections possibly by Mello, Jackson's notes to the Cave Exploration Committee, copies of figured drawings, newspaper articles, photographs, loose pages from Armstrong's note books including notes for Ash Tree Cave and a series of faunal lists with depth measurements.

The William Boyd Dawkins Collection is contained within a series of 47 storage boxes. These include offprints from publications, correspondence, notes books, newspaper cuttings, and original drawings. For this survey the box 'WBD Box 1. Correspondence 1862-1879 (AccNo 70000-70154) was looked at as this was the time Dawkins was active at Creswell.

Storage / Collection Condition

All the material is well curated. However none of the faunal material is registered and therefore has no unique accession number. All of the material is well stored in acid free tissue and is stable.

The paper archive has been microfilmed providing an effective security copy. All of this archive is well stored and has unique accession numbers which are stored on the museum's database.

Interpretive Potential

The fauna has limited display potential apart from the occasional bone fragment that indicates heavy carnivore predation. The paper archive has greater potential in providing graphic material for displays as well as material for interpreted themes on excavation history.

Recommendations

Catalogue and accession all of the faunal material.

Carry out a detailed assessment of the documentary material content and create security copies.

3.3.9 Cambridge University, Museum of Archaeology and Anthropology

Collection History

This collection includes a small quantity of material excavated by Duckworth and Swainson in 1894, a collection of material from Langwith Basset Cave excavated by Garrod, and a large archive of McBurney's material from Mother Grundy's Parlour.

Collection Archive

The 19th century material from Duckworth and Swainson work comprises a very small collection of seven quartzite fragments and flakes from Robin Hood Cave. Material from Langwith Cave excavated by Garrod in 1924 includes 19 flints, some charcoal samples, stones and some bone.

McBurney's Mother Grundy material from excavations in 1959 and 1960 is a large collection and includes a wider range of material including flint and quartzite, bone (mainly fragments), coprolites, ochre, stones, sediment, charcoal and hazel nut samples, pottery, metalwork, hematite and glass. Quantification of this archive (Table 2) is based on previous assessments and cataloguing of material only from unambiguous contexts (R.M. Jacobi personal index).

The material was associated with excavation metal find tags which record site code, bag number, level information in spits, and other measurements. The collection has been sorted into context groups, separating material which is mixed / ambiguous from material from unmixed contexts and contexts without recent material. Also material from an unknown excavation year has been isolated.

In addition to the bag labels, individual finds are annotated with pencil information recording site, year and bag reference. Some pencil codes have been written over in ink.

Documentary Archive

This includes a range of field plans and sections written in pencil on trace paper and graph paper. There is also series of inked plan and section copies. The sections and plans indicate location of trenches and layers with layer codes. Some of field plans have been amended with red pencil crayon.

Paper archive also includes a selection of assorted slides and papers. Slides include general views of the Creswell gorge and caves as well as in situ finds.

Storage / Collection Condition

All of the archive has museum accession numbers generally applied to object groups. Subsequent to the material entering the museum this archive has been thoroughly sorted. Post-it notes are used to label individual groups. This separation into groups needs to be preserved and to make these non-permanent post-it labels more permanent by introducing a further hierarchy onto the accession codes on the boxes. Some of the subdivision labels are written in biro on the bags which will fade in time.

The storage is cramped and although much of the McBurney material is small it is still vulnerable especially more fragile objects such as the snail assemblages.

The McBurney field archive is either stored rolled on open shelves or folded in large brown envelopes. Folding has caused the plans to be creased and may lead to damage and loss of information.

Interpretive Potential

Generally a low interpretive potential, the collection consisting mainly of small objects.

Recommendations

Rehouse plans in either upright or flat plan chests or rolled in sealed containers and create a security copy of the paper archive if this does not exist. Also transfer the photographic archive to appropriate archival storage and index.

3.3.10 Cambridge University, Department of Bio-Anthropology

Information concerning this collection came from earlier research and was not assessed during this study.

Collection History

How material came to be stored within this department is unknown.

Collection Archive

This is a small collection of human bone from two sites excavated by Leslie Armstrong. There are about twelve specimens altogether, six specimens are from Sepulchral Cave in Markland Grips and six from Ash Tree Cave in Burnhill Grips.

Storage / Collection Condition

Unknown

Interpretive Potential

Unknown

Recommendations

None

3.3.11 Chesterfield Museum

This material was not visited. Information was obtained through personal communication with the curator.

Collection History

Unknown collection history.

Collection Archive

Consists of one bone of unknown provenance.

Storage / Collection Condition

Unknown

Interpretive Potential

Unknown

Recommendations

None

3.3.12 Cliffe Castle Museum, Keighley

Collection History

All of this material is from the 19th century excavations. The collection was initially deposited at Bradford and then reacquired in the 1930s at Cliffe Castle. The material may have been given to William Cudworth in the early 1900s who possibly knew Mello.

Collection Archive

A small collection of approximately one hundred objects ranging from mainly fauna to a small collection of flint and quartzite and two fragments of breccia. There is also a small amount of Romano-British and Medieval pottery.

Most of the material is provenanced to a particular cave but with very little further stratigraphic information. Labels adhering to the specimens record site origination. These labels have a small ink

'M' in the top right hand corner which may indicate Mello. The majority of the flints were annotated directly in pencil which describes the cave and a general stratigraphic horizon such as 'cave earth', 'breccia' etc.

Storage / Collection Condition

All objects or groups of objects are accessioned and well curated resting on bubble wrap for support. All specimens were stable apart from one piece of antler which required conservation.

Interpretive Potential

The quartzites provide opportunities to display the use of varied raw materials. Also the specimens of breccia are good examples displaying in situ bones and flint artefacts.

Recommendations

In addition to the conservation requirement on the antler, the pencil annotation is extremely vulnerable. This study recommends that the collection is handled as little as possible and that a full photographic and descriptive record be taken of the items which have these annotations.

3.3.13 Cork University Museum

Collection History

Material at Cork University was possibly deposited at Queen's College, Cork via Leith Adams (Professor of Geology) who may have known Boyd Dawkins (Peter Woodman pers comm.). During this survey only the lithic artefacts were seen while they were on temporary loan at Oxford.

Collection Archive

A very small collection of artefacts and fauna, the majority provenanced to Church Hole, Creswell Crags indicated through 1876 Cave Exploration labels and annotated with 'C' for Church Hole.

In addition to the flint and quartzite artefacts, the collection included 9 casts of artefacts including one cast of a specimen from Robin Hood Cave where the original is no longer extant.

Storage /Collection Condition

All artefacts are individually accessioned through University College Cork numbers and individually bagged with associated University College Cork labels.

Interpretive Potential

The range of quartzites makes this an important collection with potential for displaying these very early Mousterian assemblages.

Recommendations

None

3.3.14 Creswell Crags Museum and Education Centre, Creswell Crags

Collection History

Material includes a small collection of 19th century excavated material from Robin Hood Cave, Campbell's lithics and fauna from Mother Grundy's Parlour and Robin Hood Cave and Jenkinson's large faunal collections from Pin Hole, C22 and C23, and Robin Hood Cave. George White donated his lithic assemblage from Thorpe Common to the Centre The remainder of the collection is either a series of chance finds as well as sporadic collections recovered by various people and donated to the Centre from the 1950s onwards.

Collection Archive

These are very large collections comprising mainly several thousand microfaunal specimens. The majority of this material was recovered during the most recent excavations at Creswell on sites like Robin Hood Cave, Pin Hole and C22 / C23.

The Centre also stores a large collection of artefacts. The majority from George White's excavation at Thorpe Common Rock Shelter where over 2000 items were recovered. Smaller artefact collections include several hundred flints and a few quartzites from Campbell's excavation in Robin Hood Cave and Mother Grundy's Parlour, as well as a very small collection of artefacts from the 1970s and 1980s excavations

In addition to the bone and artefact material, Creswell Heritage Trust store a large sediment archive at Whaley Thorns Heritage Centre. This includes sediment primarily from Pin Hole and also sediment samples from Robin Hood Cave, Thorpe Common Rock Shelter, Dog Hole Fissure and C22 / C23. The Pin Hole archive also includes samples for pollen analysis, palaeomagnetic research and sediment micromorphology.

Documentary Archive

The Pin Hole archive has recently been sorted, ordered and indexed and includes day books, detailed plans, find books and a photographic archive. This material is microfilmed and security copies exist for the photographic material.

Supporting the other collections are a series of 12 illustration folders containing bromides from various field events at Creswell Crags and other sites in the Heritage Area, photographic prints, note books containing datum information from cave surveys carried out in the early 1980s, a large unquantified collection of plans and section drawings from the 1980s research, an indexed slide catalogue mainly of publication illustrations but also containing slides from previous fieldwork in Dead Mans' Cave and Robin Hood Cave.

Storage / Collection Condition

Collection Archive

All of the collections are accessioned either by object or group of objects and all are supported through a manual card index. Creswell Heritage Trust have recently developed a computerised collection management system which will replace the manual system.

The lithic material is often stored together for example Campbell's lithic collection grouped by context within sealed bags. This storage will cause fresh flaking of the artefacts. In some instances fauna and lithics are stored together which will eventually lead to the damage of the bone material.

For the majority of the collection there is no additional support within the storage containers.

Metalwork is badly corroded and is currently stored on cotton wool.

Apart for Pin Hole, none of the sediment archive at Whaley Thorns Heritage Centre is sorted or indexed.

Documentary Archive

The assessment score reflects the broad range of storage conditions. None of the documentary material apart from Pin Hole is indexed other than the photographic slide archive.

The illustration archive folders and the note books are all stored on open shelves and the plans are either rolled on open shelves or are stored rolled and upright in a box. This is causing the plans to crease and tear which may lead to a loss of information.

Interpretive Potential

Specific lithic objects have particular display potential including quartzite and flint artefacts. The artefacts from Dead Man's cave are particularly noteworthy Upper Palaeolithic artefacts.

Recommendations

Remove bagged lithic assemblages to individual sealed bags to prevent fresh flaking.

Provide additional support to fauna within containers, preferably within cut-outs.

Monitor condition of metalwork and move to appropriate storage.

Create index for sediment archive at Whaley Thorns.

Produce index lists of documentary archive.
Create security copy of prints and excavation archive transparencies and store independent of the Visitor Centre presentation slides.
Remove plans to upright or flat storage.
Microfilm archive.

3.3.15 Derby Museum and Art Gallery, Derby

Collection History

The majority of the material at Derby Museum originated through Thomas Heath's involvement at Creswell Crags while he was engaged in excavations with Mello in the 19th century. This material was accessioned by the museum in 1915 after being examined and classified by R.A. Smith at the British Museum in 1912. Other material came into the museum in 1921 from a private collector. Finally Armstrong donated flint and quartzite assemblages in 1933 from Pin Hole excavations in 1926.

Collection Archive

This is a medium sized collection largely of fauna as well as a very small assemblage of flint and quartzite artefacts. Approximately 95% of the material has only general provenance to Creswell Crags, a small amount linked to Church Hole and Robin Hood Cave through 1876 cave exploration labels and annotation of a faint ink 'C' for Church Hole.

The lithic artefacts from the 19th century excavations include blades, awls, burins, quartzite flakes.

In addition to the Heath Collection, a small quantity of fauna and quartzite are part of material deposited by Armstrong. Flint material deposited by Armstrong cannot be located today and may have been transferred to Manchester Museum. The quartzite has Armstrong pencil plot data which is repeated in ink. The collection also includes a piece of breccia with embedded bone.

Storage / Collection Condition

All of the collection is accessioned and accessible. The lithics are all individually stored in plastic bags and the fauna is given extra protection with bubble wrap.

Interpretive Potential

The lithics provide good display items including long blades with retouch as well as a quartzite chopper tool.

The fauna represents some of the best preserved large faunal specimens which have been variously chewed. Also juvenile mammoth molars have good display potential.

Recommendation

None

3.3.16 Dick Institute, Kilmarnoch

Collection History

A very small collection of fauna donated to the Dick Institute by Peter Wright of Prestwick in 1911. There is no other information associated with the material although there is an assumption that the collection is part of 19th century excavated material. Jenkinson (1984) suggested that this material may have been part of Robert Laing's collection from Robin Hood Cave or Dog Hole which has never been found. Apart from a Scottish connection there is nothing to support this idea.

Collection Archive

A collection of 41 pieces of fauna including remains of deer, sheep, rhinoceros, horse and hyaena. These are all only generally provenanced to Creswell Crags with no detail to event or specific cave.

Storage / Collection Condition

All of the material is catalogued to three group references. This is now available on a computerised index.

Material has evidently suffered in the past. Stress fractures on the material are old. The material is not stable with clear signs of flaking. Also one item looked like it had been burned. Severe fractures were evident on the rhinoceros teeth which had been stuck back together.

Some specimens are stored in undersized boxes causing them to rub together which may cause further flaking and damage. Cotton wool is used for support.

Interpretive Potential

All specimens appear to be heavily mineralised and are fairly large fragments with clear signs of gnaw marks. These have good display potential.

Recommendations

The material would benefit from being transferred to appropriately sized storage and provided with adequate support with bubble wrap or plastazote cut-outs.

Individual reference accession codes should eventually be applied to the specimens.

3.3.17 Dorman Museum, Middlesborough***Collection History***

Collection donated to the Dorman Museum by Armstrong in 1928.

Collection Archive

Collection comprises one chipped quartzite pebble from Pin Hole. No other information is associated with the find.

Storage / Collection Condition

The artefact is adequately stored.

Interpretive Potential

Not a visually attractive item.

Recommendation

None

3.3.18 Edinburgh University, Department of Archaeology***Collection History***

The department of archaeology have in their teaching collection one quartzite pebble. There is no associated documentation to suggest how the item came to be stored here.

Collection Archive

One chipped quartzite pebble, possibly worked. The ink code on the item may suggest that this piece of quartzite originated from Pin Hole as part of the Armstrong Collection.

Storage / Collection Condition

The artefact is adequately stored.

Interpretive Potential

Not a visually attractive item.

Recommendation

None

3.3.19 Harris Museum, Preston

Collection History

This is a small collection which has entered the museum through an unknown source, the museum catalogues recording 'Museum Collection' and not specifying the donor. One possibility is that the collection has some connection to the Weld Collection although there is nothing to support this.

Collection Archive

A very small collection of material from Robin Hood Cave including 3 flints, 2 quartzite flakes and 1 bone. The objects are presumably material from 19th century excavations.

Storage / Collection Condition

All accessioned, accessible and stable.

Interpretive Potential

Collection has a low interpretive potential.

Recommendations

None

3.3.20 Ipswich Museum

Collection History

This collection was possibly deposited at Ipswich during the 1920s at the bequest of N.F. Layard.

Collection Archive

The collection comprises three modified and three unmodified quartzite flakes and four flint flakes of unknown provenance. A fragment of limestone and one coprolite are also among the collection as well as one possible fragment of bone.

Storage / Collection Condition

Unknown

Interpretive Potential

Collection has a low interpretive potential.

Recommendations

None

3.3.21 Liverpool Museum

Collection History

A small collection of fauna deposited by J.W. Jackson.

Collection Archive

A very small collection of twenty eight fragments of fauna including microfauna. The majority of material has only a general provenance to Creswell Crags apart from three specimens which are associated with Pin Hole.

Storage / Collection Condition

All accessioned, accessible and stable.

Interpretive Potential

The collection has a low interpretive potential.

Recommendations

None

3.3.22 Manchester University Museum, Department of Archaeology and Department of Geology

Collection History

Manchester University Museum holds the largest collection of Creswell material. William Boyd Dawkins was initially curator at the museum and then Professor of Geology at the university and consequently much of the excavated material from the 19th century is stored there.

J.W. Jackson was curator of the museum in the early 1920s and his links with Armstrong led to a large part of the Pin Hole collection eventually being stored at Manchester along with material from Markland Grips, Ash Tree Cave and Yew Tree Shelter.

The collection is divided between the Archaeology and Geology Departments.

Collection Archive

The largest collection of material from Creswell of over 15,000 items and representing a wide range of objects. Fauna makes up the majority of the collection approximately 2700 specimens as part of the 19th century excavated material from Church Hole, Mother Grundy's Parlour, Robin Hood Cave, The Arch Cave, and over 15,000 specimens from Armstrong's work in Pin Hole with lesser amounts from Yew Tree Shelter.

Of the artefact collection, over 450 flint / quartzite artefacts were excavated during the 19th century, more than 300 of these only generally provenanced to Creswell Crag, the remainder from Church Hole, Mother Grundy Parlour, and Robin Hood Cave. Armstrong added more than 300 flint / quartzite artefacts to this total from Pin Hole and Yew Tree Shelter.

In addition, the collection includes chert and ironstone artefacts, organic artefacts, breccia, charcoal samples, marine cowry shell, travertine, stones, pottery, metalwork and glass from the range of sites.

Establishing the provenance of this material relies on the associated catalogues ('P' catalogue numbers and 'LL' catalogue numbers) as well as the 1876 Cave Exploration labels and annotated specimens including Armstrong's pencil plot information. In a number of instances Armstrong's pencil codes were repeated in ink although this study observed differences between the pencil and ink records. This places great importance for preserving all annotated records, especially the pencil codes that are very vulnerable.

Documentary Archive

The Dawkins Archive

Within the Geology Department a paper archive exists that includes Dawkins diaries 1864-1912, Dawkin's note books 1876-1913, copies of published papers, lecture notes and letters.

Dawkins' diaries which total 55 are very difficult to read and often provide information about Dawkins' travels as he moved around the world. The diary that covers the period of excavation at Creswell simply records "worked at Creswell Caves".

In addition to diaries are a series of 77 note books. These are difficult to read. A short index for these makes no reference to Creswell. These note books would benefit from more detailed study.

Armstrong Archive

Within the Geology Department associated documentary material from Armstrong and the Pin Hole material includes correspondence, manuscript and printed reports, research and analytical results, and drawings of specimens. In addition the Archaeology Department stores Armstrong's register of finds which is very patchy and only records a small fraction of finds actually recovered.

Content relating to Armstrong's work includes a summary of material received by the museum, correspondence between Armstrong and the museum and other specialists, research plotting of Armstrong finds, black and white and colour photographs of Armstrong, views of caves, and in situ finds, manuscript reports and reports to the Committee, a plan of Creswell gorge and caves and ink illustration drawings.

The archive includes a fairly large photographic archive. Largely black and white, these images may hold some important information as they indicate excavated specimens in situ and Armstrong at work in section 'C'.

Also part of the archive are Armstrong's note books for Pin Hole and Mother Grundy's Parlour. These note books include possible descriptions for Cave 7 and Cave 8 on the north side of the Creswell gorge. The content of these books provide day to day accounts of excavation, description of layers and rough location of finds as well as sketch sections and plans. Often the content is difficult to decipher.

Storage / Collection Condition

Collection Archive

In the Geology Department the fauna is stored in a purpose built store with environmental controls. The majority of the collection is stable. Storage within the store is in plywood drawers arranged by site. None of the material is within cut outs, bone usually resting on the draw base.

The majority of the faunal material specimens are not individually accessioned. The accession register for the Creswell material are the 'P' catalogues where accession entries include an object or groups of objects. In the region of 600 entries are made for Creswell in the 'P' catalogues only therefore representing a small proportion of what actually exists. The catalogue numbers are painted in blue paint on the specimens. To add to the confusion Dawkins occasionally grouped cave sites within the register and instances are known where the locality references in the register is different to that annotated on the specimen (Simon Riley pers comm).

Work on re-numbering this material under the direction of Rogan Jenkinson at Creswell Crags Museum and Education Centre in the 1980s, using a code system which could be applied to the Creswell collection across museums, was never complete. Further, this study recorded instances where the new numbering system was now detached from the objects and in certain instances the new code was applied in biro and was now unreadable.

Within the Archaeology Department the artefacts are stored in archive quality boxes. A computerised catalogue system supports the majority of the objects which have unique identifiers. Objects are individually stored in sealed bags with associated museum labels.

Documentary Archive

For Dawkin's archive a summary index is available for this material. Although the material is stable the storage conditions in Geology are cramped and the archive would benefit from a transfer to archive quality storage and a security copy created.

For Armstrong's archive, the majority is in the Geology department with a small amount in Archaeology. No comprehensive index exists for this material.

In Geology the archive is stored in similar storage to the Dawkins material and the same comments apply. This material also includes a number of photographs which would benefit from being separated and transferred from their brown paper envelopes to individual archive quality wallets.

Interpretive Potential

The documentary archive has a high potential for display, notably the photographic record, as well as the correspondence. Also diary entries provide opportunities to bring action into the work at the time.

The range and quality of the ecofact and artefact collection at Manchester make this one of the most valuable for display and interpretation. The flint and quartzite artefacts provide an unparalleled range of tool types including diagnostic artefacts that are not repeated in any of the other collections. The fauna also provides excellent examples of the large mammals with strong evidence for carnivore

predation. Also the range of material including egg shell, coprolites, breccia with flint and bone attached provide a wealth of potential display items.

Recommendations

Documentary Archive

The ink in the 'P' catalogues is fading and would benefit from a security copy and a duplicate copy to cut down on handling.

It would be useful if there was a comprehensive index for all of the Armstrong and Dawkins' documentary archive. Although the detail and potential usefulness of this material may be limited the note books need transcribing and a much more detailed assessment made. The photographic archive would also benefit from security copying.

All of the documentary archive collection would benefit from rehousing in less cramped archive quality storage.

Collection

This study recommends that detailed catalogues are created for all extant material including the creation of unique accession numbers for currently non accessioned items and which are cross referenced to the previous 'P' number series. During the cataloguing, recording all annotated information associated with the collection would be invaluable as a future research tool.

Although most of the material appeared stable some specimens showed signs of stress and may need conservation treatment in the near future. Some support may be required within the drawers.

3.3.23 Mansfield Museum

Collection History

Unfortunately there is no information associated with the collection to suggest how the material entered museum.

Collection Archive

A very small collection consisting of 19 pieces of fauna and 1 stalagmite. There is no associated documentation suggesting donor or site provenance.

Storage / Collection Condition

None of this material is individually accessioned but are stored together in one box, each item surrounded in tissue which provides them with support.

All specimens were stable although some of the teeth were displaying signs of splitting. Teeth were also becoming detached from jaws.

Interpretive Potential

The collection is of low visual quality.

Recommendations

Accession and uniquely identify each item and provide additional support for the fauna. Monitor the teeth and carry out conservation treatment if necessary.

3.3.24 Mercer Art Gallery, Harrogate

Collection History

A small collection donated to the gallery by Leslie Armstrong.

Collection Archive

A very small collection comprising 7 pieces of fauna. All specimens were annotated with Armstrong's location references, 6 items provenanced to Pin Hole, one originating from Mother Grundy's Parlour.

Storage / Collection Condition

All specimens are stored in cut-outs, are stable and individually accessioned.

Interpretive Potential

The material compared with other collections has a low visual quality for interpretation.

Recommendations

None

3.3.25 National Museum of Scotland, Edinburgh, Department of Archaeology

Collection History

A small collection possibly donated to the museum by the Reverend R.K.D. Horn, the minister of Corstorphine in the 19th century.

Collection Archive

A very small collection of 8 fragments of fauna, 5 flint artefacts and miscellaneous material including bone, glass and pottery. The latter possibly Romano-British in age.

There is no indication as to the provenance of this material other than Creswell Crags.

Storage / Collection Condition

All of this material is registered, accessible and stable.

Interpretive Potential

The collection is of low visual quality for interpretation.

Recommendations

None

3.3.26 Nottingham University, Department of Archaeology

This material was not seen during this survey although the material has been studied by Roger Jacobi in the past. A list of extant objects is held at Wollaton Hall Natural History Museum.

Collection History

The material is of unknown origin although the date of 1926 when the material was collected is contemporary with the activity of Armstrong in the area.

Collection Archive

A very small collection of 47 specimens provenanced to Steetley Wood Cave.

Collection / Storage Condition

The current condition of the collection is unknown although previous access to the material identified that all specimens were stored in one box without additional support. All of the material had been conserved with PVA.

Interpretive Potential

The collection is of low visual quality for interpretation.

Recommendations

This is a split collection and subject to suitable accommodation, the study recommends that this material be reunited with the Steetley Wood Cave specimens at Wollaton Hall. Although the condition of the collection is unknown additional support of the material would safeguard its survival.

3.3.27 Oxford University, Museum of Natural History

Collection History

This collection was deposited at the museum after 19th century excavations at Creswell Crags and early 20th century excavations at Langwith Basset Cave. Also included is a small amount of material from Armstrong's excavation in Pin Hole.

Collection Archive

The collection comprises a small amount of fauna from Creswell Crags with approximately 50% of this material generally provenanced to Creswell, the remainder associated with Church Hole, Robin Hood Cave and Pin Hole through attached 1876 Cave Exploration labels.

The artefact collection includes 46 quartzites from 19th century excavations at Creswell as well as 23 flints from excavation by Rev. Mullins' at Langwith Basset Cave. The quartzite artefacts include whole pebbles as well as half pebbles or flakes.

Information on provenance for the Langwith cave material includes direct annotation labels, 16 specifically provenanced through a variety of labelling including 'Langwith Cave', 'Langwith C', 'Langwith Cutting' and simply 'Langwith'.

Storage / Collection Condition

None of the faunal material is registered and accessioned to item but only given group 'Q' numbers by draw. All of the lithic material from Langwith Basset Cave have individual accession numbers.

Most of the fauna is stable. Some are displaying signs of stress fractures and are flaking. One rhinoceros tooth has split.

Interpretive Potential

Some of the Langwith Basset cave lithics are of high visual quality and help to enhance the group value of Upper Palaeolithic assemblages within the Creswell area.

Recommendation

Develop accession numbers to individual items within the faunal and lithic collections. The fauna would benefit from increased support, especially the large bone fragments, as well as minor treatment of vulnerable specimens.

3.3.28 Pitt Rivers Museum, Donald Baden-Powell Quaternary Research Centre, Oxford

Collection History

The collection at the Pitt Rivers Museum was donated by John Campbell following his excavations at Robin Hood Cave and Mother Grundy's Parlour in 1969.

Collection Archive

This is a large collection comprising fauna from both Robin Hood Cave and Mother Grundy's Parlour, unmodified and/or heated quartzite from Mother Grundy's Parlour. The total quantity of fauna indicated in Table 2 has been recovered from index cards developed by Roger Jacobi and only represents material from secure contexts. This material is largely small bone fragments.

Both cave collections include Holocene material including glass, metalwork and pottery.

Documentary Archive

The documentary collection includes a find catalogue book, which records lithics and fauna recovered during excavation, and a roll of plans and section drawings. The drawings include 5 section drawings indicating stratigraphy, layer description, find spot and pollen sample distribution. Four of these sections are from Robin Hood Cave and one for Mother Grundy's Parlour. One drawing also exists showing a contour plan outside Robin Hood Cave and the excavation trench location. All of the drawings were created in the field with pencil on graph paper.

Storage / Collection Condition

The excavation archive is group accessioned and apart from the original finds catalogue there are no detailed accession lists or indexes.

The ecofact and artefact collections are stored in a series of plastic bags, some of which appear to be the original find collection bags. Each bag is tagged with a metal strip which records the site code, date of collection, the grid square, the layer code and the spit number. This material has been thoroughly sorted into specific context groups and placed within respective sealed bags.

Most of the fauna is small bone fragments although a number of larger specimens are present. The larger ecofact fragments displayed signs of stress possibly due to drying out. The metalwork is corroding.

All of the plans are currently rolled and stored in a sealed tube.

Interpretive Potential

The collection has a low interpretive value.

Recommendations

Develop the finds index for all of the archive and cross reference this to the find catalogue. The collection would benefit from sorting and in particular separating specific material types such as the metalwork and carrying out work to stabilise and conserve this material.

The plans would benefit from flat storage in either flat or upright plan chests. If a security copy does not exist one should be made and stored off site. Ideally all documentary archive should be microfilmed and copies supplied to the National Monuments Record.

3.3.29 Rochdale Museum

Information on the collection at Rochdale was obtained through correspondence.

Collection History

The material was entered into the accessions register in 1909 as part of the Law Collection. The register records 'Palaeolithic knives from cave. Creswell Crags.1882'.

Collection Archive

This is a very small collection comprising just two flint artefacts. Previous research has indicated that only one of the large flint blades is extant.

Storage / Collection Condition

Storage and collection condition are unknown.

Interpretive Potential

The interpretive potential is unknown.

Recommendations

None

3.3.30 Rotherham Museum

Collection History

Part of the collection initially entered the museum as a gift from Armstrong in 1931, the remainder of material was donated by a private collector in Sheffield in 1932. In 1980 the collection was loaned to Creswell Crags Museum and Education Centre in 1980. According to museum records the collection was never returned to Rotherham apart from four pieces of fauna which were returned for their displays.

Collection Archive

A very small collection comprising two fragments of reindeer antler from Pin Hole and two teeth from Church Hole.

Storage / Collection Condition

All items are accessioned, accessible and stable. The collection is attached to display boards.

Interpretive Value

The collection has a low visual quality for interpretation.

Recommendations

The material would benefit from being removed from the display boards and transferring to suitable long term storage.

3.3.31 Royal College of Surgeons, London

This material was not viewed as part of this study but had been seen previously.

Collection History

Unknown

Collection Archive

Correspondence between the Rev. Mullins and Sir Arthur Keith regarding the excavation in Langwith Cave.

Storage / Collection Condition

Storage and collection condition are unknown.

Interpretive Value

The interpretive value is unknown.

Recommendations

None

3.3.32 Sedgwick Geological Museum, Cambridge

Collection History

This is a small collection deposited by Duckworth in the 19th century as well as material from other collectors.

Collection Archive

A very small collection of mainly fauna (small bone fragments) generally provenanced to Creswell Crags but possibly from Ossiferous fissure. Collection includes one piece of breccia from Ossiferous fissure.

Storage / Collection Condition

The majority of the material is stored within plastic bags although there is no unique accession number for individual specimens. The collection is stable and accessible.

Interpretive Potential

A collection with low visual quality and therefore low interpretive potential.

Recommendation

Complete the index and accession individual specimens.

3.3.33 Sheffield City Museum, Department of Archaeology

Collection History

This is a large collection that has entered into the museum at various times from excavations carried out at Ash Tree Cave, Whaley 1 Shelter, Whaley 2 Shelter, Pin Hole, Boat House Cave, Robin Hood Cave, Yew Tree Shelter, Sepulchral Cave in Markland Grips, as well as material given a general provenance to Markland Grips gorge and Creswell Crags gorge.

Collection Archive

A large collection from various sites:

Ash Tree Cave

Material from Ash Tree cave was excavated by Leslie Armstrong in the 1930s and Charles McBurney in 1959/60. McBurney's archive was transferred to Sheffield from Cambridge in 1990.

The collection includes a wide range of Pleistocene and Holocene material including fauna (including small mammals), human bone, stones/pebbles, flint and chert, quartzite flakes and pebbles, pottery, glass, molluscs, charcoal samples, sediment, breccia. The largest proportion of the material is bone which includes many small bone fragments and a small number of larger specimens.

Whaley 2 Shelter

Material from Whaley 2 Shelter was excavated by Armstrong and Court in 1937 and later Radley in 1967.

The collection includes Pleistocene and Holocene material including fauna, a large quantity of patterned Neolithic and Bronze Age pottery, human bone, flint, shell, sediment and charcoal samples.

Pin Hole

This Pin Hole collection was excavated by Armstrong in the 1920s and includes a small collection of principally flint in addition to chert, fauna, travertine and stones.

Creswell Crags and other sites

The collection associated with Creswell Crags consists mainly of flint and quartzite specimens recovered during excavations both in the 19th century and 20th century. The majority of material is only given a general provenance to Creswell Crags although a small quantity of material is provenanced to Boat House Cave, Robin Hood Cave and Yew Tree Shelter.

Markland Grips

A small collection of fauna and human bone from Sepulchral Cave as well as Markland Grips generally.

Maltby Wood

Two flints recovered from Maltby Wood but with no other provenance information.

Documentary Archive

Armstrong Collection

Sheffield hold the large majority of Armstrong's paper records. This includes field 'note books' for Markland Grips, Bone Cave, Mother Grundy's Parlour, Whaley Cave, Yew Tree Shelter, Whaley Shelter, Boat House Cave, letters, black and white photographs, drawings, newspaper cuttings, plans and sketch sections on graph paper, lists of finds, and manuscript reports.

The note books provide plans and sketch sections and notes from Armstrong's fieldwork giving general information. Approximately 70 black and white photographs are extant which give general views of caves and sections as well photographs of in situ finds.

McBurney Archive

This archive was created during excavation carried out in Ash Tree Cave in 1959/60 by McBurney. The documents consist of one box file, one cardboard folder of large photographs and one roll of plans.

The box file contains field notes, catalogues, reports, breakdown of fauna by context, letters, research notes, journal articles, black and white photographs. The roll of plans include 19 plans on graph paper and 5 on film and 1 on tracing paper. These provide a range of section drawings of the various trenches.

The Radley Paper Archive

This is a small paper archive comprising letters, manuscript reports for Whaley Shelter, black and white prints of Whaley 2 excavations, publication drawings, rough notes, pencil plans of Whaley 2, and a find note book.

Storage / Collection Condition

All of the collection archive has been group accessioned. These apply usually to object groups contained within original fieldwork storage cartons which comprises original tobacco tins and matchboxes. The accession information has been computerised.

Ash Tree Cave

The collection from Ash Tree cave has been partially sorted into groups within sealed bags as part of recent research projects. The Armstrong material is less well sorted and needs further attribution although detailed provenance information for Armstrong's collection is not as complete compared with the McBurney, West and Riley collections. Research notes associated with the collection suggest that material has been mixed with for example specimens marked 'Boat House' having been removed from Armstrong's Ash Tree collection and that the Ash Tree material has been mixed and confused with Whaley 2 material.

All Armstrong material with plot data has been separated. Unfortunately previous work separating the material has used biro to label the bags, writing that will eventually fade. Sticky labels applied to the bags are also starting to fall off eventually with the loss of associations with earlier work where relevant. What is clear from this labelling is the need for caution with groups of objects tagged as 'ambiguous'. A proportion of the archive is still stored within original tobacco tins, match boxes and occasionally wrapped in newspaper. Material within the tins is often loose with no support.

Associated with some of the collection are original labels by Armstrong. These labels are currently unprotected and in direct contact with sediment and charcoal samples. The information on the labels will eventually fade leading to the loss of that information.

Whaley 2

Some of this material has been sorted although most of the archive looks like it has just come off the site and is within its original containers comprising largely original tobacco tins and match boxes with no protection apart from a proportion wrapped in 1940s newspaper. Some material is stored in cotton wool. The tobacco tins are generally rusting and need to be replaced.

The material types are often mixed with stone and bone stored together. This has maintained the contextual association but is causing bone material to degrade and lithic material to re-fracture.

The sediment samples remain stored in brown paper bags.

Whaley 1 Shelter

The comments for Whaley 2 also apply here. Also notes associated with the collection suggest that this may not all be Whaley 1 finds.

Pin Hole

A small collection accessioned by group and stored in sealable bags. The material includes Armstrong pencil plot data, sometimes repeated in ink, providing detailed provenance information within the cave. All of the material is stable.

Creswell Crags and other sites

All of this small collection is stable and stored in sealed plastic bags.

The documentary archive is supported with an index and is stored in a series of box files. The notebooks are stored in brown paper envelopes. This survey noted that pencil within some of the notebooks is beginning to fade and although they have been transcribed there is some discrepancy between the transcriptions and the originals.

Some of the plans were folded which has caused them to crease leading to some of the detail on the plans fading. Other plans were stored rolled and would benefit from flat storage either in flat or upright plan chests to prevent edges from ripping and fraying more than at present. Also some of the pencil on the plans is beginning to fade. Where adhesive tape has been used this is now starting to coming away and a more permanent solution should be found.

Interpretive Potential

The Ash Tree Cave collection includes flint blades, clay ironstone artefacts, quartzite flakes which demonstrate use of a wide range of material. Ash Tree Cave and Whaley Shelters include human bone and decorated Neolithic / Bronze Age pottery which could be used for a display on cave burial on the Magnesian Limestone.

Flints from Whaley 2 are highly visual artefacts.

Recommendations

If a security copy does not exist for the documentary archive this must be a priority especially as some of the pencil is beginning to fade. The black and white photographic archive would benefit from being stored in archival quality storage and where appropriate security copies taken.

The collection archive requires sorting and detailed indexing.

Specific recommendations for research include prioritising research on the human material from Ash Tree Cave.

3.3.34 Sheffield City Museum, Department of Natural History

Collection History

The Natural History department holds various collections from 19th century excavated material from Creswell Crags in addition to a collection of fauna excavated by Leslie Armstrong from Pin Hole. Of the 19th century collections, specimens have been derived from the work of Mello and Dawkins in addition to a small collection purchased at an auction at Covent Garden in 1903, a small amount of fauna collected by the Rev.J.S. King, and a small collection from Upton, originally provenanced to Pin Hole.

Collection Archive

Overall this is a medium sized collection of over 700 specimens. The material, principally fauna, has been derived from various caves at Creswell Crags (Table 2). The Department's catalogue records indicate 15 flint artefacts as part of the Dawkins material which were not extant among the fauna and may have been transferred to the Archaeology Department.

Specimens are provenanced via 1876 Cave Exploration labels as well as Mello's blue octagonal labels. Much of Armstrong's Pin Hole material has pencil plot information annotated onto the specimens. A note with this collection indicates that additional material not annotated is also from Pin Hole on account of the preservation.

Storage / Collection Condition

All material is accessioned and uniquely identified apart from the Armstrong Pin Hole fauna. The collection is supported by card index and computerised database.

Storage type varied between specimens within cut-outs and specimens still attached with wire to what looked like old exhibition boards. All of the material is stable.

The Armstrong Pin Hole collection is currently stored separately but is to be incorporated with the other vertebrate material shortly. A small amount of this collection is stored within presumably original tobacco tins.

Interpretive Potential

Large bone fragments and some large sections of antler were noted for possible display but apart from these specimens the collection has a low interpretive potential.

Recommendations

All of the specimens would benefit from storage in cut outs. The pencil annotation on the Armstrong collection is extremely important and minimal handling of will ensure that it is preserved.

3.3.35 Sheffield University, Department of Earth Science

Information about this collection was obtained through correspondence only.

Collection History

The material was deposited at the Earth Science department from Manchester University Museum.

Collection Archive

This is a small collection comprising a minimum of 8 pieces of fauna in addition to an unknown number of bones and antler fragments. Most of the material is provenanced to Pin Hole and is part of Armstrong's Collection as well as a smaller amount of fauna from Church Hole and Robin Hood Cave and Creswell Crags generally.

Storage / Collection Condition

Storage and collection condition are unknown.

Interpretive Potential

The interpretive potential is known.

Recommendations

None

3.3.36 Ulster Museum, Belfast

Information about this collection was obtained through correspondence only.

Collection History

A small quantity of vertebrate material was donated to Ulster Museum by J.W. Jackson from Manchester University Museum in 1934.

Collection Archive

This is a very small collection of fauna including mammoth, hyaena, and woolly rhinoceros totalling 9 specimens. Previous enquiry at Ulster revealed that Ulster also held one flint artefact although this was not identified during this survey.

All of the material is generally provenanced to Creswell Crags and not to a particular cave.

Storage / Collection Condition

The storage and collection condition are unknown.

Interpretive Potential

The interpretive potential is unknown.

Recommendations

None

3.3.37 Warrington Museum

Collection History

This is a small collection deposited by Leslie Armstrong at an unknown date.

Collection Archive

The collection comprises one bag of about 300 bone flakes from Pin Hole. Labels associated with the material record the specimens as hyaena debris. Although none of the material is annotated, labels associated with the material demonstrates the link with Leslie Armstrong.

Storage / Collection Condition

All of the bone fragments are stored together in one bag in addition to small stones. The labels are in direct association with the material.

Interpretive Potential

Some of the bone flakes have been severely eroded through carnivore stomach acids, material that could enhance a display on hyaena predation. However, compared with the quality of material from other collections the material has a low interpretive potential.

Recommendation

Transferring the material to a box may provide more support and reduce the possibility of the bones from eroding. Ensuring that stones are removed from the collection will also help to protect the material. The original paper labels would benefit from separate storage while preserving the provenance of the fauna.

3.3.38 Wollaton Hall Natural History Museum, Nottingham

Collection History

The collection includes material excavated from Creswell Crags and donated by Mello. There is also Dr Ransom's archive from Yew Tree Cave in Pleasley Vale and material derived from Steetley Wood Cave from an unknown excavator.

Collection Archive

A small to medium sized collection of over 700 faunal specimens mainly from 19th century excavations. Of the Creswell material, most is only generally provenanced to the valley with just over 12% of finds attributable to Robin Hood Cave, Mother Grundy's Parlour, Church Hole and Pin Hole. In addition to fauna there is a small collection of flint and quartzite from Creswell Crags with specific association to Robin Hood Cave. Coprolites and breccia make up the rest of the collection.

In addition to the Creswell material just over 50 faunal specimens are extant from Ransom's excavation at Yew Tree Cave in Pleasley Vale in 1865. A further 100 specimens are extant from Steetley Wood Cave.

Event provenance is indicated through museum labels, directly applied pencil annotation, and 1876 Cave Exploration labels.

Documentary Archive

This comprises one black and white photograph of Mello's excavated finds pinned to a display board propped on a chair. This photograph was published (Mello 1891).

Storage / Collection Condition

Most of collection is accessioned with accession numbers applied directly to the object or group of objects. Accession numbers are supported by accession sheets and a computerised database.

The majority of the collection is stable and accessible. A number of bones appeared to be drying out and are splitting.

The photograph is stored in a paper envelope.

Interpretive Potential

The range and visual quality of the material from Wollaton provides a high display potential. Specific items include coprolites, large bone fragments with gnaw marks, reindeer antler fragments, some in breccia, and breccia with embedded hyaena teeth and charcoal.

The collection includes the remains of Lynx from Yew Tree Cave, a significant specimen from this locality.

Recommendations

Carry out minor treatment of specimens. A recent audit of the store by the Museums & Galleries Commission suggested that the heating could be reduced and blinds installed. This would assist in making the environment more stable and prevent the bones from drying out.

3.3.39 Yorkshire Museum, York

Collection History

The Creswell material forms part of the Backhouse Collection and presumably therefore originates from 19th century excavations. The collection is split across Archaeology and Geology departments.

Collection Archive

This is a small to medium collection of principally fauna from Church Hole in addition to specimens of breccia from Robin Hood Cave. The brief inspection of the fauna showed a mixed Holocene and

Pleistocene collection including hyaena teeth. There is also a small quantity of flint and quartzite which is unprovenanced.

Storage / Collection Condition

All material in Geology is stored in bubble wrap and boxed with cotton wool. One tooth in the hyaena jaw is cracked and loose and may become detached.

The flint and quartzite chips are stored in an envelope with the fauna from Church Hole. All of the fauna is loose and unsupported within the box.

Interpretive Potential

The breccia in Geology is potentially a good display specimen with microfauna and charcoal clearly visible within the matrix. However, generally the collection is of low visual quality and low interpretive potential.

Recommendations

Carry out any necessary conservation of the fauna within Geology, rehouse lithics and store separately from the Church Hole fauna.

4. Conclusions

4.1 Collection Dispersal

The collections from the Creswell Heritage Area represent an outstanding Pleistocene resource. This study has demonstrated that these collections are distributed among 38 museum departments throughout England, Scotland, Wales and Ireland. The study also found reference to material going further afield. For example the 'P' catalogues at Manchester University Museum record specimens being donated to the American Museum of Natural History. We do not know at this stage how much material, if any, is stored in European mainland museums.

The majority of the collections, about 24, fall within the 'small' category. Approximately six museums hold 'medium' sized collections of several hundred objects and a further six hold larger collections of over 1000 objects. The two largest collections include Manchester University Museum with more than 15,000 objects and Creswell with over 40,000 objects. Although the dispersed nature of the material will cause a barrier to research, only a handful of museums hold the majority of the material and the apparent disparate nature of the resource only relates to a small proportion of the entire archive.

As one might have expected, the collections generated from work in the 19th century have suffered the greatest separation. Collections developed from research in the 1920s have a core of material. For example collections from Armstrong's work at Pin Hole has been divided among fourteen museums but just one, Manchester, holds approximately 90% of the material. Further, archaeological archives created from more recent research between the 1960s and 1980s are largely stored in one institution and generally the integrity of the archive has been maintained.

Future research should therefore not be impeded by the dispersed nature of the collections especially now that this study has identified the location of the majority of the material.

4.2 Research Value

It was evident that the nature of early excavations in particular often led to poor and ambiguous records. What value do these collections have in future research agendas?

Cave and rockshelter sites in the Creswell Magnesian Limestone landscape provide opportunities to shed light on questions which are of world significance. Neanderthal and Upper Palaeolithic assemblages are part of an international resource which will help our understanding of human adaptation to long term environmental changes and patterns of colonisation. The presence of Neanderthal and Upper Palaeolithic assemblages opens up possibilities to locate intact sequences which could be used to explore patterns of Neanderthal extinctions and the arrival of anatomically modern humans. Also, the location of Creswell means that these sites are well placed to allow studies of the behaviour of human and animal populations at the extremes of their geographical range. Study of the Creswell archive in conjunction with other northern assemblages will provide insights into northerly adaptations which may be displayed through the technology, settlement systems, subsistence practices and the use of the landscape, and the use of ritual.

The long and detailed environmental record from the caves has already provided a start to understanding long term changes and the transition between interglacials and interstadials. A major opportunity is to use the resource to understand changes in climate during the last cold phase and the last cold phase and the Holocene. Creswell Crags has not much to challenge it in terms of the range, quality and quantity of palaeontological evidence. Small mammal collections from Pin Hole and other more recently excavated sites exist as extremely important research archives. They provide a unique opportunity to study environmental change over the last 130,000 years. Climatic indicators such as the Lynx from other sites would benefit from further detailed research to establish the pattern of animal colonisation to this area in the post glacial.

The landscape context of these collections is of major importance. The sheer number of sites in the Creswell landscape underlines their value since the range of sites present a varied resource with differing conditions of preservation, human and animal use and antiquarian interest. It is through this

diversity we that we can learn something about the variable responses of people, animals, and the environments in the past. The number of sites presents an opportunity to develop our understanding of the varied taphonomic processes which have created these sites today. The detail of the excavation and recording techniques used at Pin Hole provide opportunities to look at the formation of small mammal faunas and the taphonomy on these sites. This information will lead to a better understanding of the varied human and animal use of sites in response to local and regional environmental conditions. Further, *in situ* deposits present opportunities to augment these archives with new data.

Creswell Crags should be brought into regional research frameworks to help our understanding of settlement patterns and settlement histories (Council of the Prehistoric Society 1999). Creswell could act as a useful guide of the scale and variation of use of north Pleistocene Britain. Patterns of use at Creswell will have implications for other areas and help our understanding of short and long term occupation shifts as well as helping us to understand how soon after the glacial maximum the Midlands were available for colonisation. At a more detailed level research at Creswell may be able to suggest specific times when the use of these sites was intensified. It is vital that Creswell be part of the proposed quality audit for radiocarbon dates from the caves to help establish more accurate dating frameworks for the Palaeolithic.

In terms of the use of these sites, the detailed study of the assemblages may suggest how these sites were being used. Were they specialised task sites or do the assemblages suggest similar use of a network of sites. Also, comparison needs to be made with other site assemblages, both cave and open air sites, in order to attempt to establish the geographical limit and territorial range of the human populations. A significant avenue of research could be raw material analysis of the lithic assemblages in attempting to understand the organisation of technology, the acquisition of the raw material and the overall pattern of land use.

The extant museum collections have an important role to play in future research objectives. Although the stratigraphic location and detailed site records are not as complete as we would have liked, the knowledge that a particular assemblage is attributable to a particular site will help to assess the significance of sites within the landscape. They can also point to specific locations which may be beneficial for answering specific research questions.

Study of these collections is imperative in order to develop an information base where provenance, event history and associations are understood and accepted. Initial curation projects on this extant material are a necessary step in establishing a baseline resource which can be used in future research frameworks. This will involve the development of full catalogues of extant material and the full recording of associated information. Initially projects should be developed which include a primary consolidation and stabilisation of the resource. More detailed assessments should then be conducted which integrate assemblages with site records. Such an assessment will require the creation of an extensive computerised database. This will remove the problems facing researchers of a dispersed collection and provide an integrated set of information.

4.3 Storage and Collection Condition

Museums are constrained by the resources they have at their disposal. The study highlighted the variety of different storage conditions and the physical condition of the specimens. Some of the smaller collections assessed were among the best looked after such as the Mercer Art Gallery in Harrogate while other smaller collections were in danger of becoming damaged. Evidently the larger collections have a larger burden in terms of collection care.

Generally the national resource is in a stable condition, most collections scoring 2 on the condition score. Bone present specific problems for curators, with humidity and temperature being critical variables for safe storage. Teeth in particular are notoriously difficult to preserve.

Associated site archives, notably photographic archives, were generally not appropriately stored. This will eventually lead to damage and the loss of information. All of the associated documents would benefit from the development of a full security copy with relevant copies stored with appropriate collections and an additional copy stored at a central depository.

The absence of accession references for individual items will make auditing the collections very difficult. Jenkinson's work developing a unique referencing system for the entire collection attempted to impose such a system. However this work was not completed and reference data has not always survived. A simpler approach would be to work within the individual museums existing registration system and extend this to include every object under their care rather than to impose a further numbering system from outside. This approach would also break the work into manageable tasks. Computerisation of this future work would be essential to enable the entire collection to be deposited on a single database.

4.4 Interpretive and Education Potential

A total of ten museums hold specimens which were deemed to be of particular visual quality and interpretive potential (Table 4). A further four held objects of medium potential with fifteen holding objects of a low display potential.

Developing an index for the interpretive potential of the collections was an important part of this study. Many of the museums visited did not display Creswell material within their galleries and Palaeolithic hunter gatherers do not generally figure strongly in museum displays (Prehistoric Society 1999). Creswell Heritage Trust is keen to develop and exploit an interest in this period as well as developing education resources for formal education markets. In particular the Trusts sees the need to increase access to museums collections from this period and provide interpretation and information to a general, non-specialist audience.

Creswell Crags Museum and Education Centre located within the Creswell Crags gorge is ideally placed to interpret this period. The museum is physically located where Neanderthals and later hunter-gatherers actually visited and used. The atmosphere of the limestone gorge and the interaction of people and animals presents opportunities for exciting interpretation which can put visitors in touch with a distant past which is often beyond peoples current perceptions. What previously may have been regarded as dry and dusty objects can be placed into context with a sense of reality which engages the visitor.

A number of options exist to enhance the interpretation at Creswell Crags Museum and Education Centre. Access to this material can be encouraged either through loans to Creswell Crags for display or in the development of replicas of more sensitive artefacts and ecofacts. The development of ICT and in particular the use of the internet and online museum catalogues provide exciting opportunities for remote users to access the resource and engage and interact with the collections and education themes.

More can also be done to encourage a greater awareness within partner museums about their collections and the significance of objects as part of a much wider archive. Raising this awareness enhances the value of the material and may encourage other museums to display more objects from Creswell Crags and to develop on-line resources of there own material.

5. Recommendations

Specific recommendations have been outlined against each collection where appropriate. More general recommendations include:

5.1 Research

Research needs to be conducted within a wider regional and national framework. The nature of palaeolithic archaeology necessitates the need to draw together multi-disciplinary information. However before detailed research can take place the current collections need consolidating. Specific recommendations include:

- The development up of curation projects so that all associated documentary archives and annotated information is recorded, copied and secure. Such projects should include mapping the dispersal of objects between museums with the intention of recovering information on provenance.
- Developing a computerised database of the entire Creswell collection which includes images of objects where appropriate.
- Developing research proposals within an overall framework that target specific locations within the Creswell Heritage Area based on our understanding of the extant collections and the potential for in situ contexts in unexcavated areas.
- Developing our understanding of the extant collections through further fieldwork and mapping of extant deposits.

5.2 Storage and Collection Condition

In addition to implementing the recommendations identified for each museum further recommendations include:

- Developing a complete catalogue of every object within the Creswell Pleistocene Resource.
- Developing a centralised database at Creswell Crags where that full catalogue exists which can be accessed either at Creswell, remotely or at parent institutions
- Creating security copies of all extant documentary archives and storing them at a central depository.

5.3 Interpretation and Education

The importance of Creswell as an interpretation centre for the Palaeolithic is unique. The caves and Museum and Education Centre provide opportunities to tell the story where it actually happened. A strong recommendation is to create opportunities where more original or replica material can be brought out of the museum store and into the public domain.

Specific recommendations include:

- Sharing skills and greater awareness among museum professionals who look after the Creswell material to encourage displays and the development of education resources.
- Display a wider range of material at Creswell Crags Museum and Education Centre through loans from other museums.
- Develop an interactive web site and on-line digital catalogue which can be searched by remote users, researchers and schools.

References

A report by the Working Party for the Palaeolithic and Mesolithic Annual Day Meeting and the Council of the Prehistoric Society (1999) *Research Frameworks for the Palaeolithic and Mesolithic of Britain and Ireland*. The Prehistoric Society

Tables 1-4

Table 1. Field Events in the Creswell Heritage Area

Table 2. Collection Range and Quantity by Museum and Site Event

Key for code descriptions of collected material in Table 2.

Code	Description
F	Flint artefacts
Q	Quartzite artefacts
Ct	Chert artefacts
F/Q	Flint and Quartzite artefacts (material type not separated)
F/I	Flint and Ironstone artefacts (material type not separated)
I	Ironstone artefacts
O	Organic artefacts (eg bone needle, art engravings)
B	Animal Bone
HB	Human Bone
C	Coprolite
Br	Breccia sample
Trav	Travertine sample
Och	Ochre
Ch	Charcoal Sample
A	Amber fragment
ES	Egg Shell
Sed	Sediment Sample
S	Snail samples
St	Stones
P	Pottery
M	Metalwork
G	Glass
H	Heamatite
Cl	Clinker
Doc	Documentary Archive
✓	Non-quantified presence

NB Quantified amounts greater than 1000 are approximate

Table 3. Collection Location and Field Event

Table 4. Collection Condition and Interpretive Assessment

Appendix 1.

Creswell Crag Research Bibliography and References

- Anon. 1876a The remarkable discoveries at Cresswell Craggs. **Independent**, 16th May.
- Anon. 1876b The discoveries at Cresswell Craggs. **The Manchester City News**, 3rd June.
- Anon. 1876c The explorations at Cresswell Craggs. **The Sheffield Daily Telegraph**, 14th July.
- Anon. 1879a The British Association at Sheffield. - No.II. **The Manchester Magazine**, 2(6), 265-270.
- Anon. 1879b Donations to the Museum **Proceedings of the Society of Antiquaries of Scotland**, 18, 277-278.
- Anon. 1880a Mr. Boyd Dawkins and his bone discovery. A scene at the Manchester Geological Society. **The Manchester City News**, 31st January.
- Anon. 1880b Creswell Cave. Discovery of the Machairodus tooth. **Transactions of the Manchester Geological Society**, 15(17) for 1879-1880, 367.
- Anon. 1880c The discoveries in Creswell caves. Animated discussion. **The Manchester City News**, 29th May.
- Anon. 1892 **Catalogue of the National Museum of Antiquities of Scotland**. Society of Antiquaries of Scotland, Edinburgh.
- Anon. 1925a Violation of Notts. relics. **The Nottingham Guardian**, 24th January.
- Anon. 1925b Excavations at Cresswell Craggs, Derbyshire. **Nature**, 115 (2896), 658-659.
- Anon. 1926 Mother Grundy's Parlour. **Derbyshire Archaeological Journal**, 48, 128-129.
- Anon. 1928a Early man in Derbyshire. Mammoth hunters of a far-off time. **The Manchester Guardian**, 4th February.
- Anon. 1928b Engraving on bone. **The Sheffield Daily Telegraph**, 11th September.
- Anon. 1933 Archaeological exploration in Derbyshire caves. **Nature**, 132 (3333), 448.
- Anon. 1934 Palaeolithic caves in Derbyshire. **Nature**, 134 (3386), 464.
- Anon. 1936a Lions, reindeer and bison lived in Derbyshire. **The Evening Chronicle**, 12th February.
- Anon. 1936b The story of the cavemen. **Manchester Guardian**, 19th August.
- Anon. 1936c Derbyshire caves exhibition. **Nature**, 138 (3501), 962.
- Anon. 1937 Palaeolithic objects from Cresswell Caves. **Man**, 37, 24.
- Anon. 1938 Discoveries on prehistoric sites. Men who lived in Derbyshire cave. Dr. Court's work at Whaley. **The Sheffield Daily Telegraph**, 28th January.
- Anon. 1948a 35,000-year-old skull. "Lady of Whaley". **Daily Telegraph**, 10th September.

- Anon. 1948b Human skull in stone box. Mr A.L. Armstrong's discovery. **Warrington Guardian**, 25th September.
- Anon. 1959 When cavemen hunted lions in North-east Derbyshire...**The Sheffield Daily Telegraph**, 15th December.
- Anon. 1976 Uncovering the past at Steetley Cave. **Steetley News**, July.
- Anon. 1981a New pre-history finds in Craggs. **Worksop Guardian**, 18th December.
- Anon. 1981b Ancient finds in Gorge. **Mansfield Recorder**, 24th December.
- Armitage, H. 1939 **Early Man in Hallamshire**. London:Sampson Low, Marston & Co., Ltd.
- Armstrong, A.L. 1923a Cave exploration. Interesting finds at Creswell Craggs. **The Sheffield Daily Telegraph**, 18th June.
- Armstrong, A.L. 1923b Derbyshire search for Palaeolithic man. **Manchester Guardian**, 18th June.
- Armstrong, A.L. 1924a The cave-men and hill-men of Derbyshire and South Yorkshire. **Abstracts of papers read at the General Meetings of the Sheffield Literary and Philosophical Society in 1924**, 11-13.
- Armstrong, A.L. 1924b Palaeolithic man in England. **The Times**, 22nd December.
- Armstrong, A.L. 1924c Creswell Craggs. **The Sheffield Daily Telegraph**, 24th December.
- Armstrong, A.L. 1924d Cave archaeology. **The Nottingham Guardian**, 27th December.
- Armstrong, A.L. 1925a Creswell Craggs. **Worksop Guardian**, 2nd January.
- Armstrong, A.L. 1925b Creswell caves. **The Sheffield Daily Telegraph**, 7th January.
- Armstrong, A.L. 1925c The Creswell Caves. **The Nottingham Guardian**, 24th January.
- Armstrong, A.L. 1925d The Creswell engravings. **Nature**, 116 (2906), 48.
- Armstrong, A.L. 1925e The cave dwellers of Creswell Craggs. A record of recent excavations. **Discovery**, 6 (67), 265-269.
- Armstrong, A.L. 1925f The cave dwellers of Creswell Craggs. A record of recent excavations. **Discovery**, 6 (70), 361-365.
- Armstrong, A.L. 1925g Excavations at Mother Grundy's Parlour, Creswell Craggs, Derbyshire, 1924. **Journal of the Royal Anthropological Institute**, 55, 146-178.
- Armstrong, A.L. 1925h Creswell caves. **The Sheffield Daily Telegraph**, 9th December.
- Armstrong, A.L. 1926a Progress at Creswell Craggs. **Discovery**, 7 (73), 6-10.
- Armstrong, A.L. 1926b A home of man before the Ice Age. **The Sheffield Daily Telegraph**, 30th July.
- Armstrong, A.L. 1926c Excavations in the Pin Hole Cave, Creswell Craggs. **Report of the British Association for the Advancement of Science (Oxford 1926)**, 392.
- Armstrong, A.L. 1926d **Excavation at Creswell Craggs, Derbyshire 1924-26. The Pin Hole Cave. Read before section H of the British Association, Oxford 1926.** Typescript. Sheffield City Museum.

- Armstrong, A.L. 1926e **Abstract of report on the excavations in the Pin Hole Cave, Creswell Crag, Derbyshire. 1924-1926. To be read at the meeting of Section "H" of the British Association on Tuesday August 10th.** Typescript. Sheffield City Museum.
- Armstrong, A.L. 1926f Excavations at Creswell Crag, Derbyshire 1924-26. The Pin Hole Cave. **Transactions of the Hunter Archaeological Society**, 3(2), 116-122.
- Armstrong, A.L. (1926g) **Palaeolithic man in Derbyshire. Recent discoveries in the Creswell caves.** Typescript. The Manchester Museum.
- Armstrong, A.L. 1927a Notes on four examples of Palaeolithic art from Creswell caves, Derbyshire. **IPEK Jahrbuch für Prähistorische und Ethnographische Kunst**, 10-12.
- Armstrong, A.L. 1927b **The Cave Dwellers of Derbyshire.** Manuscript. Sheffield City Museum.
- (Armstrong, A.L.) 1928 The cave men of Creswell Crag. **The Children's Newspaper**, 14th January.
- Armstrong, A.L. 1928 **Synopsis of paper on: "Recent excavations at Creswell Crag, Derbyshire," to be read before Section H on Monday 10th September.** Typescript. Sheffield City Museum.
- Armstrong, A.L. 1929a A report on recent excavations at Creswell Caves, Derbyshire. **Report of the British Association for the Advancement of Science (Glasgow 1928)**, 593.
- Armstrong, A.L. 1929b Excavations at Creswell Crag, Derbyshire. 1926-28. **Transactions of the Hunter Archaeological Society**, 3(4) for 1928, 332-334.
- Armstrong, A.L. 1930 Pin Hole Cave excavations, Creswell Crag, Derbyshire. Discovery of an engraved drawing of a masked human figure. **Proceedings of the Prehistoric Society of East Anglia**, 6 (1) for 1928, 27-29.
- Armstrong, A.L. 1931 Excavations in the Pin-Hole Cave, Creswell, Derbyshire. **Man**, 31, 113.
- Armstrong, A.L. 1932a Excavations in the Pin Hole Cave, Creswell Crag, Derbyshire. **Proceedings of the Prehistoric Society of East Anglia**, 6(4) for 1931, 330-334.
- Armstrong, A.L. 1932b A Late Upper Aurignacian station in North Lincolnshire. **Proceedings of the Prehistoric Society of East Anglia**, 6(4) for 1931, 335-339.
- Armstrong, A.L. 1932c Excavations at Creswell Crag, Derbyshire. 1928-32. The Pin Hole Cave. **Transactions of the Hunter Archaeological Society**, 4(2) for 1931-32, 178-184.
- Armstrong, A.L. 1932d **British Association for the Advancement of Science. Research committee (Section "H") for the exploration of caves in the Derbyshire district. Interim report No.10, 1932.** Typescript. Sheffield City Museum.
- Armstrong, A.L. 1934 Twelfth interim report of committee appointed to co-operate with a committee of the Royal Anthropological Institute in the exploration of caves in the Derbyshire district. Report on excavations in the Pin Hole Cave, Creswell Crag. **Report of the British Association for the Advancement of Science (Aberdeen 1934)**, 254-255.
- Armstrong, A.L. 1935a Twelfth interim report of committee appointed to co-operate with a committee of the Royal Anthropological Institute in the exploration of caves in the Derbyshire district. **Derbyshire Archaeological Journal**, 55 for 1934, 85-88.

- Armstrong, A.L. 1935b Thirteenth interim report of committee appointed to co-operate with a committee of the Royal Anthropological Institute in the exploration of caves in the Derbyshire district. **Report of the British Association for the Advancement of Science (Norwich 1935)**, 338-340.
- Armstrong, A.L. 1936a A bull-roarer of Le Moustier age from Pin Hole Cave, Creswell Crags, Derbyshire. **Antiquaries Journal** , 16(3), 322-323.
- Armstrong, A.L. 1936b The antiquity of man and some cultural elements in early civilisation. **Proceedings of the Warrington Literary and Philosophical Society**, Sessions 1933-34, 1934-35, 1935-36, 54-60.
- Armstrong, A.L. 1936c Fourteenth interim report of committee appointed to co-operate with a committee of the Royal Anthropological Institute in the exploration of caves in the Derbyshire district. **Report of the British Association for the Advancement of Science (Blackpool 1936)**, 307-308.
- Armstrong, A.L. 1937a Fourteenth interim report of committee appointed to co-operate with a committee of the Royal Anthropological Institute in the exploration of caves in the Derbyshire district. **Derbyshire Archaeological Journal**, 57 for 1936, 127-129.
- Armstrong, A.L. 1937b Cave excavation as a science. **Caves and Caving**, I (1), 12-13.
- Armstrong, A.L. 1937c Fifteenth interim report of committee appointed to co-operate with a committee of the Royal Anthropological Institute in the exploration of caves in the Derbyshire district. **Report of the British Association for the Advancement of Science (Nottingham 1937)**, 300-301.
- Armstrong, A.L. 1937d Evidence for climatic variations in the Pleistocene revealed by excavations at Creswell Crags, Derbyshire. **Report of the British Association for the Advancement of Science (Nottingham 1937)**, 355-356.
- Armstrong, A.L. 1937e Palaeolithic man in Nottinghamshire. **Report of the British Association for the Advancement of Science (Nottingham 1937)**, 395-396.
- Armstrong, A.L. (1937) **Prehistoric man. Some recent researches in Nottinghamshire and Derbyshire**. Typescript: Sheffield City Museum.
- Armstrong, A.L. 1938 Sixteenth interim report of the committee appointed to co-operate with a committee of the Royal Anthropological Institute in the exploration of caves in the Derbyshire district. **Report of the British Association for the Advancement of Science (Cambridge 1938)**, 343-344.
- (Armstrong, A.L.) 1939a Excavations in Derbyshire during 1938. Palaeolithic. Creswell Crags; Whaley Rock Shelter No.2 and Trent Valley Gravels. **Derbyshire Archaeological Journal**, 59 for 1938, 81-82.
- Armstrong, A.L. 1939b Palaeolithic Man in the North Midlands. **Memoirs and Proceedings of the Manchester Literary and Philosophical Society**, 83 for 1938-39, 87-116.
- Armstrong, A.L. 1939c Seventeenth interim report of the committee appointed to co-operate with a committee of the Royal Anthropological Institute in the exploration of caves in the Derbyshire district. **The Advancement of Science**, 1(1), 125-126.
- Armstrong, A.L. 1942 Palaeolithic man in the North Midlands. **Derbyshire Archaeological Journal**, 63, 28-60.
- Armstrong, A.L. 1948a 'Lady of Whaley'. Palaeolithic human skull discovered. **Derbyshire Times**, 10th September.
- Armstrong, A.L. 1948b Palaeolithic find in Derbyshire. **The Nottingham Guardian** , 10th September.

(Armstrong, A.L.) 1948 Exploration of caves in the Derbyshire district. Interim report of committee appointed to co-operate with a committee of the Royal Anthropological Institute in the exploration of caves in the Derbyshire district. **The Archaeological News Letter**, No.7, 5-6.

(Armstrong, A.L.) 1949 Exploration of caves in the Derbyshire district. Interim report of committee appointed to co-operate with a committee of the Royal Anthropological Institute in the exploration of caves in the Derbyshire district. **The Advancement of Science**, 5(20), 356-357.

Armstrong, A.L. 1949a Palaeolithic find in Derbyshire. **Bulletin of the Nottinghamshire Rural Science Panel**, 26, 2-4.

Armstrong, A.L. 1949b Exploration of prehistoric sites in East Derbyshire. Report submitted to the British Association at the Newcastle meeting, 1949. **Derbyshire Archaeological Journal**, 69, 69-73.

Armstrong, A.L. 1950 Exploration of prehistoric sites in East Derbyshire. Report submitted to the British Association at the Birmingham meeting, 1950. **Derbyshire Archaeological Journal**, 70, 88-91.

Armstrong, A.L. 1951 Exploration of prehistoric sites in East Derbyshire. Report submitted to the British Association at the Edinburgh meeting, 1951. **Derbyshire Archaeological Journal**, 71, 66-68.

Armstrong, A.L. 1952 Exploration of prehistoric sites in East Derbyshire. Report submitted to the British Association Sec. H. at the Belfast meeting, 1952. **Derbyshire Archaeological Journal**, 72, 133-135.

Armstrong, A.L. 1953 Exploration of prehistoric sites in East Derbyshire. Report submitted to the British Association, Sec. H. at the Liverpool meeting, 1953. **Derbyshire Archaeological Journal**, 73, 102-104.

Armstrong, A.L. 1954 Exploration of prehistoric sites in East Derbyshire. Report submitted to the British Association, Sec. H. at the Oxford meeting, 1954. **Derbyshire Archaeological Journal**, 74, 156-157.

Armstrong, A.L. 1955 Exploration of prehistoric sites in East Derbyshire. Report submitted to the British Association, Sec. H., 1955. **Derbyshire Archaeological Journal**, 75, 149-150.

Armstrong, A.L. 1956a Palaeolithic, Neolithic and Bronze Ages. In D.L.Linton (ed.) **Sheffield and its Region: a Scientific and Historical Survey**, 90-110. British Association for the Advancement of Science, London.

Armstrong, A.L. 1956b The Creswell finds. **Derbyshire Countryside**, 21(6), 26-27.

Armstrong, A.L. 1957a Report on the excavation of Ash Tree Cave, near Whitwell, Derbyshire, 1949 to 1957. **Derbyshire Archaeological Journal**, 76 for 1956, 57-64.

Armstrong, A.L. 1957b **British Association for the Advancement of Science, Section H – Anthropology. Exploration of caves in the Derbyshire district. Report No.29 (1957) of committee appointed for the exploration of caves in the Derbyshire district.** Typescript. Sheffield City Museum.

Armstrong, A.L. n.d. **Creswell Caves** Typescript. The Manchester Museum.

Armstrong, A.L. and Court, A. 1950 The discovery of a Palaeolithic skull in a rock shelter at Whaley, near Creswell. **Transactions of the Hunter Archaeological Society**, 6(6), 324-326.

- Barker, H., Burleigh, R. and Meeks, N. 1969 British Museum natural radiocarbon measurements VI. **Radiocarbon**, 11(2), 278-294.
- Barker, H., Burleigh, R. and Meeks, N. 1971 British Museum natural radiocarbon measurements VII. **Radiocarbon**, 13(2), 157-188.
- Bohmers, A. 1956 Statistics and graphs in the study of flint assemblages. **Palaeohistoria**, 5, 1-25.
- Bowman, S.G.E., Ambers, J.C. and Leese, M.N. 1990 Re-evaluation of British Museum radiocarbon dates issued between 1980 and 1984. **Radiocarbon**, 32(1), 59-79.
- Bradbury, D.J. 1993 **Wd'hus and the Wolf-Hunters**. Nottingham: Wheel Publications.
- Brelsford, V. 1931 Creswell Caves. **East Derbyshire Field Club**, 31-37.
- Briggs, D.J., Gilbertson, D.D. and Jenkinson, R.D.S. eds. 1985 **Peak District & Northern Dukeries Field Guide**. Cambridge: Quaternary Research Association.
- Briggs, D.J. and Griffin, C.M. 1985 Sediment provenances in the Creswell Caves. In: Briggs, D.J., Gilbertson, D.D. and Jenkinson, R.D.S. (eds) **Peak District & Northern Dukeries Field Guide**. Cambridge: Quaternary Research Association, 139-150.
- Brooks I. 1984 **The excavation of the first one hundred spits of Pin Hole Cave, Creswell Crags, S.S.S.I., Derbyshire**. Derbyshire and Nottinghamshire County Councils.
- Brooks I. 1985 **Excavation techniques in Pin Hole Cave, Creswell Crags, S.S.S.I., Derbyshire**. Derbyshire and Nottinghamshire County Councils.
- Brooks, I. n.d. **The excavation of three blocks of sediment removed from Pin Hole Cave, Creswell Crags, SSSI, Derbyshire**. Derbyshire and Nottinghamshire County Councils.
- Brooks, I. n.d. **The excavation of two blocks of sediment removed from Pin Hole Cave, Creswell Crags, SSSI, Derbyshire**. Unpublished Report. Prehistoric Archaeological Survey Team, Derbyshire and Nottinghamshire County Councils.
- Brooks, I.P. and Phillips, P. 1989. **Braking the Stony Silence. Papers from the Sheffield Lithics Conference 1988**. British Archaeological Report 213.
- Brothwell, D.R. 1961 An Upper Palaeolithic skull from Whaley Rock Shelter No.2, Derbyshire. **Man**, 61, 113-116.
- Brothwell, D.R. 1981 **Digging up Bones. The excavation, treatment and study of human skeletal remains**. 3rd edition. British Museum (Natural History): Oxford University Press.
- Brown, I.J. 1968 Notes on the caves of Anston Stones near Sheffield. **Bulletin of the Peak District Mines Historical Society**, 3(5), 287-289.
- Burdukiewicz, J.M. 1986 **The Late Pleistocene shouldered point assemblages in Western Europe**. Leiden: E.J. Brill.
- Burkitt, M.C. and Armstrong, A.L. 1950 Exploration of caves in the Derbyshire district. Interim report No.21 (1949) of committee appointed to co-operate with a committee of the Royal Anthropological Institute in the exploration of caves in the Derbyshire district. **The Advancement of Science**, 7(25), 99-100.
- Burkitt, M.C. and Armstrong, A.L. 1951 Exploration of caves in the Derbyshire district. Interim report No.22 (1950) of committee appointed to co-operate with a committee of the Royal Anthropological

Institute in the exploration of caves in the Derbyshire district. **The Advancement of Science**, 8(29), 93-94.

Burkitt, M.C. and Armstrong, A.L. 1954 Exploration of caves in the Derbyshire district. Interim report No.25 (1953) of committee appointed to co-operate with a committee of the Royal Anthropological Institute in the exploration of caves in the Derbyshire district. **The Advancement of Science**, 11(41), 111-112.

Burkitt, M.C. and Armstrong, A.L. 1955 Exploration of caves in the Derbyshire district. Interim report No.26 (1954) of committee appointed to co-operate with a committee of the Royal Anthropological Institute in the exploration of caves in the Derbyshire district. **The Advancement of Science**, 12(45),128.

Burkitt, M.C. and Armstrong, A.L. 1958 **British Association for the Advancement of Science Section H. Report of the committee for the exploration of caves in the Derbyshire district**: 1958. Typescript. The Manchester Museum.

Burkitt, M.C. and Favell, R.V. 1933 Eleventh interim report of committee appointed to co-operate with a committee of the Royal Anthropological Institute in the exploration of caves in the Derbyshire district. **Report of the British Association for the Advancement of Science (Leicester 1933)**, 299-300.

Burleigh, R., Ambers, J. and Matthews, K. 1982 British Museum natural radiocarbon measurements XV. Radiocarbon, 24(3), 262-290.

Burleigh, R., Hewson, A. and Meeks, N. 1976 British Museum natural radiocarbon measurements VIII. Radiocarbon, 18(1), 16-42.

Burr, W.T.G. 1904 Creswell Crags. **Transactions of the East Derbyshire Field Club**, 2, unpaginated.

Burr, W.T.G. 1910 Creswell Crags. **Transactions of the East Derbyshire Field Club**, 8, 5-7

Busk, G. 1875 List of the mammalian remains collected by the Rev. J.M. Mello in the rock-fissure cavern in Creswell Crags, Derbyshire. **Quarterly Journal of the Geological Society of London**, 31(4), 683-691.

Campbell, J.B. 1970a Excavations at Creswell Crags: preliminary report. **Derbyshire Archaeological Journal**, 89 for 1969, 47-58.

Campbell, J.B. 1970b **Peakland Archaeological Society Newsletter**, 25, 13-15.

Campbell, J.B. 1971 **The Upper Palaeolithic of Britain: a study of British Upper Palaeolithic Cultural Material and its Relation to Environmental and Chronological Evidence**. Unpublished D. Phil. Thesis, University of Oxford.

Campbell, J.B. 1977 **The Upper Palaeolithic of Britain: a study of man and nature during the Late Ice Age**. Oxford : Clarendon press.

Campbell, J.B. 1980 Le problème des subdivisions du Paléolithique supérieur britannique dans son cadre européen. **Bulletin de la Société royale belge d'Anthropologie et de Préhistoire**, 91, 39-77.

Campbell, J.B. 1986 Hiatus and continuity in the British Upper Palaeolithic: a view from the Antipodes. In: Roe, D.A. (ed.) **Studies in the Upper Palaeolithic of Britain and Northwest Europe**. Oxford: British Archaeological Reports, International Series 296, 7-42.

- Carr, J.W. 1893 **A Contribution to the Geology and Natural History of Nottinghamshire** for the British Association for the Advancement of Science. Nottingham meeting, 1893. Nottingham: James Bell.
- Carr, J.W. and Swinnerton, H.H. 1914 Report of an excursion to the Nottingham district. **Proceedings of the Geologists' Association**, 24(2), 84-89.
- Chamberlain, A.T. 1996 More dating evidence for human remains in British caves. **Antiquity**, 70, 950-953.
- Charles, R. 1990 **Faunal Remains and the 'Human Factor'. A study of the Faunal Remains from the Robin Hood Cave, Creswell Crags**. Unpublished B.A. dissertation, Department of Archaeology and Anthropology, University of Cambridge.
- Charles, R. and Jacobi, R.M. 1994 The Lateglacial fauna from the Robin Hood Cave, Creswell Crags: a re-assessment. **Oxford Journal of Archaeology**, 13(1), 1-32.
- Coles, C.G 1985 The Quaternary Palaeoecology of North Derbyshire; a brief review. In Briggs, D.J., Gilbertson, D.D. & Jenkinson, R.D.S. (eds) **Peak District and Northern Dukeries Field Guide**. Cambridge: Quaternary Research Association
- Coles, G. 1988 **Aspects of the application of Palynology to Cave Deposits in the Magnesian Limestone Region of North Nottinghamshire**. Unpublished PhD Thesis, University of Sheffield.
- Coles, G.M., Gilbertson, D.D., Hunt, C.O. and Jenkinson, R.D.S. 1989 Taphonomy and the palynology of cave deposits. **Cave Science**, 16(3), 83-89.
- Coles, G.M., Hunt, C.O. and Jenkinson, R.D.S. 1985 Robin Hood's Cave: Palynology. In: Briggs, D.J., Gilbertson, D.D. and Jenkinson, R.D.S. (eds) **Peak District & Northern Dukeries Field Guide**. Cambridge: Quaternary Research Association, 178-182.
- Collcutt, S.N. 1975 **The Stratigraphy of Creswell Crags**. Unpublished M.A Thesis, University of Edinburgh.
- Collins, E. 1985 The Taphonomy of Molluscan Faunas from the Lake and Gorge at Creswell Crags SSSI. BA Dissertation The University of Sheffield.
- Coulson, S.D. 1981 **Middle Palaeolithic Industries of Great Britain** Unpublished PhD Thesis, University of London.
- Couslon, S.D. 1990 **Middle Palaeolithic Industries of Great Britain**. Bonn: Holos.
- Court, A. 1939 Excavations in Derbyshire during 1938. Roman. Whaley Valley. **Derbyshire Archaeological Journal**, 59 for 1938, 84-87.
- Court, A. 1946 **Staveley. My Native Town. Some Historical Notes of the Parish**. Sheffield : J.W. Northend Ltd.
- Cowles G.S. 1981 The first evidence of Demoiselle Crane *Anthropoides virgo* and pygmy Cormorant *Phalacrocorax pygmaeus* in Britain. **British Ornithologist Club Bulletin**, 101(4), 383-4.
- Cresswell, E. 1984 **Investigation of the river Wollen and tributaries leading into Crags pond and Creswell Crags**. Unpublished Report
- Cuttle, . 1875 Explorations in the caves at Creswell Crags. **Derbyshire Courier**, 23rd October.

Davis, J.W. 1889 Second report of the committee, consisting of Sir John Lubbock, Dr. John Evans, Professor Boyd Dawkins, Dr. Robert Munro, Mr. Pengelly, Dr. Henry Hicks, Professor Meldola, Dr. Muirhead, and Mr. James W. Davies, appointed for the purpose of ascertaining and recording the localities in the British Islands in which evidence of the existence of prehistoric inhabitants of the country are found. **Report of the British Association for the Advancement of Science (Bath 1888)**, 289-316.

Davies, C. n.d. **Cave- and Cliff-nesting swallows in Derbyshire and the Peak**. University of Manchester Manuscript.

Dawkins, W.B. 1869 On the distribution of the British Postglacial mammals. **Quarterly Journal of the Geological Society of London**, 25(2), 192-217.

Dawkins, W.B. 1876a Recent discoveries in caves in Derbyshire. **The Pall Mall Gazette**, 23 (3476: 8th April), 11-12.

Dawkins, W.B. 1876b Abstract by Professor W. Boyd Dawkins, F.R.S., of a paper entitled The bone caves of Creswell Crags. By the Rev. J.M. Mole, F.G.S. – On the mammalia and traces of man found in the Robin Hood Cave. By Professor W. Boyd Dawkins, F.R.S. Read at the Geological Society, April 5, 1876. **Journal of the Anthropological Institute**, 6(1), 95-97.

Dawkins, W.B. 1876c On the mammalia and traces of Man found in the Robin-Hood Cave. **Quarterly Journal of the Geological Society of London**, 32(3), 245-258.

(Dawkins, W.B.) 1877a Recent discoveries in Derbyshire. **The Pall Mall Gazette**, 25 (3796: 20th April), 10-11.

Dawkins, W.B. 1877b On the mammal-fauna of the caves of Creswell Crags. **Quarterly Journal of the Geological Society of London**, 33(3), 589-612.

Dawkins, W.B. 1878 On the evidence afforded by the caves of Great Britain as to the antiquity of man. **Journal of the Anthropological Institute**, 7(2), 151-162.

Dawkins, W.B. 1879a On the bone caves of Derbyshire. **Report of the British Association for the Advancement of Science (Sheffield 1879)**, 337-338.

Dawkins, W.B. 1879b The Cresswell cave exploration, 1876. **Nature**, 21(527), 106-107.

Dawkins, W.B. 1910 The arrival of man in Britain in the Pleistocene Age. **Journal of the Royal Anthropological Institute**, 40, 233-263.

Dawkins, W.B. 1925a Late Palaeolithic art in the Cresswell Caves. **Man**, 25, 48.

Dawkins, W.B. 1925b Late Palaeolithic art in the Cresswell Caves. **Nature**, 115(2888), 336.

Dawkins, W.B. and Mello, J.M. 1879 Further discoveries in the Cresswell caves. **Quarterly Journal of the Geological Society of London**, 35(4), 724-735.

Dawkins, W.B. and Sanford W.A. 1869 *Felis spelaea*, concluded, with *F.lynx*. A monograph of the British Pleistocene Mammalia I. **Annual Volume of the Palaeontographical Society**, 22, 125-176.

Duckworth, W.L.H. and Swainson, F.E. 1895 A new Ossiferous Fissure in Creswell Crags. **Quarterly Journal of the Geological Society of London**, 51(2), 237.

Dudley, T. 1993 **Ash Tree Cave, Whitwell, Derbyshire. An examination and analysis of the excavations between 1939 and 1960**. Unpublished B.A. Dissertation, University of Nottingham.

- Egerton, J. 1984 George Stubbs and the landscape of Creswell Crags. **The Burlington Magazine**, 126, 738-743.
- Fisher, F. 1959 Notes and news, 1959. **Derbyshire Archaeological Journal**, 79, 130-133.
- Feiller, N.R.J., Gilbertson, D.D., Briggs, D.J., Griffin, C.M., Jenkinson, R.D.S. 1987 **The First Use of Log Skew Laplace Distributions to Model the Textural Properties of Cave Sediments**. Research Report 301/87 Department of Probability and Statistics, The University of Sheffield.
- Feiller N.R.J., Gilbertson, D.D., Briggs, D.J., Griffin, C.M., Jenkinson, R.D.S. 1992 The Statistical Modelling of the Grain Size Distributions of Cave Sediments Using Log Skew Laplace Distributions: Creswell Crags, Near Sheffield, England **Journal of Archaeological Science**, 19, 129-150.
- Frederick, C.D. 1998 **Assessment of the Pin Hole Cave Sediment Archive**. Unpublished Report Creswell Heritage Trust.
- (Garfitt, G.A.) 1922 **Interim report of the committee for the archaeological exploration of Derbyshire caves**. Typescript. Sheffield City Museum.
- (Garfitt, G.A.) 1923a **Committee for the archaeological exploration of Derbyshire caves. Interim report No.2., July 1923**. Typescript. Sheffield City Museum.
- (Garfitt, G.A.) 1923b Derbyshire Caves. Report of committee appointed to co-operate with a committee of the Royal Anthropological Institute in the exploration of caves in the Derbyshire district. **Report of the British Association for the Advancement of Science (Hull 1922)**, 336.
- Garfitt, G.A. 1924 An Aurignac site in Derbyshire. **Antiquaries Journal**, 4(4), 404-405.
- (Garfitt, G.A.) 1924 **Committee for the archaeological exploration of Derbyshire caves. Interim report No.3. July 1924**. Typescript. Sheffield City Museum.
- (Garfitt, G.A.) 1927 Derbyshire caves. – Interim report of committee appointed to co-operate with a committee of the Royal Anthropological Institute in the exploration of caves in the Derbyshire district. **Report of the British Association for the Advancement of Science (Leeds 1927)**, 301-303.
- (Garfitt, G.A.) 1930 **British Association for the Advancement of Science Committee for the archaeological exploration of Derbyshire caves. Interim report. 1930**. Typescript. Sheffield City Museum.
- Garfitt, G.A. 1932 Derbyshire caves. – Interim report of committee appointed to co-operate with a committee of the Royal Anthropological Institute in the exploration of caves in the Derbyshire district. **Report of the British Association for the Advancement of Science (London 1931)**, 274-275.
- Garrod, D.A.E. 1926 **The Upper Palaeolithic Age in Britain**. Oxford: Clarendon Press.
- Garrod, D.A.E. 1927 Derbyshire caves. - Interim report of committee appointed to co-operate with a committee of the Royal Anthropological Institute in the exploration of caves in the Derbyshire district. Report of excavations at Langwith Cave, Derbyshire : April 11-27, 1927. **Report of the British Association for the Advancement of Science (Leeds 1927)**, 303.
- Gentles, D. 1984 **Micro-climatology of cave fires**. Unpublished Report
- Gentles, D.S. and Smithson, P.A. 1986 Fires in caves : effects on temperature and airflow. **Proceedings of the University of Bristol Speleological Society**, 17(3), 205-217.

- Gibson, A.M. 1982 **Beaker Domestic Sites: A Study of the Domestic Pottery of the Late Third and Early Second Millennia BC in the British Isles**. Oxford: British Archaeological Reports British Series 107.
- Gibson, W. and Wedd, C.B. 1913 **The Geology of the northern part of the Derbyshire Coalfield and bordering tracts**. Memoirs of the Geological Survey, England and Wales. Explanation of sheet 112 and the southern part of sheet 100.
- Gilbertson, D.D. 1985a Dog Hole Fissure. In: Briggs, D.J., Gilbertson, D.D. and Jenkinson, R.D.S. (eds) **Peak District & Northern Dukeries Field Guide**. Cambridge: Quaternary Research Association, 151-156.
- Gilbertson, D.D. 1985b Creswell Crags Lake. In: Briggs, D.J., Gilbertson, D.D. and Jenkinson, R.D.S. (eds) **Peak District & Northern Dukeries Field Guide**. Cambridge: Quaternary Research Association, 161-164.
- Gilbertson, D.D. 1989 The sedimentary sequence in Robin Hood's Cave, Creswell Crags. **Cave Science**, 16(3), 101-102.
- Gilks, J.A. 1976 Early Bronze Age beakers from Pin Hole Cave, Creswell Crags, Derbyshire. **Derbyshire Archaeological Journal**, 94 for 1974, 8-15.
- Gilks, J.A. 1989 Cave burials in Northern England. **British Archaeology**, 11, 11-15.
- Godwin, H. and Willis, E.H. 1962 University of Cambridge natural radiocarbon measurements V. **Radiocarbon**, 4(1), 57-70.
- Gowlett, J.A.J., Hall, E.T., Hedges, R.E.M. and Perry, C. 1986 Radiocarbon dates from the Oxford AMS system: **Archaeometry** datelist 3. **Archaeometry**, 28(1), 116-125.
- Gowlett, J.A.J., Hedges, R.E.M., Law, I.A., and Perry, C. 1986 Radiocarbon dates from the Oxford AMS system: **Archaeometry** datelist 4. **Archaeometry**, 28(2), 206-221.
- Griffin, C.M. 1988 **The Genesis and Diagenesis of Cave Sediments at Creswell Crags**. Unpublished PhD Thesis, University of Sheffield.
- Grigson, G. 1955 Caves, Crags and Coal Mines. **The Listener**, 1083-1084
- Grigson, G. 1956a Caves, crags and coal mines. **Derbyshire Countryside**, 21(3), 22-23.
- Grigson, G. 1956b The Creswell Finds. **Derbyshire Countryside**, 21(6), 27-33.
- Hall, J. n.d. **Pin Hole Rodent Fauna**. Unpublished BSc Thesis, University of Manchester.
- Hall, S.T. 1841 **The Forester's Offering** London: Whitaker and Co.
- Hart, C.R. 1981 **The North Derbyshire Archaeological Survey**. Chesterfield.
- Heath, T. 1876a The discoveries in Cresswell Crags. **The Manchester Guardian**, 1st May.
- Heath, T. 1876b The discoveries in Cresswell Crags. **The Manchester Guardian**, 10th May.
- Heath, T. 1879a **An abstract description and history of the Bone Caves of Creswell Crags**. Derby: Wilkins and Ellis.
- Heath, T. 1879b Bone caves at Cresswell Crags. **The Manchester Magazine**, 2(7), 39-40

- Heath, T. 1879c Creswell Crags bone caves. **The Manchester City News**, 8th November.
- Heath, T. 1879d Creswell bone caves. **The Manchester City News**, 22nd November.
- Heath T. 1880a Mr. Boyd Dawkins and Creswell caves. **The Manchester City News**, 3rd January.
- Heath, T. 1880b Creswell bone caves. **The Manchester City News**, 7th February.
- Heath, T. 1880c **Creswell Caves, V. Professor Boyd Dawkins**. Derby: Edward Clulow, Jun.
- Heath, T. 1882 Pleistocene deposits of Derbyshire and its immediate vicinity. **Derbyshire Archaeological Journal**, 4, 161-178.
- Hedges, R.E.M., Housley, R.A., Law, I.A. and Perry, C. 1988 Radiocarbon dates from the Oxford AMS system: **Archaeometry** datelist 7. **Archaeometry**, 30(1), 155-164.
- Hedges, R.E.M., Housley, R.A., Law, I.A. and Bronk, C.R. 1989 Radiocarbon dates from the Oxford AMS system: **Archaeometry** datelist 9. **Archaeometry**, 31(2), 207-234.
- Hedges, R.E.M., Housley, R.A., Bronk Ramsey, C. and Klinken, G.J.van. 1991 Radiocarbon dates from the Oxford AMS system: **Archaeometry** datelist 13. **Archaeometry**, 33(2), 279-296.
- Hedges, R.E.M., Housley, R.A., Bronk Ramsey, C. and Klinken, G.J.van. 1993 Radiocarbon dates from the Oxford AMS system: **Archaeometry** datelist 17. **Archaeometry**, 35(2), 305-326.
- Hedges, R.E.M., Housley, R.A., Bronk Ramsey, C. and Klinken, G.J.van. 1994 Radiocarbon dates from the Oxford AMS system: **Archaeometry** datelist 18. **Archaeometry**, 36(2), 337-374.
- Hedges, R.E.M., Housley, R.A., Pettitt, P.B., Bronk Ramsey, C. and Klinken, G.J.van. 1996 Radiocarbon dates from the Oxford AMS system: **Archaeometry** datelist 21. **Archaeometry**, 38(1), 181-207.
- Hedges, R.E.M., Pettitt, P.B., Bronk Ramsey, C. and Klinken, G.J.van. 1996 Radiocarbon dates from the Oxford AMS system: **Archaeometry** datelist 22. **Archaeometry**, 38(2), 391-415.
- Hedges, R.E.M., Pettitt, P.B., Bronk Ramsey, C. and Klinken, G.J.van. 1997 Radiocarbon dates from the Oxford AMS system: **Archaeometry** datelist 24. **Archaeometry**, 39(2), 445-471.
- Hedges, R.E.M., Pettitt, P.B., Bronk Ramsey, C. and Klinken, G.J.van. 1998a Radiocarbon dates from the Oxford AMS system: **Archaeometry** datelist 25. **Archaeometry**, 40(1), 227-239.
- Hedges, R.E.M., Pettitt, P.B., Bronk Ramsey, C. and Klinken, G.J.van. 1998b Radiocarbon dates from the Oxford AMS system: **Archaeometry** datelist 26. **Archaeometry**, 40(2), 437-455.
- Hunt, C.O. 1989 Molluscs from A.L. Armstrong's excavations in Pin Hole Cave, Creswell Crags. **Cave Science**, 16(3), 97-100.
- Hunt, C.O. 1994 **The Karst and Caves of Creswell Crags**. Department of Geographical & Environmental Sciences, The University of Huddersfield.
- Hunt, C.O. n.d. **The Gorge-Fill at Creswell Crags SSSI , Nottinghamshire/ Derbyshire**. Typescript. Creswell Crags Visitor Centre.
- Hunt, C.O., Brooks, I.P., Coles, G.M., Jenkinson, R.D.S. n.d. **Archaeological Surveying in Caves** Typescript Creswell Crags Visitor Centre.

- Jackson, J.W. 1913a On the occurrence of the Lynx in North Wales and Derbyshire. **The Geological Magazine**, Decade V, 10(6), 259-262.
- Jackson, J.W. 1913b Some cave notes. **The Lancashire Naturalist**, 6, 39-40.
- Jackson, J.W. 1925 The Creswell engravings. **Nature**, 115(2901), 874.
- Jackson, J.W. 1926 Recent cave exploration in Derbyshire. **The North Western Naturalist**, I(3), 129-132.
- Jackson, J.W. 1926 Recent cave exploration in Derbyshire. **The North Western Naturalist**, I(4), 190-196.
- Jackson, J.W. 1929a Creswell Caves. **Transactions of the Lancashire & Cheshire Antiquarian Society**, 44 for 1927, 1-7.
- Jackson, J.W. 1929b Remains of lemmings in Derbyshire caves. **The Naturalist**, March, 105-107.
- Jackson, J. W. 1934 Twelfth interim report of committee appointed to co-operate with a committee of the Royal Anthropological Institute in the exploration of caves in the Derbyshire district. The rodent remains from the Pin Hole Cave. **Report of the British Association for the Advancement of Science (Aberdeen 1934)**, 256-257.
- Jackson, J. W. 1935 Twelfth interim report of committee appointed to co-operate with a committee of the Royal Anthropological Institute in the exploration of caves in the Derbyshire district. The rodent remains from the Pin Hole Cave. **Derbyshire Archaeological Journal**, 55 for 1934, 90-92.
- Jackson, J.W. 1937 Cave-hunting. **Transactions of the Rochdale Literary and Scientific Society**, 19, 72-81.
- Jackson, J.W. 1947 The Upper Pleistocene fauna and its relation to the Ice Age. **Proceedings of the Liverpool Geological Society**, 19(4), 165-183.
- Jackson, J. W. 1956 The Creswell Finds. **Derbyshire Countryside**, 21(6), 27.
- Jackson, J.W. 1962 Archaeology and Palaeontology. In : Cullingford, C.H.D. (ed.) **British Caving : an Introduction to Speleology**. London : Routledge & Kegan Paul, 252-346.
- Jackson, J.W. 1966 Sir William Boyd Dawkins (1837-1929). A biographical sketch. **Cave Science**, 5(39), 397-412.
- Jackson, J. W. 1967 The Creswell caves. **Journal of the British Speleological Association**, 6(41), 8-23.
- Jacobi, R.M. 1980 The Upper Palaeolithic of Britain with special reference to Wales. In : Taylor, J.A. (ed.) **Culture and Environment in Prehistoric Wales**. Oxford : British Archaeological Reports British Series 76, 15-99.
- Jacobi, R.M. 1991 The Creswellian, Creswell and Cheddar. In: Barton, N., Roberts, A.J. and Roe, D.A. (eds) **The Late Glacial in north-west Europe: human adaptation and environmental change at the end of the Pleistocene**. London: Council for British Archaeology Research Report 77, 128-140.
- Jacobi, R.M. 1997 The "Creswellian" in Britain. In: Fagnart, J-P. and Thévenin, A. (eds) **Le Tardiglaciaire en Europe du Nord-Ouest. Actes du 119^e Congrès national des Sociétés historiques et scientifiques, Amiens 1994**. Paris: Éditions du CTHS, 497-505.

Jacobi, R.M. (in prep) Creswell Crags SSSI Derbyshire / Nottinghamshire. **English Nature Geological Conservation Review**

Jacobi, R.M., Rowe, P.J., Gilmour, M.A., Grün, R. and Atkinson, T.C. 1998 Radiometric dating of the Middle Palaeolithic tool industry and associated fauna of Pin Hole Cave, Creswell Crags, England. **Journal of Quaternary Science**, 13(1), 29-42.

Jenkinson, R.D.S. 1978 **The archaeological caves and rockshelters in the Creswell Crags area**. Creswell Crags Visitor Centre Research Report No. 1, Nottinghamshire County Council.

Jenkinson, R.D.S. 1983a **The Archaeological Site of Creswell Crags**. Unpublished PhD Thesis, University of Sheffield.

Jenkinson, R.D.S. 1983b The recent history of northern lynx, (Lynx lynx Linné) in the British Isles. **Quaternary Newsletter**, 41, 1-7.

Jenkinson, R.D.S. 1984a **Creswell Crags: Late Pleistocene Sites in the East Midlands**. Oxford: British Archaeological Reports British Series 122.

Jenkinson, R.D.S. 1984b A rapid but short lived colonisation of the British Isles by the Northern Lynx. In Jenkinson R.D.S. & Gilbertson, D.D. 1984 **In the Shadow of Extinction: A Quaternary Archaeology and Palaeoecology of the Lake, Fissures and Smaller Caves at Creswell Crags, S.S.S.I.** Sheffield: University of Sheffield, Department of Prehistory and Archaeology.

Jenkinson, R.D.S. 1984c Vertebrate species turnover rates at Creswell Crags, 70,000 to 9,000 B.P. In Jenkinson R.D.S. & Gilbertson, D.D. 1984 **In the Shadow of Extinction: A Quaternary Archaeology and Palaeoecology of the Lake, Fissures and Smaller Caves at Creswell Crags, S.S.S.I.** Sheffield: University of Sheffield, Department of Prehistory and Archaeology.

Jenkinson, R.D.S. 1985a **Creswell Crags Visitor Centre Resource Collections**. Nottinghamshire and Derbyshire County Councils.

Jenkinson, R.D.S. 1985b Dead Man's Cave, North Anston. In : Briggs, D.J., Gilbertson, D.D. and Jenkinson, R.D.S. (eds) **Peak District & Northern Dukeries Field Guide**. Cambridge : Quaternary Research Association, 128-129.

Jenkinson, R.D.S. 1985c Creswell Crags S.S.S.I. In: Briggs, D.J., Gilbertson, D.D. and Jenkinson, R.D.S. (eds) **Peak District & Northern Dukeries Field Guide**. Cambridge: Quaternary Research Association, 131-134.

Jenkinson, R.D.S. 1985d Creswell Crags Visitor Centre. In: Briggs, D.J., Gilbertson, D.D. and Jenkinson, R.D.S. (eds) **Peak District & Northern Dukeries Field Guide**. Cambridge: Quaternary Research Association, 157-158.

Jenkinson R.D.S. 1989a The archaeological caves of Creswell Crags. **Cave Science**, 16(3), 91-94.

Jenkinson R.D.S. 1989b Pin Hole Cave, Creswell. **Cave Science**, 16(3), 95.

Jenkinson R.D.S., Atkinson, T.C., Gilbertson, D.D., Hunt, C.O. and Rowe, P.J. n.d. **A milder interlude around 165 ka: evidence from Creswell Crags S.S.S.I., U.K.** Typescript. Creswell Crags Visitor Centre.

Jenkinson, R.D.S., Blackham, A., Cartledge, K., Coles, G.M., Griffin, C.M., Hillam, J., Hunt, C.O., Norris, M., Pyatt, F.B., Row, D., and Row, R. 1984 Creswell Crags – towards a natural history. In Jenkinson R.D.S. and Gilbertson, D.D. 1984 **In the Shadow of Extinction: A Quaternary Archaeology and Palaeoecology of the Lake, Fissures and Smaller Caves at Creswell Crags, S.S.S.I.** Sheffield: University of Sheffield, Department of Prehistory and Archaeology.

Jenkinson, R.D.S., Bramwell, D., Briggs, D.J., Gilbertson, D.D., Griffin, C.M., Stebbings, R.E., Watts, C.J. and Wilkinson, M. 1982 **Death of a Wolf**. Creswell Crag Visitor Centre Report No.3. Nottinghamshire and Derbyshire County Councils.

Jenkinson, R.D.S., Bramwell, D., Cartledge D, Griffin, C.M., Hunt, C.O., Gilbertson, D.D., Sampson, C. 1984 Steetley Quarry Cave: a 'lost' Ipswichian interglacial site and Steetley Cave: a five thousand year old badger den. In Jenkinson, R.D.S. and Gilbertson, D.D. 1984 **In the Shadow of Extinction: A Quaternary Archaeology and Palaeoecology of the Lake, Fissures and Smaller Caves at Creswell Crag, S.S.S.I.** Sheffield: University of Sheffield, Department of Prehistory and Archaeology.

Jenkinson, R.D.S. and Bramwell, D. 1982 The birds of Britain when did they arrive? In Jenkinson R.D.S. and Gilbertson, D.D. 1984 **In the Shadow of Extinction: A Quaternary Archaeology and Palaeoecology of the Lake, Fissures and Smaller Caves at Creswell Crag, S.S.S.I.** Sheffield: University of Sheffield, Department of Prehistory and Archaeology.

Jenkinson, R.D.S., Briggs, D.J., Gilbertson, D.D., Griffin, C.M., Watts, C.J. n.d. **The palaeoecology and geomorphology of Creswell Crag : Dog Hole Fissure**. Unpublished Manuscript

Jenkinson, R.D.S. and Briggs, D.J., Griffin C.M., Stebbings R.E., Watts, C.M. Death, disarticulation and decay in an eight thousand year old rock fall. In Jenkinson, R.D.S. and Gilbertson, D.D. 1984 **In the Shadow of Extinction: A Quaternary Archaeology and Palaeoecology of the Lake, Fissures and Smaller Caves at Creswell Crag, S.S.S.I.** Sheffield: University of Sheffield, Department of Prehistory and Archaeology.

Jenkinson R.D.S. and Gilbertson, D.D. 1984 **In the Shadow of Extinction: A Quaternary Archaeology and Palaeoecology of the Lake, Fissures and Smaller Caves at Creswell Crag, S.S.S.I.** Sheffield: University of Sheffield, Department of Prehistory and Archaeology.

Jenkinson R.D.S., Gilbertson, D.D., Coles, G.M., Hunt, C.O. and Rowe, P.J. n.d. **The re-interpretation of the age and provenance of a human mandible from the west chamber of Robin Hood's Cave, Creswell Crag**. Typescript. Creswell Crag Visitor Centre.

Jenkinson R.D.S., Gilbertson, D.D. and Griffin, C.M. 1983 A hydraulic ram method for obtaining 'undisturbed' core samples from Quaternary cave sediments. **Proceedings of the Geologists Association**, 94(2), 187-190.

Jenkinson R.D.S., Gilbertson, D.D., Griffin, C.M., Hunt, C.O., Rowe, P.J. and Coles, G.M. 1986 New Upper Palaeolithic human remains from Robin Hood's Cave, Creswell Crag SSSI, U.K. In: Roe, D.A. (ed) **Studies in the Upper Palaeolithic of Britain and Northwest Europe**. Oxford: British Archaeological Reports, International Series 296, 89-98.

Jenkinson, R.D.S. and Gwynne-Griffiths, G.F. 1986 A reappraisal of the Late Upper Palaeolithic occupation of Dead Man's Cave, North Anston. In : Manby, T.G. and Turnbull, P. (eds) **Archaeology in the Pennines. Studies in Honour of Arthur Raistrick**. Oxford : British Archaeological Reports British Series 158, 29-53.

Jenkinson, R.D.S., Hunt, C.O., and Brooks, I. 1985 Pinhole Cave. In: Briggs, D.J., Gilbertson, D.D. and Jenkinson, R.D.S. (eds) **Peak District & Northern Dukeries Field Guide**. Cambridge: Quaternary Research Association, 135-138.

Jenkinson, R.D.S. and Sutherland, S.A. Changes in European geese and duck migration patterns during the Quaternary. In Jenkinson R.D.S. and Gilbertson, D.D. 1984 **In the Shadow of Extinction: A Quaternary Archaeology and Palaeoecology of the Lake, Fissures and Smaller Caves at Creswell Crag, S.S.S.I.** Sheffield: University of Sheffield, Department of Prehistory and Archaeology.

Kaldi, J. 1978 **Geological Survey of Creswell Crag**. Unpublished Report.

- Keith, A. 1912 **Ancient Types of Man** (2nd edition). London : Harper & brothers.
- Keith, A. 1915 **The Antiquity of Man**. London : Williams and Norgate.
- Kitching, J.W. 1963 **Bone, Tooth & Horn tools of Palaeolithic Man. An Account of the Osteodontokeratic Discoveries in Pin Hole Cave, Derbyshire**. Manchester: University Press.
- Knight, D., Garton, D. and Leary, R. 1998 The Elmton fieldwalking survey : prehistoric and Romano-British artefact scatters. **Derbyshire Archaeological Journal**, 118, 69-85.
- Kurtén, B. 1968 **Pleistocene Mammals of Europe**. London : Weidenfeld and Nicolson.
- Laing, R. 1890 On the bone caves of Creswell, and discovery of an extinct Pleiocene feline (*Felis brevisrostris*) new to Great Britain. **Report of the British Association for the Advancement of Science (Newcastle-upon-Tyne 1889)**, 582-584.
- Lane, H.C. 1970 Markland Grips Iron Age promontory fort. **Derbyshire Archaeological Journal**, 89 for 1969, 59-67.
- Lane, H.C. 1974 **Romano-British settlement in the South Pennines**. Unpublished M.A. dissertation, University of Keele.
- Leith Adams, A. 1879 Monograph on the British Fossil Elephants. Part II (*E. primigenius*). **Annual Volume of the Palaeontographical Society**, 33, 69-146.
- Lines, A. and Wall, I. 1998 **Problems in constructing the site matrix for Pin Hole Cave**. Unpublished Report, Creswell Heritage Trust.
- Longworth, I.H. 1984 **Collared Urns of the Bronze Age in Great Britain and Ireland**. Cambridge : University Press.
- Lydekker, R. 1905 Palaeontology. **The Victoria History of the Counties of England, Derbyshire**. Vol 2, 35-38.
- Manby, T.G. 1966 Creswellian site at Brigham, East Yorkshire. **Antiquaries Journal**, 46, 211-228.
- Mason, F.A. 1931 Entomogenous fungi from a Derbyshire cave : *Stilbella kervillei* Lindau, newly recorded in Britain. **The Journal of Botany**, 69(824), 205-207.
- McBurney, C.B.M. n.d. **Excavations at Creswell 1960**. Typescript. Cambridge, University Museum of Archaeology and Anthropology.
- McComb, P. 1989 **Upper Palaeolithic Osseous Artifacts from Britain and Belgium: an Inventory and Technological Description**. Oxford: British Archaeological Reports, International Series 481.
- McConnell A., 1986 **Microscopy and Submicroscopy of Cave Sediments**. Unpublished Report Department of Geography, University of Sheffield.
- Mcness, L 1984 **Taphonomy of micro-vertebrates in caves**. Unpublished MA Dissertation The University of Sheffield
- Mellars, P.A. 1969 Radiocarbon dates for a new Creswellian site. **Antiquity**, 43, 308-310.
- Mello, J.M. 1875 On some bone-caves in Creswell Crags. **Quarterly Journal of the Geological Society of London**, 31(4), 679-683.

- Mello, J.M. 1876a The discoveries in Creswell Crag. **The Manchester Guardian**, 10th May.
- Mello, J.M. 1876b The bone-caves of Creswell Crag. – 2nd paper. **Quarterly Journal of the Geological Society of London**, 32(3), 240-244.
- Mello, J.M. 1876c **Hand-Book to the Geology of Derbyshire**. London : Bemrose & Sons.
- Mello, J.M. 1877a The bone-caves of Creswell Crag – 3rd paper. **Quarterly Journal of the Geological Society of London**, 33(3), 579-588.
- Mello, J.M. 1877b Caves and their occupants. Illustrated by the bone caves of Creswell Crag. **The Popular Science Review**, New Series 1(4), 369-389.
- Mello, J.M. 1878 Les cavernes quaternaires de Creswell (Angleterre). **Association française pour l'Avancement des Sciences**, Le Havre 1877, 702-705.
- Mello, J.M. 1879a Caves and their occupants. **Annual Report of the Burton-on-Trent Natural History & Archaeological Society**, 3 for 1878-1879, 27-31.
- Mello, J.M. 1879b Palaeolithic man at Creswell. **Derbyshire Archaeological Journal**, 1, 15-24.
- Mello, J.M. 1879c Creswell Crag bone caves: fraud or hoax. **The Manchester City News**, 1st November.
- Mello, J.M. 1879d Creswell caves. **The Manchester City News**, 15th November.
- Mello, J.M. 1879e The Creswell caves. **The Manchester City News**, 29th November.
- Mello, J.M. 1880a Notes on the more recent discoveries in the Creswell caves. **Transactions of the Manchester Geological Society**, 15(13) for 1879-80, 290-304.
- Mello, J.M. 1880b Very ancient England. **The Manchester Magazine**, 3(2), 78-86.
- Mello, J.M. 1881 A short history of the Creswell caves. **Proceedings of the Yorkshire Geological and Polytechnic Society**, 7(3) for 1880, 252-265.
- Mello, J.M. 1882 Les grottes de Creswell. **Annales de la Société scientifique de Bruxelles**, 6(2), 233-241.
- Mello, J.M. 1891 **Hand-Book to the Geology of Derbyshire**. Second edition, revised. London : Bemrose & Sons.
- Mello, J.M. and Heath, T. 1876 On the exploration of Creswell Crag caves. **Transactions of the Manchester Geological Society**, 14 (4) for 1875-1876, 103-111.
- Mellors, R. 1908 **In and about Nottinghamshire : a book for the young men and women of the City and County**. Nottingham : J.&H. Bell Ltd.
- Metcalf, A.T. 1885a On the discovery in one of the bone-caves of Creswell Crag of a portion of the upper jaw of *Elephas primigenius*, containing *in-situ* the first and second milk-molars (right side). **Quarterly Journal of the Geological Society of London**, 41(1), 30.
- Metcalf, A.T. 1885b On the mammoth at Creswell. **Derbyshire Archaeological Journal** 7, 92-96.
- Moorhouse, S. 1973 The Yorkshire archaeological register : 1972. **The Yorkshire Archaeological Journal**, 45, 198-213.

- Moorhouse, S. 1978 The Yorkshire archaeological register : 1977. **The Yorkshire Archaeological Journal**, 50, 7-19.
- Mullins, E.H. 1907 Langwith Cave. **Transactions of the East Derbyshire Field Club**, 5, 32-34.
- Mullins, E.H. 1913 The ossiferous cave at Langwith. **Derbyshire Archaeological Journal**, 35, 137-158.
- Murray, J. 1987 **An analysis of the sedimentological properties of a prehistoric rockshelter : Thorpe Common**. Unpublished MA thesis, Department of Archaeology and Prehistory The University of Sheffield April 1987.
- Murray, J. 1989. The sediments from Thorpe Common Rockshelter. **Cave Science**, 16(3), 103-106.
- Oakley, K.P. 1959 Who polished the Pin Hole bones ? **The New Scientist**, 6(160), 1173.
- Oakley, K.P. 1980 Relative dating of the fossil hominids of Europe. **Bulletin of the British Museum (Natural History), Geology Series**, 34(1), 1-63.
- Oakley, K.P., Campbell, B.G. and Molleson, T.I. 1971 **Catalogue of Fossil Hominids, Part II: Europe**. London: British Museum (Natural History).
- Osman, A. 1981 Neanderthal bear tooth found in dig. **The Times**, 18th December.
- Owen, F.J. 1995 **Partial catalogue of horse material at Creswell Crags Visitor Centre**. Unpublished Report
- Owen, J.O. 1990 **The Potentialities of Amphibian Remains in Palaeoenvironmental Reconstruction**. Unpublished MSc Dissertation, University of Sheffield.
- Owen, R. 1885 Notes on remains of Elephas primigenius from one of the Creswell bone-caves. **Quarterly Journal of the Geological Society of London**, 41(1), 31-34.
- Pearson, T. 1986 **The mechanical weathering of Magnesian Limestone: A preliminary study of the breakdown of the Magnesian Limestone of Creswell Crags under simulated Freeze-thaw conditions**. MA. Thesis. The University of Sheffield.
- Pennington, R. 1877 **Notes on the Barrows and Bone-Caves of Derbyshire**. London : Macmillan and Co.
- Pennington, R. 1878 A review of the progress of pre-historic archaeology in the year 1877. **Report and Proceedings of the Manchester Field-Naturalists and Archaeologists' Society**, 1877-1878, 107-114.
- Petch, T. 1934 Twelfth interim report of committee appointed to co-operate with a committee of the Royal Anthropological Institute in the exploration of caves in the Derbyshire district. Report on fungi occurring on flies collected in the Pin Hole Cave. **Report of the British Association for the Advancement of Science (Aberdeen 1934)**, 255-256.
- Petch, T. 1935 Twelfth interim report of committee appointed to co-operate with a committee of the Royal Anthropological Institute in the exploration of caves in the Derbyshire district. Report on fungi occurring on flies collected in the Pin Hole Cave. **Derbyshire Archaeological Journal**, 55 for 1934, 88-90.
- Phillips, H. 1973 **Edlington Wood. An assessment of its recent history, archaeology, geology, natural history and educational and amenity value**. Doncaster Rural District Council.

- Phillips, P. and Guirr, H. 1985 Stone-age activity on the Hardwick-Pleasley Plateau of Nottinghamshire and Derbyshire. **Transactions of the Thoroton Society of Nottinghamshire**, 89, 132-135.
- Plant, J. 1876a Discoveries at Creswell Crags. **Transactions of the Manchester Geological Society**, 14 (3) for 1875-1876, 84-87.
- Plant, J. 1876b The discoveries in Creswell Crags. **The Manchester Guardian**, 5th May.
- Plant, J. 1879 Creswell Crags bone caves. Is it fraud or hoax? **The Manchester City News**, 18th October.
- Posnansky, M. 1958 A levalloisian implement from Lake Welbeck, Nottinghamshire. **Antiquaries Journal**, 38(1-2), 85-87.
- Radley, J. 1968 Excavations at a rock shelter at Whaley, Derbyshire. **Derbyshire Archaeological Journal**, 87 for 1967, 1-17.
- Ransom, W.H. 1866 On the occurrence of Felis lynx as a British fossil. **The Geological and Natural History Repertory and Journal of Prehistoric Archaeology and Ethnology**, I(19), 326-328.
- Ransom, W.H. 1867 On the occurrence of Felis lynx as a British fossil. **Report of the British Association for the Advancement of Science (Nottingham 1866)**, 66.
- Reynolds, S.H. 1902 The Cave Hyaena. A monograph of the British Pleistocene Mammalia II. **Annual Volume of the Palaeontographical Society**, 56, 1-25.
- Reynolds, S.H. 1909 The Pleistocene Canidae. A monograph of the British Pleistocene Mammalia II. **Annual Volume of the Palaeontographical Society**, 63, 1-28.
- Reynolds, S.H. 1912 The Pleistocene Mustelidae. A monograph of the British Pleistocene Mammalia II. **Annual Volume of the Palaeontographical Society**, 65, 1-28.
- Reynolds, S.H. 1933 The Pleistocene Red Deer, Reindeer and Roe. A monograph of the British Pleistocene Mammalia III. **Annual Volume of the Palaeontographical Society**, 85, 1-46.
- Reynolds, S.H. 1939 The Pleistocene Bovidae. A monograph of the British Pleistocene Mammalia III. **Annual Volume of the Palaeontographical Society**, 92, 1-65.
- Richards, T. 1989 Stone tools and blood residues from Thorpe Common Rockshelter. **Cave Science**, 16(3), 106-107.
- Ringrose, T.J. 1990 **The Statistical Analysis of Cave Palaeobiological Data**. Unpublished PhD Thesis, University of Sheffield.
- Row, R. 1884 Lepidoptera survey of the magnesian limestone. In Jenkinson R.D.S. and Gilbertson, D.D. 1984 **In the Shadow of Extinction: a Quaternary Archaeology and Palaeoecology of the Lake, Fissures and Smaller Caves at Creswell Crags, S.S.S.I.** Sheffield: University of Sheffield, Department of Prehistory and Archaeology.
- Rowe, P.J. 1986 **Uranium Series Dating of Cave Sites in the English Midlands**. Unpublished PhD Thesis, University of East Anglia.
- Rowe, P.J. and Atkinson, T.C. 1985 Uranium-Thorium dating results from Robin Hood's Cave. In: Briggs, D.J., Gilbertson, D.D. and Jenkinson, R.D.S. (eds) **Peak District & Northern Dukeries Field Guide**. Cambridge: Quaternary Research Association, 200-207.

- Rowe, P.J., Atkinson, T.C. and Jenkinson, R.D.S. 1989 Uranium-series dating of cave deposits at Creswell Crags Gorge, England. **Cave Science**, 16(1), 3-17.
- Ryder, P.F. 1974 Caves in the Magnesian Limestone of South Yorkshire, Derbyshire and Nottinghamshire. **Moldywarps Spelaeological Group Journal**, 7, 16-20.
- Sampson, C. 1977 **The location of subterranean cavities in the region of Creswell Crags, Derbyshire, by means of geophysical prospection**. Unpublished M.A. dissertation, University of Bradford.
- Sampson, C. and Jenkinson, R.D.S. 1979 **On the Discovery and Geophysical Survey of New Archaeological Caves in Creswell Crags, Derbyshire**. Creswell Crags Visitor Centre Research Report No.2. Nottinghamshire County Council.
- Sayce, R.U. 1937 Early man in Derbyshire. **Manchester Guardian**, 15th November.
- Scott, J.E. and Hughes, E.W. 1981 Chondroitin sulphate from fossilised antlers. **Nature**, 291 (5816), 580-581.
- Sheppard, T. 1925 The Creswell engravings. **The Naturalist**, August, 227-228.
- Shipman, J. 1880 A visit to the Creswell caves. **The Midland Naturalist**, 3, 135-138.
- Sieveking, A. 1987 **A Catalogue of Palaeolithic Art in the British Museum**. London: British Museum Publications.
- Sieveking, A. 1992 The continental affiliations of two Palaeolithic engraved bones found in England. **Antiquaries Journal**, 72, 1-17.
- Smith, B. 1913 The geology of the Nottingham district. **Proceedings of the Geologists' Association**, 24(4), 205-240.
- Smith, E.G., Rhys, G.H. and Eden, R.A. 1967 **Geology of the Country around Chesterfield, Matlock and Mansfield**. Memoirs of the Geological Survey of Great Britain, England and Wales. (Explanation of one-inch geological sheet 112, new series).
- Smith, R.A. 1912 On the classification of Palaeolithic stone implements. **Proceedings of the Geologists' Association**, 23(3), 137-147.
- Smithson, P.A. 1982 Temperature variations in Creswell Crags caves (near Worksop). **The East Midland Geographer**, 8(2), 51-64.
- Smithson, P.A. 1985 Cave microclimates at Creswell Crags: initial surveys. In: Briggs, D.J., Gilbertson, D.D. and Jenkinson, R.D.S. (eds) **Peak District & Northern Dukeries Field Guide**. Cambridge: Quaternary Research Association, 159-160.
- Sollas, W.J. 1924 **Ancient Hunters. And their Modern Representatives**. Third edition, revised. London : Macmillan and Co.
- Sollas, W.J., 1925 Late Palaeolithic art in the Creswell caves. **Nature**, 115(2890), 420-421.
- Stewart, J.R. 1992 **The Turdidae of Pin Hole Cave, Derbyshire**. Unpublished MSc. Thesis, City of London, North London & Thames Polytechnics.
- Sutherland S. (n.d.) **Pin Hole Cave, Creswell Crags : Bird Bones**. Unpublished Preliminary Report Creswell Heritage Trust.

Switsur, V.R. and West, R.G. 1975 University of Cambridge natural radiocarbon measurements XIII. **Radiocarbon**, 17(1), 35-51.

Terrell-Nield, C.E. 1982 **Floral Survey of Pin Hole Cave**. Unpublished Report

Terrell-Nield, C.E. 1985 An analysis of the invertebrate cave community in Robin Hood's Cave, Creswell Crags. In: Briggs, D.J., Gilbertson, D.D. and Jenkinson, R.D.S. (eds) **Peak District & Northern Dukeries Field Guide**. Cambridge: Quaternary Research Association, 165-177.

Terrell-Nield, C.E. n.d. **Cavernicoles at Creswell Crags Caves, analysis of an invertebrate cave community**. Nottingham Trent University Manuscript.

Terrell-Nield, C.E. and Macdonald, J. 1997 The effects of decomposing animal remains on cave invertebrate communities. **Cave and Karst Science** Vol.24 (2). Transactions of the British Cave Research Association.

Tudor, T.L. 1937 Ancient monuments of Derbyshire. **Derbyshire Archaeological Journal**, 57 for 1936, 147-151.

Tudor, T.L. 1938 Ancient monuments in Derbyshire scheduled by H.M. Chief Commissioner of Works under Acts 1913 and 1931, or recommended for scheduling by the Ancient Monuments Board for England. **Derbyshire Archaeological Journal**, 58 for 1937, 107-109.

Wall, I.J. 1990 **Report on a recent survey in Dead Man's Cave, North Anston, South Yorkshire**. Unpublished Report Creswell Crags Visitor Centre.

Wall, I.J. 1998 **Assessment of Pin Hole Cave Archive**. Unpublished Report, Creswell Heritage Trust.

Walton, W.H. 1935 Excursion to Creswell Crags. **Derbyshire Archaeological Journal**, 55 for 1934, 114-117.

Watkins, E. 1910 Hyenas. **Transactions of the East Derbyshire Field Club**, 8, 8-10.

Welford, R. and Crawford, J. 1913 Biographies of contributors to the Society's literature. **Archaeologia Aeliana**, 3rd Series 10, 109-333.

(West, S.E.) 1959 **Whitwell. Past, present and future**. Typescript. Sheffield City Museum.

(West, S.E.) n.d. **Ash Tree Cave, Whitwell**. Typescript. Sheffield City Museum.

White, F. 1864 **Nottinghamshire. History, Gazetteer and Directory of the county, and of the Town and County of the Town of Nottingham**. Sheffield: Francis White & Co.

White, G.F. 1970 **Excavation of the Dead Man's Cave**. Worksop Archaeological Research Group.

Yates, G. 1985 Robin Hood's Cave: mineral magnetism. In: Briggs, D.J., Gilbertson, D.D. and Jenkinson, R.D.S. (eds) **Peak District & Northern Dukeries Field Guide**. Cambridge: Quaternary Research Association, 183-199.

Young, J. 1891 On mammalian remains from Creswell Crag bone caves. **Transactions of the Geological Society of Glasgow**, 9(1) for 1888-1890, 210-212.

Zeuner, F.E. 1945 **The Pleistocene Period**. London.

Zeuner, F.E. 1958 **Dating the Past** (4th edition revised). London: Methuen & Co.Ltd.

Collection Quantity and Range by Field Collection Event