

6 YORKSHIRE DALES CATCHMENTS

6.1 Introduction to the Yorkshire Dales

The Carboniferous Limestone outcrop of the northern Pennines is extensive, with approximately 320 km² of karst terrain located within the boundary of the Yorkshire Dales National Park and an additional 220 km² of karst distributed north of the National Park along Teesdale, Weardale and the Vale of Eden as well as west of the Park in East Lancashire and around the shores of Morecambe Bay (Waltham et al., 1997; Waltham, 2004). Cave development has been less active in these marginal areas and the majority (>70%) of the region's caves are located within the National Park. It is estimated that the Yorkshire Dales region contains approximately 1500 caves and over 330km of accessible passages, based on the records maintained by the Limestone Research Group (Gunn, 2004) and the Northern Cave Registry (Brook et al., 1988, 1991, 1994). This represents a much higher density of caves than is the case in the Peak District, and the caves of the Yorkshire Dales are generally longer and deeper than their counterparts in the Peak District. In the Yorkshire Dales there is more vertical development of cave passages along structural joints in the limestone, whereas in the Peak District caves tend to develop along bedding planes and mineral veins (Waltham et al., 1997).

Many of the major caves lie in the Craven Uplands, a dissected carbonate platform stretching from Grassington in the east to Kirby Lonsdale in the west. The Craven Uplands are cut through by deep, N-S trending river valleys such as the Ribble and Wharfe which show the classic U-shaped profiles formed by glacial action. The southern part of the Craven Uplands is dominated by near horizontal exposures of limestone whose top surface forms a series of benches at around the 400m level. The area surrounding Ingleborough, Penyghent and Whernside (the Three Peaks) has the greatest relief and the best exposed limestone. Namurian sandstones and gritstones covered by upland peats cap the highest ground, and the underlying Carboniferous Limestone is either exposed as pavement or covered in other areas by thin deposits of glacial till. The till cover is frequently perforated by shakeholes (the local term for dolines) and by isolated larger potholes, many of which serve as stream sinks. The region contains the finest glaciokarst landforms in Britain (Waltham, 2004) and the geological and hydrological conditions are ideal for the development of large caves.

The valleys tend to be free of snow during the winter but this is not the case for the higher slopes: average daily minimum temperatures are at or below 0°C from December to March at an altitude of 380m at Malham Tarn (Waltham, 1974). The limestone outcrops tend to be at high elevations and support grassland with some scrub growing in where grazing animals are excluded: some of the more sheltered slopes are also lightly wooded. Farming on the higher limestones is almost totally restricted to sheep grazing but recent changes in farming practices has led to some farmers diversifying into native upland cattle breeds. There is usually more mixed farming on the valley bottoms. Quarrying is an obvious presence and both the limestone and the harder basement and igneous rocks have been exploited for aggregates and minerals. Currently the most active quarrying region within the National Park is concentrated on Horton and Settle and around Grassington but there is now no mineral vein exploitation. Some areas of karst have been severely damaged during recent decades through the removal of pavement formations for decorative rockery stone, and this damage has continued (albeit at a reduced level) despite the implementation of Limestone Pavement Orders under Section 34 of the Wildlife and Countryside Act 1981 (Goldie, 1993; Webb, 1995).

6.2 Geology

The limestone strata of the Yorkshire Dales National Park are laid above the elevated basement rocks of the Askrigg Block, which is bounded to the south, west and north by the North Craven, Dent and Stainmore faults respectively (Aitkenhead et al., 2002). A slight tilt to the Askrigg Block imparts a regional dip in the Carboniferous strata towards the northeast. Most of the hills above 400m are formed by the Namurian rocks of the Millstone Grit Series. These overlie the Carboniferous limestone, which in turn rests unconformably on the pre-Carboniferous basement rocks that reach the surface on the west (upthrow) side of the Dent Fault. The valleys of Swaledale and Arkengarthdale form the northern limit of the Carboniferous limestone outcrop within the National Park.

The Lower Carboniferous Great Scar Limestone (GSL) Group and its lateral equivalents contain most of the caves in the region. Recent revision of the lithostratigraphy has formally subdivided the GSL into the Kilnsey Formation and the overlying Malham Formation, the latter forming the most prominent scars (Arthurton et al., 1988), but the Great Scar Limestone is a useful and apposite term for the massive scar-forming beds of Lower Carboniferous limestone and is therefore retained here. There is some variation in the thickness of the GSL, for example around Ingleborough it varies between 100m and 200m in thickness but thickens northwestwards to over 400m near Hawes. Most of the GSL consists of well-bedded massive limestones, with apron-reef and knoll-reef development south of the Mid-Craven Fault. Stratigraphically above the GSL there are further limestone units in the Wensleydale Group and in the basal part of the Namurian (Arthurton et al. 1988) and these limestone units provide additional opportunities for cave development, particularly in the northern dales where the GSL is less exposed at the surface.

6.3 Cave exploration

Visits to the region's caves began to be recorded in the mid-eighteenth century (Craven, 1999). In the nineteenth century adventure caving commenced with first deep explorations in caves and potholes such as Gaping Gill, Alum Pot and Ingleborough Cavern, but it was not until the 1930s that caving developed as a popular sporting recreation (Waltham, 1974). The early phase of exploration concentrated on the obvious caves systems and passages in the southern parts of the Yorkshire Dales, and from about the 1960s onwards work has proceeded in the deeper systems with the vanguard of exploration increasingly being assigned to cave divers. The full extent of the cave systems of the Yorkshire Dales is not yet known and the discovery of new caves and extensions of existing caves occur on a regular basis. Most new discoveries are associated with exploration of the deeper systems but occasionally a new surface entrance is found (as, for example, at Rawthey Cave) and these instances should be monitored for the presence of any archaeological remains or palaeontological material. Most new discoveries are reported promptly in the caving literature although precise details of location are often retained for security and to ensure priority to the discoverers.

The Yorkshire Dales contains some of Britain's longest and most challenging sporting caves and the region attracts much attention from recreational cavers from throughout Britain. There are several active caving clubs whose members live within or near the Yorkshire Dales, with the Bradford Pothole Club, Craven Pothole Club, Northern Pennine Club and White Rose Pothole Club being amongst the most prominent. Although trips are still made to the 'classic' caves in the region, much of the digging attention is focused on gaining access to new passages via the shakeholes and potholes that proliferate across the limestone. The deeper cave systems such as Gaping Gill are undergoing periodic digs, but these are in the lower

parts of the systems well away from any *in situ* archaeological deposits. This is not to say that the Yorkshire Dales caves are safe from digging, as smaller caves do undergo periodic testing to evaluate their potential to 'go', but intensive surface digging activity appears to have been scaled down in recent years. During the survey of the Yorkshire Dales only one cave (Dib Scar Cave) was found to be under excavation by cavers, and this was obvious from the large mound of spoil outside the entrance in which were finds of deer antler and other faunal remains. There has been recent (mid-2005) digging at a cave south of Kinsey Cave (R. White pers. comm.).

6.4 Ingleborough and Whernside Area

6.4.1 Alum Pot



Plate 6.1 The site of the Selside Fissure Burial – much of the limestone has been stripped

mantled with hill peat while the lower levels around Selside are partially covered by glacial till. The higher slopes towards Ingleborough are designated as access land.

In the Alum Pot catchment the survey included the Selside fissure burial site (AP01) and a small un-named cave (AP02). The Selside fissure burial was discovered in the 1930s during limestone pavement stripping: a female skeleton was found below a stone slab. At the time, it was reported that a polished stone axe was found with the burial and this artefact was subsequently displayed in the Pig Yard Club Museum together with the skeleton (Gilks and Lord, 1985). Later investigations of the archive have cast doubt on this association (Tom Lord, pers. comm.) and it now seems as though the axe was found some distance from the burial site.

The Alum Pot catchment forms the east side of the Ingleborough plateau, a broad area of limestone benches surrounding the peak of Ingleborough, all of which is contained within the Ingleborough SSSI. The land mainly comprises open moorland dotted with shakeholes and large areas of limestone pavement, with few well developed or large caves but there are a number of potholes and wet sinks and resurgences. Many of the recorded caves are tucked along the edges of the limestone pavement. The upper slopes towards South House Moor are

6.4.2 *Newby Moss*



Plate 6.2 The Newby Moss catchment is typified with deep potholes

Newby Moss is located within the access land at the southern end of Ingleborough Hill, where a broad bench formed of Great Scar Limestone is partially obscured by glacial till. Cave development here is almost entirely characterised by vertical stream sinks, potholes and areas of shakeholes, and only one recorded site (Newby Moss Pot, inaccessible to this survey) shows substantial horizontal cave development (Brook, 1974; Brook et al, 1991). The site recorded in our survey (NB01) is an unnamed vertical fissure that is assessed as having low archaeological potential.

6.4.3 *The Allotment*



Plate 6.3 The Allotment catchment was characterised by very low crags

This catchment is within the access land on the southeast side of Ingleborough Hill, occupying the space between the catchments of Alum Pot and Gaping Gill. The area is on the plateau of Great Scar Limestone which is partly covered by hill peat on the upper slopes towards Ingleborough. Nearly all cave development is in the form of shakeholes, vertical sinks and potholes all draining to a substantial rising in the valley below at Austwick Beck Head. Long Kiln East Cave (AL01) was the only cave meeting the inclusion criteria for the survey.

6.4.4 *Kingsdale Head*



Plate 6.4 General view of the Kingsdale Head catchment

This area forms the upper part of Kingsdale on the southwest side of Whernside. There are a number of small wet caves all associated with sinks and tributary streams feeding into Kingsdale Beck. All of these caves are on access land except Upper Kingsdale Head Cave, and those sites to the south of Kingsdale Head are within the Whernside SSSI. Three unnamed caves and two previously recorded non-archaeological caves were included in the survey (KH01 to KH05).

6.4.5 *Marble Steps*



Plate 6.5 A general view of the crags typical of the Marble Steps catchment

This is an area of partially till-covered Great Scar Limestone located at the southern end of Kingsdale, northwest of Ingleton and on the east side of Ireby Fell. The catchment contains a large number of potholes (including one with archaeological remains) but few horizontal entry caves. All of the caves are on access land, and are within the Whernside SSSI. One cave (MS01) and the archaeological site of North End Pot (MS02) were visited in the survey.

6.4.6 *Gaping Gill*



Plate 6.6 Foxholes (GP07) with debris from cavers

archaeological caves, Gaping Gill (GP03) and Foxholes (GP07), and two previously unidentified rock shelter sites.

The Gaping Gill catchment is on the south side of Ingleborough Hill and includes the caves of Clapdale and Clapham Bottoms as well as the caves on the plateau above. There are many potholes and stream caves developed in the Great Scar Limestone, together with a few dry caves; all are on access land apart from Ingleborough Cave and its associated resurgences. The main resurgence for the area is at Clapham Beck Head, just above the main entrance to Ingleborough Cave. Nine sites were visited including the two known

6.4.7 *Bruntskar*

The Bruntskar catchment occupies the area between Winterscales Beck and the summit of Whernside to the northeast. The upper slopes of Whernside are designated access land and within the Whernside SSSI, while the land alongside Winterscales Beck is enclosed but well served by footpaths. There are two areas of cave development – higher up on the northeast side of the summit of Whernside above Greenset Crags, in the basal Namurian Main Limestone, and lower down on the Great Scar Limestone plateau near Winterscales Beck. There are no archaeological caves reported from this catchment, and no sites were visited during the survey.

6.4.8 *Park Fell*

The Park Fell catchment is situated at the northern end of the Ingleborough ridge, overlooking Ribbleshead, and includes the Scar Close national nature reserve. The caves are situated on the Great Scar Limestone bench surrounding Park Fell and are mostly on access land and within the Ingleborough SSSI. Most of the caves are vertical entry potholes or stream caves, and none were visited in the survey.

6.4.9 *White Scar*

This is the catchment to the west of Ingleborough, situated between Ingleborough summit and the town of Ingleton and including the extensive limestone benches of White Scars and Raven Scar. The caves are developed in the Great Scar Limestone and all are on access land and within the Ingleborough SSSI. Most of the caves are potholes or wet stream caves, but six sites proved suitable for inclusion in the survey. These comprised two unnamed rock shelters and four caves, including the archaeological site of Raven Scar Cave (WS03).

6.4.10 Scales Moor



Plate 6.7 Thaw Head Cave (SM01) interior

glacial till concealing some of the uppermost terraces. A spring line at the base of Twisleton Scars marks the junction between the base of the Great Scar Limestone and impermeable basement rocks. All of the caves are on access land and are within the Whernside SSSI. Two caves were visited in this area, including the archaeological site of Thaw Head Cave (SM01).

Scales Moor forms the southern side of the ridge extending from Whernside southwest towards Ingleton, and the catchment includes the Great Scar Limestone exposures of Twisleton Scars. Scales Moor has extensive limestone benches and some of the finest limestone pavements in Britain. The plateau is devoid of trees and scrub vegetation. Twisleton Scars form a staircase of rock terraces each with its own scree apron and with vertical scars of between 2m and 15m in height, with some intermittent cover of

6.4.11 West Kingsdale

The catchment includes the west side of the middle part of Kingsdale and encloses the limestone between Kingsdale Beck and the summit ridge of Gragareth, all of which is now designated access land and is within the Whernside SSSI. The area includes the major resurgence of Keld Head which emits most of the water sinking on both flanks of Kingsdale as well as taking water from the Marble Steps area of Ireby Fell (behind the resurgence are 7km of explored flooded passage, the most extensive such system in Britain). There are many potholes and a few caves on the Great Scar Limestone plateau above Keld Head Scar, Green Laid Scar and Shout Scar, of which Yordas Cave (WK01, a former show cave) was the single site visited in the catchment.

6.4.12 East Kingsdale

This catchment covers the opposite side of Kingsdale extending from the Kingsdale Beck to the summit of Scales Moor. The catchment contains many potholes, all of which are on access land and within the Whernside SSSI, but no sites were visited during the survey.

6.4.13 Chapel-le-Dale

The catchment includes the dry valley at the head of Twisleton Dale and the limestone benches on the northern flank of Ingleborough. There are many sites of speleological interest in the catchment but these are nearly all potholes and stream caves, and the catchment was not visited in the survey.

6.5 The Central Dales

This group of catchments includes the small dales feeding into the upper ends of Wharfedale and Litton Dale together with the valleys of Coverdale and Bishopdale, which lead northeastwards towards the River Ure.

6.5.1 *Langstrothdale*



Plate 6.8 Haggs Beck

The valley runs west to east and it accommodates the upper reaches of the River Wharfe and its tributary, the Green Field Beck. Four caves were visited on the south side of the River Wharfe, all of which were evaluated as having a low archaeological potential as they were either wet or had evidence of carrying water in flood conditions. There is little exposed limestone in the catchment and most of the caves recorded are either sinks and shakeholes or resurgence caves.

Although the caves were wet, it does suggest that there might other uses for the caves rather than the typical habitation or votive sites. The deposition of objects into water is known in many examples and these caves that take water deeper into the earth might have had some significance to earlier peoples

6.5.2 *Cosh and Foxup*



Plate 6.9 General view of the Cosh and Foxup catchment

visited in the survey.

This catchment encloses the drainages of the Cosh Beck and Foxup Beck, which together with the separate catchment of Pen-y-Ghent Gill to the south form the headwaters of the River Skifare. The Cosh and Foxup valleys drain the northern slopes of Pen-y-Ghent. Most of the caves in these catchments are wet caves located close to the becks. There are numerous pot and shake holes as the catchment crosses the boundary between the limestone and the mudstone. Three cave sites of low to moderate archaeological potential were

6.5.3 Coverdale and Bishopdale



Plate 6.10 A typical gorge in the Coverdale and Bishopdale catchment.

considerable frost damage and this has made them unstable in some parts.

Three caves were visited in the survey, all have *in situ* sediments and are therefore rated as having moderate with CB01 as having potentially high archaeological potential.

Coverdale and Bishopdale are long parallel valleys that run approximately northeastwards to join Wensleydale at Aysgarth and Middleham respectively. Both valleys are floored with glacial till deposits. The caves are concentrated towards the heads of these valleys, though there is another cluster of caves on the south side of the River Cover between West Scafton and Caldbergh. The gorges are characterised by having steep scree with crags rising vertically above the screes. Many of the cliff faces appears to have suffered

6.5.4 Lower Littondale



Plate 6.11 Dowkerbottom Cave (LL01)

Dowkabottom Cave (LL01). This cave and eight other sites (five caves, two rock shelters and a fissure) were visited in the survey. Several of the sites had *in situ* deposits and were judged to have moderate archaeological potential.

This catchment includes the lower part of the Littondale around Hawkswick, together with the side valley of Cote Gill. The sides of Littondale are formed in Great Scar Limestone while the valley bottom alongside the River Skiffare is floored with alluvium, river terrace deposits and glacial till. The catchment takes drainage from Hawkswick Moor, north of the River Skiffare, and Hawkswick Clowder, Low Cote Moor and High Cote Moor to the south. The catchment includes the well-known archaeological site of

6.5.5 Upper Littondale



Plate 6.12 Scoska Cave (UL01)

The catchment covers the land either side of the upper part of Littondale from Arncliffe to Nether Hesleden, and receives drainage from the extensive area of high fells to the north and south of Littondale. The area includes the archaeological sites of Scoska Cave (UL01) and Potts Beck Sink No. 2 (UL03), both of which contained human remains. These and one other site, Bown Scar Cave (UL02), an active resurgence cave of low archaeological potential, were visited during the survey.

6.5.6 Upper Wharfedale

This catchment covers the section of Wharfedale from Kettlewell to the junction with Langstrothdale at Hubberholme. Six caves were visited during the survey, all located on the southwest side of the valley, and none were rated as having more than moderate archaeological potential.

6.5.7 Darnbrook and Cowside

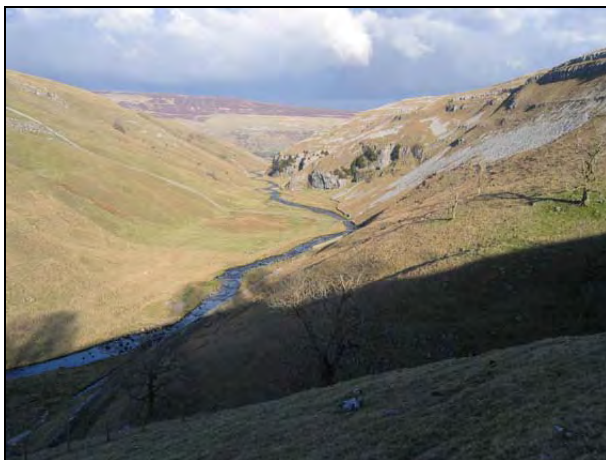


Plate 6.13 View looking north along Darnbrook Beck

Darnbrook Beck and Cowside Beck drain a large area of Fountains Fell and Darnbrook Fell, to the north of the Malham Plateau. The dale is characterised by sheer cliffs with banks of scree. It is not known whether any caves exist below the scree line but this seems unlikely.

Six caves were surveyed and all but one had low archaeological potential. The caves tended to be of two types: either very narrow and deep or broad and shallow. The one cave (DC03) that had *in situ* deposits lies behind a bank of rocks which appears to have fallen

from the cliff face over the years, although the cliff now appears to be stable. Inside this cave were the skulls of two sheep, which had either been dragged in by animals or had died inside the cave.

6.6 Attermire



Plate 6.14 Attermire Scar from Warrendale Knotts – Victoria Cave (AT06) and Albert Cave (AT04) visible

The slightly lower crags of Warrendale Knotts face south and east towards Attermire Scar across a shallow dry valley. Warrendale Knotts is a mass of reef limestone with many small caves dotted over it, very few of which seem to have been excavated or tested either by cavers or archaeologists. Because of their small size, habitation in the caves is unlikely but they could have been used for other activities.

The land is under private ownership but is designated as access land and is also within the Attermire and Langcliffe Scars SSSIs. Footpaths run through the areas and the access land status means that visitors are not confined to the footpaths. The area is less than 2km from Settle and receives a lot of walking traffic. The main farming practices are sheep and cattle grazing. There is no standing water but seasonal springs running from the foot of the limestone scarp feed into a mire in the south of the catchment, but this has only been drained in historical times. The area is treeless and the predominant vegetation ranges from short grassland on the pastures and valley bottoms to the rougher grasses of the moorland.

Ownership, land use and access

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Caves, archaeology and conservation status

Brook et al. (1991) record 30 caves in the catchment, and six of these are recorded as having contained archaeological remains, but in the course of intensive survey of the area 34 sites were discovered comprising 32 caves and two rock shelters. Most of the caves examined on Warrendale Knotts were rated as having moderate archaeological potential on the basis of their possession of *in situ* sediments.

The well known caves along the Attermire Scar are Jubilee Cave (AT02), Albert Cave (AT04), Victoria Cave (AT06) and Attermire Cave (AT29). These have all produced archaeological artefacts but are also the caves that are under the most serious threat from both cavers and the casual visitor. The screes that run from the caves are a

Location and geomorphology

The limestone scars around Settle, in particular Attermire and Giggleswick Scars, contain over half of all the known archaeological caves in the Yorkshire Dales. The caves at Attermire witnessed the birth of cave archaeology in the Dales, and the discovery and excavation of Victoria Cave in the 1830s lead to further exploration of cave sites throughout the Craven District.

The catchment is centred on two prominent exposures of limestone: the first of these is the sheer crag of Attermire Scar, which is L-shaped in plan view and runs from Jubilee cave in the north to Attermire and Horseshoe Caves in the east. At its northern end the crag is approximately 2m tall but gradually heightens until at its eastern limit the cliff face stands over 40m high.

potential source of archaeological material too as are the spoil heaps that are outside of Jubilee and Victoria caves.

Victoria and Albert Caves were both excavated in the 1870, some work was done in Victoria Cave earlier but there is little detailed information available, with Jubilee and Attermire Caves being explored in the 1930s. As a result only small amount of sediment survives in the caves and this is now under threat from a variety of sources. The method of excavation favoured total removal of the deposits including the flowstone floors and this pattern has been noted across the early excavation in both National Parks, making it difficult to offer any re-interpretation of the sites with the currently available information.



Plate 6.15 Upcast from cavers' digs in Albert Cave (AT04)

Of the caves in the catchment, only a few showed signs of being explored by cavers: Attermire Cave (AT29) and Albert Cave (AT04) were the most noticeable. Despite being gated, Albert Cave shows signs of recent caving exploration with the spoil being stored in the main chamber, which could potentially cover any archaeological deposits still remaining within the cave.

6.7 Malham



Plate 6.16 Malham Cove

Location and geomorphology

The Malham catchment contains some of the most dramatic limestone scenery in the Yorkshire Dales including the much-visited features of Malham Cove and the narrow gorge of Gordale. The catchment covers a block of limestones between the North Craven and Middle Craven Faults, with each of the surveyed areas containing different beds of limestone, which in stratigraphic succession are the Chapel House, Kilnsey, Gordale and Lower Hawes limestones (Arthurton et al., 1988).

The diversity of rock has resulted in a variety of cave formation across the catchment: the west of the area contains many shakeholes and potholes, while most of the caves are situated either in Gordale or along Langscar.

Apart from Malham Tarn with its associated stream there is very little surface water and the only above-ground streams are Malham Beck, which emerges from Malham Cove Rising at the foot of Malham Cove, and Gordale Beck.

Ownership, land use and access

In Langscar most of the land is tenanted from the National Trust and it is designated as access land and is within the Malham-Arncliffe SSSI. The land use is mainly for sheep grazing and it receives a great number of visitors who mainly keep to the well trodden paths which include the Pennine Way. At Janet's Foss the gorge is in the care of the National Trust and is also within the SSSI, and it receives a large number of visitors who walk up through the gorge from the village of Malham towards Gordale. Both sides of the dale are in woodland which is well managed. Great Close Scar is close to the National Nature Reserve of Malham Tarn and is within the SSSI under the ownership of the National Trust. The surrounding area is access land used for sheep grazing and there are several footpaths that cross the land to the NE.

The West Malham part of the catchment is privately owned and used mainly for sheep grazing, but as with other parts of the catchment it is crossed with footpaths and is designated as access land, although it falls outside the Malham-Arncliffe SSSI. Malham Cove is owned by Malham parish council and is a well recognised tourist attraction a short distance from Malham village and just off the Pennine Way, so it is a place much visited by hikers and rock climbers.

The Broad Flats and Gordale Scar areas are in private ownership and are also access land that is part of the Malham-Arncliffe SSSI. The land is used for sheep grazing, and there are footpaths that skirt the northern edges of the pavement as well as following Gordale Beck through Gordale Scar.

Caves, archaeology and conservation status

Of the 68 individual caves in the catchment recorded by Brook et al. (1991) many are potholes entered from within shakeholes, so these were outside the criteria for inclusion in the survey. A total of 22 caves were surveyed in eight separate areas, these included 18 caves, three rock shelters and one fissure. Three archaeological caves are known in the area but it is possible that the Watlowes Caves and other sites within the catchment may have been archaeologically investigated, although there are no written records to substantiate this conjecture.

6.7.1 Langscar



Plate 6.17 Langscar looking north

This locality was the most intensively surveyed area as it has the highest concentration of caves (as opposed to potholes) in the catchment. It contains the L-shaped dry valley and gorge of Watlowes, a former glacial meltwater channel that runs SSW and then SE from the sinks below Malham Tarn to Malham Cove. There are terraced scars and stretches of limestone pavement along both sides of the gorges.

There was no surface water visible during the survey, and although there are dry streambeds running through the gorge it seems that these are rarely, if ever, active. The exposed rock is Gordale Limestone which forms prominent crags. Only one archaeological cave (MM01) is known but other caves in the Watlowes valley appear to have been cleared at some point, though in a few cases sediments are still *in situ*. Twelve sites were visited: ten caves

and two rock shelters. Most of the caves surveyed were of relatively small size with low entrances and were not very deep. MM01 has evidence of being excavated with a small spoil heap outside the entrance but there is confusion between the archaeological evidence from this cave and the site named 'Tot's Langscar Cave' which is located about 1km to the west. There are five caves in the Watlowes Gorge, four of which appear to have been explored at some point either by cavers or archaeologists.

The general level of care for many of the caves is good, although MM06 appears to be in danger of natural collapse. The proximity of many of the caves to the footpaths results in their receiving a fair number of visitors, with MM01 getting most of the attention. MM08, MM09, MM10, MM11 and MM12 are very close to the Pennine Way but are slightly hidden behind the spoil dumps, although they show signs of rock erosion at their entrances. The sediments in many of these caves are relatively safe despite being previously dug, although there is an additional threat from the presence of badgers. The caves on the higher slopes (MM04, MM05 and MM06) receive very little attention as most visitors tend keep to the paths rather than explore the higher limestone pavements.

6.7.2 Janet's Foss



Plate 6.18 Janet's Cave

Janet's Foss is a NE-SW stream gorge which carries the Gordale Beck to the south of Gordale. The NW facing crag contains the best exposure of limestone, as the SE facing side of the gorge is partly concealed by scree. Brook et al (1991) list only one of the caves, MM13.

Five sites were surveyed: four caves and one rock shelter and all of the sites except Janet's Cave (MM13) were relatively small. Two of the caves (MM13 and MM16) had *in situ* deposits and were assessed as having high

archaeological potential. MM13 overlooks the waterfall of Janet's Foss and is visited frequently despite having to cross the beck to do so. The soil around the cave is badly eroded and the rock has been worn smooth. There is some damage to the internal structure of the cave from fire setting and rubbish accumulation, but this is relatively minimal considering the attention it receives. MM16 is located across the river from the main path and its entrance is not obvious from the path. There is only a little evidence of minor erosion from occasional casual visitors and sheep trampling at this site.

The level of care for the caves is very good, and although there are some concerns over the condition of MM13 the National Trust maintains the gorge to a high standard.

6.7.3 Great Close Scar

The Scar is an L-shaped crag running NW-SE that looks out over Malham Tarn to the SW. There is scree at the foot of the crag and the southern end of the scar shows much recent large block breakdown. Malham Tarn is approximately 200m from the crag and there are grasses and reeds in the surrounding area. Great Close Scar Cave (MM18) was the only site surveyed, and was assessed as having low archaeological potential. This is a fissure used for nesting by birds, so it is well protected and receives little attention from visitors.

6.7.4 West Malham

The western part of the Malham catchment extends to Grizedales and the north side of Kirkby Fell and this is an area that has a high density of shakeholes and shallow potholes. The landform is characterised by low hills and very few exposed limestone crags, although there are limestone pavements scattered across the area. One of the low crags of exposed limestone faces NE onto Langscar and this is the one with the archaeological site known as Tot's Langscar Cave (MM20). There are some areas of low lying bog as well and a few small streams funnelling into the shakeholes.



Plate 6.19 Tot's Langscar Cave (MM20)

cave. There has been confusion of this site with another Langscar Cave (MM01) which is recorded by Brook et al (1991) as being an archaeological cave, but information given by Tom Lord (pers. comm.) has identified MM20 as the cave described as having archaeological remains.

The other surveyed cave (MM21) is situated in an area of mined shafts and does look as though it has been modified in some way. It is a very large single chambered cave that has been explored by cavers, although no archaeological or palaeontological finds have been recorded. The cave is difficult to find and this undoubtedly protects it from excessive attention. There is much agricultural rubbish in the base of the cave but it appears to have been there for some time.

Two cave sites were surveyed, Tot's Langscar Cave (MM20) and Great Hole (MM21) and they are of very different character. MM20 was excavated before 1947 and is a small low cave tucked into the foot of the crag. It is not marked on Ordnance Survey maps, neither is it recorded by Brook et al (1991), and appears to receive little attention from visitors as it is away from the main footpath. It is used for shelter by sheep which are eroding the remaining sediments on the floor so there is a need to institute protective measures at this

6.7.5 *Broad Flats*



Plate 6.20 Barney's Hole (MM22)

cave was excavated by a professional archaeologist but a final report has not been made available so the exact nature of the archaeological finds (which apparently include human remains) is unknown.

Broad Flats is an area of limestone pavement mid way between Malham Cove and Gordale and is known to have one archaeological cave, MM22. The area is relatively high and overlooks Malham Tarn to the north and Malham Cove to the southwest. MM22 is a small cave tucked into the base of the pavement with a small enclosure surrounding it. The excavation trench has been back filled with rocks and the entrance way is small but this is possibly from the build up of soil or deliberate back filling to disguise the entrance. The

6.7.6 *Malham Cove*

The Cove forms a continuous curved crag of exposed limestone almost 80m high and facing south and west. Malham Beck rises at the foot of the crag. The Cove was surveyed but no caves or rock shelters were recorded. There is a lot of break down

of the crags and there is tree covered scree on either side of the cove, and although some rock shelters and possible caves were visible but it was too difficult to visit them. The general level of care for the Cove is good, as is to be expected from its ownership by the National Trust, and visitors are not encouraged to climb the sides of Cove or the cliff faces.

6.7.7 *Gordale Scar*



Plate 6.21 Gordale showing the high bands of limestone and tall scree banks

tend to be concentrated around the waterfalls and are only safely accessible using climbing equipment.

This is a short N-S running, high-sided gorge, and on the day of the survey visit the wind was very strong so no more than a cursory survey was made of the lower stretches of limestone as it was too hazardous to survey the higher crags. Gordale Beck flows through the bottom of the gorge and halfway along there is a set of waterfalls but these are usually dry. The sides of the gorge have some grass covered scree and there are sporadic trees and shrubs too. There are no archaeological caves known and the caves that are mentioned by Brook et al. (1991)

6.7.8 *Chapel Cave*



Plate 6.22 Chapel Cave (MM19) – previously excavated

This is in a small area of limestone that crops up to the west of Malham Tarn. Chapel Cave is an archaeological cave excavated by the University of Bradford between 1996 and 1999. The outcrop of rocks that it is within is farmed under the tenancy of the National Trust as grazing land. The cave itself is in a good state of repair and receives little interest as it is fairly low lying and is not obvious from the road or the main footpath.