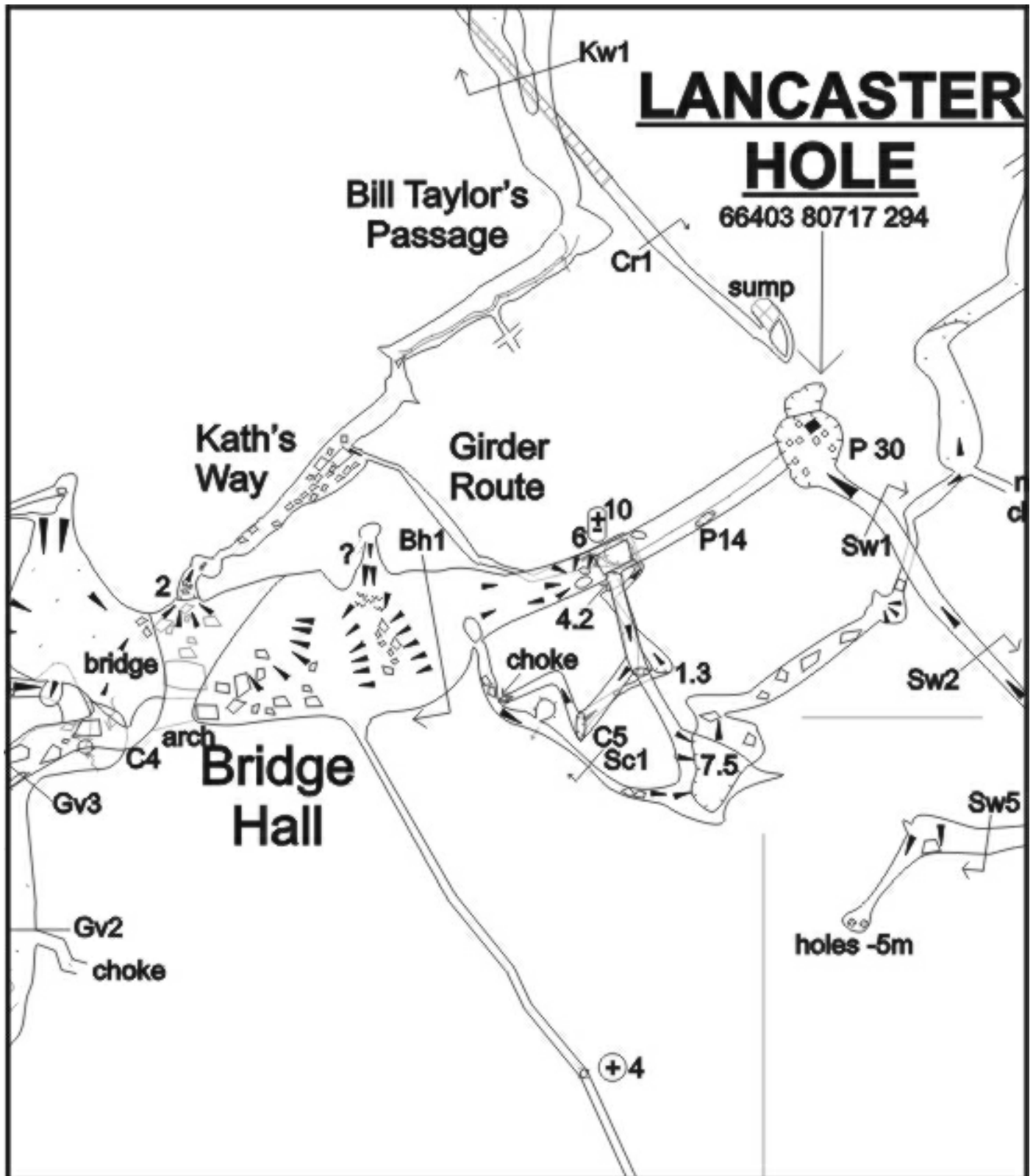


Part 1

LANCASTER HOLE

A Companion Guide to accompany
Sheet 1 (*revised edition 2024*) of the RRCPC, Grade 5b Survey

Published by: The Red Rose Cave and Pothole Club



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First Published 2001

2nd Edition (with revisions) 2007

3rd Edition (with further revisions) 2024

Cover illustration:

Extract from accompanying Sheet 1 survey that is produced in 2 colours.

Sheet 1 survey: Lancaster Hole

Drawn by Ray Duffy, winner of the Bryan Ellis Award – BCRA Hidden Earth 2001

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Introduction:

Location

The caves under and around Ease Gill, which is on the Cumbria/Lancashire border of the United Kingdom, form the longest and most complex cave system in Britain. The system extends beneath Casterton and Leck Fells. The caves are formed in the Carboniferous (Dinantian) Great Scar Limestone and contain a wide range of passage types, sediments and speleothems.

Changes in 3RD edition

The problems with the grid on the first edition of Sheet 1 were addressed in this second edition survey. Since the first edition was published the sump from Wilf Taylor's Passage to Bull Pot of the Witches has been re-opened, dived and is soon to be surveyed by Peter Devlin. Many typographical errors and descriptive changes have also been made.

This companion publication is the third edition of Part 1 in a series of surveys and companion guides published about the cave system. It is produced so that as future discoveries are made it can be easily added to by use of the notes section. Updated publications will have a revision date attached at the bottom of each page. In addition to being a guide and a description of the cave passages covered by this publication, included with this Part 1 companion guide is some general material on Speleology, Conservation, Access and History of Exploration to the whole system.

The Survey:

Background to Production

It has proved necessary to re-survey the system as more and more bits of the CRG published survey (1967) proved to be inaccurate and new discoveries in the system meant that this survey was added to without knowing where to start surveying from. The re-survey of the whole system was started by Frank Addis and the North Manchester Caving Club in the early 1980's, and much work was done before Frank emigrated to Spain in 1990. His notes and drawings were left with The Red Rose Cave and Pothole Club who have continued the work. A Grade 5b survey is gradually being completed, and is being published in a series of sheets at a scale of 1:750, with separate sheets at a larger scale where the complexity of the system dictates. We initially found great difficulty getting all the survey data to connect up. It was only after extensive new surface survey work had been undertaken that we realised that the available co-ordinates for the cave entrances were a little suspect to say the least, as they were incorrectly located on the Ordnance Survey maps.

In an attempt to correct these errors some accurate surveying work was undertaken from the Ordnance Survey triangulation point on top of Barbon Low Fell across Casterton Fell. All the cave entrances have now been accurately located and fixed survey stations established. All the cave entrance survey stations and many of the important underground survey stations have now been marked with yellow lamb tags to aid accuracy - please leave these in place. The survey data has been entered and plotted onto a computer using Surverx software. This was then imported into a drawing package for final drawing of the passage detail. Surveying work continues, and as of 2016 four sections of the survey have been published as well as an enlarged version at 1:200 of the "Trident Series".

(See back cover for details)

Scientific Background:

Introduction

The cave system extends beneath Casterton Fell and Leck Fell. It contains a wide range of passage types, sediments and speleothems that give an excellent record of karstic evolution and associated surface development through several ice ages. The text in this section is a summary of material provided by Natural England as the system is part of a designated S.S.S.I. and is of National geological importance. (See Conservation Page)

Description

The cave system described lie within the catchment area of the Leck Beck Head resurgence and contains over 70 km of known cave passage. The caves can be divided up into three sectors. Firstly, the Ease Gill Caverns containing over 60 km of passages mainly under Casterton Fell and these are linked below Ease Gill to the second sector comprised of Link

and Pippikin Pots. The final sector contains the caves of the central part of Leck Fell include Gavel Pot, Death's Head Hole, Rumbling Hole, Lost John's Cave, Notts Pot, Ireby Fell Caverns, Low Dowk Cave, Rift Pot, Large Pot and have about 12 km of passage with a flooded connection to Pippikin Pot, giving a total length of at least 89 km. The true length will only be known when the current project is completed and previously dived connections re-surveyed.

Geology

The Dinantian Great Scar Limestone is about 200m thick with numerous shale bands up to 2m thick and dips gently to the northwest. The limestone, and hence the caves, is limited to the west by the Dent Fault. Here the limestone beds are buckled and faulted against Silurian greywackes, to the west in a disturbed zone up to 200m wide. These features especially control the development of Bull Pot of the Witches. To the southwest the limestone is cleanly faulted against younger beds but this is obscured by thick layers of glacial drift. Many minor faults and major sets of joints, running north to south and north-west to south-west, break up the limestone outcrop.

There are also shallow synclines plunging down dip on Casterton and Leck Fells. These have introduced local controls on cave development. The shale beds in the limestone have controlled the level of many of the horizontal passages, whilst the joints and faults have controlled the location of pitches. Thick layers of glacial till have obscured much of the karst surface topography.

Hydrology

The cave systems all derive their surface water from streams, which originate on the upper slopes of Gragareth and Crag Hill. These streams all sink close to the Limestone boundary with the Yoredale facies above. The main surface feature is the normally dry Ease Gill. In dry weather the water sinks upstream of Top Sink at the limestone-shale boundary and the valley is dry all the way down to Leck Beck Head. In flood conditions the water flows down the gill and is swallowed by a series of sinks from Top Sink downwards. Leck Beck Head lies just east of the Dent Fault and is the resurgence for all the caves between Aygill Caverns to the north and Ireby Fell Cavern to the southeast. Ease Gill and hence the cave system can respond rapidly to floods with a flood pulse 0.5m high having been seen making its way down the gill after heavy rain. These floods, however, also rapidly subside once the rain ceases.

Geomorphology

Ease Gill Caverns form a large cave system containing many types of passage morphology. The caves are accessible through over a dozen entrances mainly located in Ease Gill and several which are located on the fells to the north and south. The main feature of the cave system is the abandoned phreatic trunk passage running east to west under Casterton Fell. It starts in Top Sink and heads west to form a complex of old passages in Lancaster Hole. Here it is joined by similar large old passages from Bull Pot of the Witches. It then turns south to end in sediment-choked passages heading towards Leck Beck Head.

Almost directly below the high level passage is a fine vadose canyon, Lancaster Hole's Main Drain, 2-5m wide and up to 30m high in places. Parts of the Main Drain have cut down from the upper level passages whilst other sections have bedding plane roofs. There is extensive undercutting along numerous shale bands with collapse in some sections from the passages above. The passage ends under Lancaster Hole in a high rift containing the terminal sump pool. This drains into a large phreatic conduit 30m below water level and has been explored for several hundred metres straight towards Leck Beck Head.

Much of the rest of the system consists of active vadose streamways draining down dip from Ease Gill, including Top Sink, Boundary Pot, Borehole, Pool Sink and County Pot. Most of these inlets descend about 50m to reach the Main Drain and are complicated by captures and re-routings into pre-existing passages. These passages predate the current level of Ease Gill, as many have upstream continuations on the opposite bank that have been truncated by the formation of the valley, e.g. County Caves on the opposite side of the gill to County Pot.

Cow Pot is the only major sink on the shale boundary on Casterton Fell. The stream descends an open shaft and meanders along a washed out shale bed to a 42m pitch from the roof of Fall Pot into Lancaster Hole. The entrance to the latter is close by and consists of a 30m shaft into the high level passages. To the south side of Ease Gill are other entrances to the system, which consist of another set of high and low level passages interconnected via shafts. Three entrances high on the fell Pippikin Pot, Peterson Pot and Bye George Pot lead down through constricted passages to phreatic trunk routes similar in appearance and level to those in Lancaster Hole.

Link Pot on the south side of Ease Gill gives easier access to the old phreatic trunk passages on the southern side of Ease Gill via a 15m pitch into a large tunnel beneath the normally dry streambed. All these passages are linked to Lancaster Hole via phreatic passages running to the northwest beneath Ease Gill. The stream passage from Link Pot and that from Pippikin Pot unite and flow into a flooded passage, descending a flooded rift to join the phreatic tunnel from Lost John's Cave and Gavel Pot over 20m below resurgence level. Leck Beck Head is the end of a phreatic lift with large submerged passages from Ease Gill Caverns and the Leck Fell caves uniting more than 30m below Witches Cave, the overflow resurgence. This is only active in times of flood. To the northern end of the system Bull Pot of the Witches contains a complex series of old high-level passages. They largely follow shale beds along the axes of folds within the Dent Fault disturbance zone. The water from the surface pot drains via a vadose streamway into a flooded phreatic loop heading up dip to the high level passages in Lancaster Hole.

Conservation & Access:

Introduction

Ease Gill Caverns form part of the Leck Beck Head Catchment Area S.S.S.I. administered by Natural England. Sites of Special Scientific Interest (S.S.S.I.s) are notified by Natural England because of their plants, animals, geological or physiographical features. Most S.S.S.I.s are privately owned or managed. About 40% are owned or managed by public bodies such as the Forestry Commission, Ministry of Defence and The Crown Estate, or by the voluntary conservation movement, and S.S.S.I.s cover approximately 7% of England's total area. Natural England liaises with about 23,000 owners and occupiers on these sites. The Whelprigg Estate and Kay - Shuttleworth Estate own the majority of Casterton Fell and the Leck Fell areas, respectively.

What are Sites of Special Scientific Interest? (S.S.S.I.s)

S.S.S.I.s are notified under the Wildlife and Countryside Act 1981, in recognition of their special biological and/or geological interest, having been selected according to rigorous and published guidelines. Together they comprise a nationally important series of areas representing all that is best in England's natural heritage. Yet they do not stand alone - they are part of the characteristic natural areas that are England's countryside and they depend on how this remaining countryside is cared for by our society.

Why is the Ease Gill Cavern System part of an S.S.S.I.?

The Leck Beck Head Catchment S.S.S.I. comprises an area which is not only of outstanding geological importance but which also includes areas of major biological interest.

Geological interest

The S.S.S.I. comprises several long cave systems and their catchment areas, all of which converge on the major karst spring of Leck Beck Head. The caves exhibit a wide range of features of interest, including a number of passages, which lie well above the present water table. These formed during successive stages (Devensian and Ipswichian) of the last Ice Age and provide important evidence of landform development during that period. The scale and variety of the caves make this a most important site for the study of surface and underground landform. The speleothems and sediments in the system are of special merit; both are of a delicate nature and offer the opportunity for the dating and interpretation of cave evolution, which once damaged, can never be recreated.

Biological Interest

Most of the biological interest of the site is concentrated around various physical features associated with the underlying Carboniferous Limestone, such as pavements, cliffs, potholes and gorges. Ease Gill is one of the principal locations for these and represents a unique feature for Cumbria and Lancashire. It comprises of a series of steep limestone cliffs and associated scree, which support a wide range of rare plants such as the Rigid Buckler Fern and the Limestone Polypody. Downstream the gill becomes a deep wooded gorge with associated rich calcareous woodland flora, such as the Wood Forget-Me-Not, Hairy Rock-Cress and eleven species of fern. Elsewhere the various outcrops of limestone, in the form of pavement, low ridges, scree and scattered stone, support a wide range of limestone plants. The steep rocky sides of the numerous potholes provide many un-grazed conditions in which calcareous woodland floras have developed.

Conservation Work in Ease Gill Caverns

The Red Rose Cave and Pothole Club has been closely involved with the Ease Gill Caverns cave system since its discovery in 1946 and adopted it under the Descent "Adopt-a-Cave" scheme. Nobody likes to go into a cave only to find dumped carbide, chocolate wrappers or anything else that shouldn't be there. Do you walk past, blind and insensitive? Do you stop and pick it up? Surely you don't add to it? In 1977, Descent magazine began a scheme to help acknowledge promote and encourage the work done by individuals and clubs in looking after their favourite caves. The Club therefore holds an annual clean up meet in the cave system and in recent years a great deal of rubbish has been removed, formations have been taped off to prevent damage from careless visitors and some formations have been cleaned. The use of carbide in the system is discouraged, hopefully to help reduce the dumping of spent carbide. Bats have also been seen in the cave system and a number of entrances have been provided with stock proof and bat-friendly lids that still allow bats to use the caves.

Surface work

In recent years footpath erosion has become a major problem with the increase in visitors to the system. Again the Red Rose has taken steps to prevent or reduce the risks of footpath erosion by carrying out remedial work, re-routing paths and repairing boggy areas of the heather moor land, below which much of the cave is located. Fences and stiles have also been repaired. Access signs have been placed on the fells and these should be followed at all times. The Club and its members on behalf of the Council of Northern Caving Clubs have carried out this work. As part of the club's conservation policy we have appointed a Conservation Officer, who can be contacted via. Bull Pot Farm or by consulting the contacts page of the club's Web site.

Access to the Cave System

The Council of Northern Caving Clubs currently controls access to the caves of Leck & Casterton Fells. Initial contact with the Council can be made by contacting:

The Honorary Secretary: Email: secretary@cncc.org.uk

Most of the land on these fells belongs to the Whelprigg and Kay-Shuttleworth Estates and access is by permit only to member clubs of the Council. The area below Leck Fell House, on which Pippikin Pot is located, now belongs to the Middleton family and permission must be obtained from Leck Fell House to enter Pippikin, Nippikin or Bye George Pots. The area has been designated as a Site of Special Scientific Interest (S.S.S.I.) primarily as a result of its cave systems and as such deserves respect from those who take advantage of the unique amenities the fell provides.

Casterton Fell:

To obtain a permit contact the Booking Secretary:-

Email: casterton.permits@cncc.org.uk

Permits are issued for a maximum of:-

Five permits per day at weekends

Two permits per day on weekdays

Three permits per day on weekday Bank Holidays

The maximum number of cavers is limited to 8 per permit, with a maximum of two cars per permit.

Cars should be parked with consideration; always allowing access through Bull Pot Farm and to other roads and gates, as this area is still used by agricultural vehicles on a daily basis. Access to the caves is via the agreed routes as shown on the permit. Signs and paths are maintained by the CNCC along with the stiles at Cow Pot and Link Pot.

Leck Fell:

To obtain a permit contact the Booking Secretary :-

Email: leck.permits@gmail.com

Details of the access agreement are as follows:-

There are 2 permits per day with no caving during April, May and June. No more than three cars are to be taken onto the fell per permit. Other cars may be left on the car park at Cowan Bridge (donations in the honesty box are welcome). Cars taken on to the fell must only be parked on the Lost John's Cave car park and not on the road verges elsewhere on the fell. This is indicated on the map on the reverse of the permit form. Cave entrances to be approached via the routes indicated on the permit map. The country code is to be obeyed at all times.

The landowner has indicated that in the event cavers transgress the access agreement, the fell will be closed for caving. The CNCC, on behalf of all cavers, wishes to maintain good relations with the landowner and therefore the cooperation of all concerned is sought to maintain caving access.

History of Exploration:

Much has already been written on the history of exploration of the cave system and reference should first be made to:

The Caverns of Upper Ease Gill - Northern Pennine Club (1952)

Lancaster Hole and The Ease Gill Caverns - CRG Transactions Vol.9 No.2 (1967)

The Ease Gill System - Jim Eyre (1989)

A brief summary of some historical events is given below.

Date	Event
1898/9	First recorded exploration of Bull Pot and Cow Pot, YRC
1909-1912	Bull Pot of the Witches - discovery of Burnett's Great Cavern etc., Kirkby Lonsdale Grammar School.
1919	First survey of Bull Pot of the Witches, YRC
1926	Further exploration in Bull Pot of the Witches including discovery of Robert's Passage, YRC
1927	Exploration of Hidden Pot, YRC
1929	First exploration of Pippikin, Nippikin and Peterson Pots, Gritstone Club
1932	Surveying, photography and discoveries in Bull Pot of the Witches and Cow Pot, Eli Simpson & BSA
1933	Survey and exploration of Lower Ease Gill Cave, BSA
1935-1936	First recorded exploration in Upper Ease Gill, Boundary Pot etc., BSA
1946	Discovery of Lancaster Hole and Hellot Hole, BSA
1947	Discovery of Oxford Pot and Near Ease Gill Caverns, BSA
1948	Cow Pot connected to Lancaster Hole, BSA
1949	Lancaster Hole pushed as far as Ease Gill Far Series, BSA
1950	Connection of Oxford Pot to Lancaster Hole, RRCPC
1951	Exploration of Slit Sinks and Rosy Sink, RRCPC
1952	County Pot dug out after Rosy Sink Collapses, RRCPC/NPC
1952-1955	Exploration of Top Sink and Upper Ease Gill, NPC
1956	Exploration of Pool Sink to Ease Gill Caverns, PPSG
1957	Discovery and exploration of Pegleg Pot, NPC
1958	CRG Extension and other Far Ease Gill discoveries made, CRG
1963	Discovery of Borehole, NLSC
1965	Discovery of Aygill Caverns, NSG
1966	Bull Pot sump connected to Lancaster Hole, HWCPC
1967	First full survey and account of system published, CRG
1970	Major extensions to Pippikin Pot, HWCPC/ULSA
1971	Discovery of Stake Pot (Earby) Series, EPC
1972	Climbing into Magic Roundabout Series, Lancaster Hole, CPC
1973	Maracaibo discovered, RRCPC
1976	Gavel Pot -Lost John's sump Connected, CDG
1978	Discovery of Link Pot, NPC
1981	Exploration of Woodhouse Way, Lancaster Hole, RRCPC
1984	Wretched Rabbit Entrance opened up, RRCPC
1989	Pippikin Pot - Gavel Pot Sump Connected, CDG
1989-1999	Lancaster Hole downstream sump extended, CDG
1989	Discovery of Sylvester Pot, RRCPC
1994	Discovery of Bye George Pot, RRCPC/ULSA
1997	Connection of Cow Pot to Aardvark Country, NPC
1997	Connection of Pippikin Pot to Witches Cave, CDG
1997	Connection of Leck Beck Head to Witches Cave, CDG
1999	Discovery of Slug World, RRCPC
2002	Connection of Peterson Pot to Pippikin Pot via Svengland, RRCPC
2003	Connection of County Pot to Swindon Hole and Corner Sink, RRCPC
2005	Spiral Staircase Passage connection to Wretched Rabbit, RRCPC

LANCASTER HOLE

Entrance Series

WARNING:

Lancaster Hole's Main Drain is a very active streamway with a powerful flow and is dangerous after rainfall. In extremely wet weather the Lancaster Hole's Main Drain backs up to a height of at least 30m above the Lancaster Hole Downstream Sump and floods many low level passages. Flooding of the passages below Echo Aven and Woodhouse Way, for example, could cause parties to be trapped.

The lid-covered entrance to Lancaster Hole is located in a group of limestone boulders on Casterton Fell. Follow the track past Bull Pot of the Witches to the stile, then follow the wall to the left until the Cow Pot stile is reached and then turn right down the shallow valley to the entrance. The entrance is in a group of boulders and is covered by a steel lid. **DO NOT CUT STRAIGHT ACROSS FELL SIDE!**

The 30m shaft is narrow at the top but soon opens out to large dimensions, passing two ledges to reach a shingle floor from which there are two ways forward. To the south east a climb leads up to Slug World, while to the south west a step up leads into a large rift passage with a tight slot in the floor that leads to a blind 14m pit. At the end of the slot, holes lead down to the complicated Girder Route area. A short walk beyond the slot leads to the top of a steep boulder slope, which enters Bridge Hall. Between the slot and Bridge Hall on the left are two routes into Sand Caverns, both of which unite at a 7m pitch. The Sand Caverns route continues below this pitch through a series of sandy chambers and crawls to a choke, which draughts. On the left in the penultimate chamber there is a squeeze and a very tight connection passage to The Crater. Slightly further down the steep boulder slope in Bridge Hall and also on the left, is the concealed crawl that leads to The Graveyard Series.

At the lowest point in Bridge Hall a hole down to the right enters Kath's Way. Ahead in Bridge Hall a mud slope can be climbed leading to a 6m pitch, Barker's Pot. To the left at the bottom of the slope an easy climb-up and exposed traverse round to the right enters a large passage. This closes down to a short crawl, which enters Colonnade Chamber with its beautiful columns. At the far end of the chamber the way swings to the right and narrows to a rift that chokes. Back in Bridge Hall the hole in the boulders drops into Kath's Way. At the bottom of the drop, a low crawl is reached, after 15 metres a branch off to the right leads into the Girder Route complex. From here there are two connections. One connects with the Sand Caverns, via a 7m pitch, and the other with the hole at the end of slot in the floor near the bottom of the entrance pitch.

From the end of Kath's Way the main route on is Bill Taylor's Passage, this enlarges to an alcove on the left where a shower bath enters. Behind the showerbath a tight crawl leads to an aven, with impenetrable bedding beyond. Continuing downstream in Bill Taylor's Passage a couple ways to the right lead to The Crater, a collection of underground shakeholes. Carrying on over the top of the Crater there is a small maze of passages with a tight connection through to the end of Sand Caverns.

A descent of the largest hole enters a squeeze to a duck. Beyond, a small passage leads to a junction, right leads to a 20m pitch into the Lancaster

Hole's Main Drain. To the left at the junction the passage continues passing a climb to a crawl to a perched sump.

Back in Bill Taylor's Passage the way on enlarges considerably and then splits into two, both ways re-unite in the vastness of Montagu Cavern. If the left-hand route is taken, a descent leads to a cleft in the floor, which is the 30m pitch of The Chasm, into the Lancaster Hole's Main Drain. Turning right at the cleft leads along Montagu Cavern, passing an ascending mud slope on the right, then the 31m Crap Trap pitch to the Lancaster Hole's Main Drain on the left, to gain Fall Pot.

At the junction in Bill Taylor's passage, the right hand route rises up steps cut in a mud slope to a smaller passage running parallel to Montagu Cavern. This passage opens onto the mud slope leading down toward the Crap Trap, an alternative 31m pitch that lands in the Lancaster

Hole's Main Drain. Ahead in the parallel passage crawling leads to a down slope, a traverse on the right wall is part of an SRT route to the huge boulder at the bottom of Fall Pot. Before the end of the slope, a rift on the left leads over boulders to join the left hand route from Bill Taylor's Passage at the platform in Fall Pot. Two SRT routes from this platform reach the floor of the impressive Fall Pot.

Back at the cleft a traverse up to the left following more steps cut in the mud leads to the start of Montagu West Passage. This can be followed to Wilf Taylor's Passage and Waterfall Passage, two separate routes down to the Lancaster Hole Lancaster Hole Main Drain and Downstream Sump.

Slug World

At the bottom of the entrance pitch to Lancaster Hole is a climb up to the south east. A high rift passage gradually lowers to a 'hands and knees' dug crawl in sand. This pops out up through the floor of a larger passage above. Straight on leads past some fine formations including a large column and helictites to a calcited choke with a draught. **Take care of formations in this area!** Back to the left, after exiting the dug-out crawl, is a passage leading to a calcited climb down into a lower passage with three holes each 6m deep in the floor. These all get too tight at the bottom but carry a draught and they are close to the Sand Caverns.

Fall Pot

By following one of the two routes from the end of Bill Taylor's Passage, taking care of the deep holes in the floor, the lip of Fall Pot itself is reached, with the stream entering from Cow Pot far above. Straight ahead along the platform a pitch of 14m descends to the base of a huge fallen block and muddy boulder floor. Rounding the huge block on the left leads to the main body of Fall Pot.

From Fall Pot a muddy traverse on the right of the chamber reaches a steep, muddy boulder climb that leads up into the continuation of the **High Level Route**, Montagu East Passage. This fine and large, mud floored passage, leads in an upstream direction. Avoiding the deep holes in the boulder floor the passage continues to the gaping hole of Stake Pot and the way on to the rest of the system. In recent years this section has become extremely slippery. **Take care!**

This section of passage is described more fully in the companion book to Part 2:

“Lancaster Hole: Stake Pot to Snail Cavern Area”.

From the floor of Fall Pot a devious descent through boulders (**care needed!**) joins the Lancaster Hole Main Drain.

Continuing upstream from the base of the boulder choke below Fall Pot, a small inlet on the right is the start of Woodhouse Way, though an easier entrance is from part way down the boulder choke between Fall Pot and the Lancaster Hole Main Drain. The Lancaster Hole Main Drain continues as a fine high passage, with several boulder obstacles for nearly 150m, to where the way narrows and a series of deep pools and small water chutes are encountered. Eventually more breakdown is reached and the passage swings left beneath the large collapse of Stake Pot. *This section of passage is described more fully in the companion book to Part 2: “Lancaster Hole: Stake Pot to Snail Cavern Area”.*

Downstream Lancaster Hole's Main Drain

From the foot of the boulder choke beneath Fall Pot, the streamway continues as a magnificent walking passage to the Lancaster Hole Downstream Sump. Twenty metres downstream from the boulders at Fall Pot, an obscure, small, arched entrance on the right is the start of Burgess' Passage leading to Aardvark Country and eventually Cow Pot. Further downstream, after 45m, is another passage, in the right wall of a left hand bend. The passage is short and ends in a choke, just before this there is a small sump on the right. Beyond this passage, after a further 25m of walking in the large Lancaster Hole's Main Drain, yet another passage on the right is reached, this is Wilf Taylor's Passage. Fifteen metres beyond Wilf Taylor's Passage, at another sharp left-hand bend, there is a large mud slope on the right that leads to Waterfall Passage. Ahead in the main streamway a further short section of large passage leads to the final Lancaster Hole Downstream Sump, 77m below Lancaster Hole entrance.

The Lancaster Hole Downstream Sump

The sump pool is 30m long and is the full width of the main passage and 11m deep. From base, after 25m, a large pebble-floored bedding on the right hand side leads off from the bottom of the sump pool. From here a passage averaging 1m high and 7m wide continues to 142m from base. Here it enlarges and enters possibly the biggest underwater chamber in Britain. Descending at this point is The Ramp, a steep slope into the chamber. From part way down the slope the continuing passage leads on, at 15m depth, and then descends to 32m. The passage carries on as an impressive scalloped tunnel, The Metro. From this point the

passage continues over shingle banks and gradually decreases in depth to the limit of exploration. At present this is at 650m from base and at a depth of 30m. This point is approximately 350m from the furthest explored upstream limit in Leck Beck Head.

Montagu West, Waterfall & Wilf Taylor's Passages

Montagu West

From the western end of Montagu Cavern, where it joins Bill Taylor's Passage at the cleft, a climb up steps cut in the mud slope leads to a narrowing in the passage. A strategically placed fixed iron ladder gives entry to a short awkward crawl. Beyond this a short descending slope enters a larger section where the way on is to the right through low arches into a larger passage with several holes in the floor. To the left, near the entrance to this passage is a slot down with a pitch to the Main Drain over 30m below, with an SRT traverse in the roof to join The Chasm route. Further up the left wall there is a short passage that ends in chokes. On the right, even further up the large passage is another very tight but blind chimney that descends for 5m. Alternating stretches of walking and stooping beyond here lead to a junction with the larger Portcullis Passage. To the left here it narrows into a rift with a hole in the floor that connects with Waterfall Passage 5m below, whilst beyond

there, yet another junction is quickly reached. The right-hand branch, which has been excavated and bifurcates, both passages soon choke.

Saturday Afternoon Series

Left at the junction at the southern end of Portcullis Passage, a sandy crawl leads off left for about 20m to a low excavated section. This is the start of Saturday Afternoon Series. Beyond, the passage gradually increases in size to a rift and a complex junction. First passage on the left chokes quickly but the next left leads to a short crawl and a 6m climb. Straight ahead at the junction is a slope up, blocked with mud, but the main way on is to the right, here is an obvious phreatic tube to another junction. Right here leads to a 3m climb into sloping floored aven. Left from the last junction leads to another T-junction to the left a narrow passage reaches a 5m aven that has been climbed and becomes too tight. To the right at the junction is a very low excavated sandy crawl, with a sharp left hand bend, enlarging to the base of a sandy ramp. Below the ramp is a squeeze through to further low crawls. The ramp has several choked passage at and near its top.

Back at the junction with Portcullis Passage, to the right continues as a 'hands and knees' crawl passing the almost destroyed Portcullis itself, just beyond, the floor drops. At the foot of the slope is a slot in the floor that connects to the left with Waterfall Passage. Further up the main passage another slot is reached that connects back to the first slot. Beyond the slots the continuing passage now has banks of sand and gravel along its sides, and eventually a T-junction is reached at Cross Passage. To the left here, passing a dig on the right, the passage leads after 40m to a drop down into the active streamway of Waterfall Passage, whilst to the right the continuation of Cross Passage enlarges as it enters Wilf Taylor's Passage.

Waterfall Passage

A short climb down from Cross Passage into Waterfall Passage enters a narrow stream canyon that can be followed upstream for a short way to where the roof lowers and the passage splits in two. The left-hand passage has been dug and bailed for 15m and is very low. This has been dye tested from a passage in Gale Garth Pot. The right hand branch continues as a 25m crawl in water to a sump. This starts with a slight squeeze over a gravel floor into a 2m wide and 0.6m high passage that passes several air bells and a right hand bend at a depth of 2m. Another air bell is passed at 28m from base, beyond which the passage surfaces after a dive of 33m. Here the passage turns sharply to the left and ends at an impassable, low bedding above water. A vocal connection was made here with the upstream end of Wilf Taylor's Passage

Downstream from Cross Passage, Waterfall Passage continues as a high narrow canyon with mud covered walls. About 100m from the drop into the streamway is a climb up out of the streamway and up a slope to the connection with the slot in Portcullis Passage. A 100m downstream a rope hangs down on the right from an inlet high up the passage wall. The inlet leads via two squeezes and some stooping passage into Hemingway Hall. At the end of Hemingway Hall there are three low beddings, one of which, Infinity Bedding, is very close to the end of Montagu South Passage. Back in Waterfall Passage, easy walking in the streamway leads to where the gradient becomes steeper with several small water chutes.

Eventually the passage slopes down to a 3m climb followed by a 5m pitch, or an alternative sloping waterfall climb down a spray-lashed chimney on the right. At the foot of the waterfall is a large cross rift, and the stream flows into a sump on the right. This sump has been dived for 6m, to a point where the walls and roof close in and the water flows into a very low bedding. The chamber itself,

Waterfall Chamber is fairly spacious and very tall. From the far side a narrow rift leads to a steep mud slope to enter the Lancaster Hole Main Drain at a sharp corner just upstream of the Lancaster Hole Main Downstream Sump.

Wilf Taylor's Passage

From the Cross Passage junction, the right-hand branch leads into Wilf Taylor's Passage. Upstream the passage can be followed in a gradually lowering route to a pool which finally sumps. The sump, that is usually static, can be dived through to Bull Pot of the Witches. During normal water conditions the main flow leaves via a small submerged passage in the true right wall and emerges from the right-hand branch sump in upstream Waterfall Passage. Downstream from the junction with Cross Passage, Wilf Taylor's Passage narrows to become a high rift with clean washed rock walls and floor – **this route floods in wet weather!** At the first right hand bend is a climb up onto a ledge leading to a pool. Beyond the pool a bedding on the right eventually chokes after many metres of crawling past stals. A hole just beyond the pool leads down to tight sumps. This is the upper end of Wilf Taylor's 2 Passage that re-enters the main Wilf Taylor's Passage further downstream. Downstream in Wilf Taylor's Passage, easy walking leads to a series of chutes and Double Decker Pot, with an awkward climb down to the pool at floor level of the chamber. Directly across the pool is a deep rift that can be climbed with care into the continuing passages below.

By traversing out above the descent rift it is possible to climb into Wilf Taylor's 2 Passage via a slot on the left that pops out into a parallel rift. The upstream passage (Wilf Taylor's 2) is a stooping passage for about 100m through low ducks to two short sumps. These are very constricted and should not be free dived, but lead to a canal and a further rift with a climb up to further ducks and a short bedding plane crawl to join back into the top end of Wilf Taylor's Passage.

From the downstream end of the chamber below the Double Decker Pot climbs, twin rift passages quickly reunite. In the left wall of the left-hand passage is a tortuous muddy crawl that ends in a steeply descending mud choke. The main route on continues as a zigzagging passage with several small water chutes. The passage finally emerges from an uninspiring entrance into the Lancaster Hole Main Drain upstream from the junction with Waterfall Passage.

Woodhouse Way

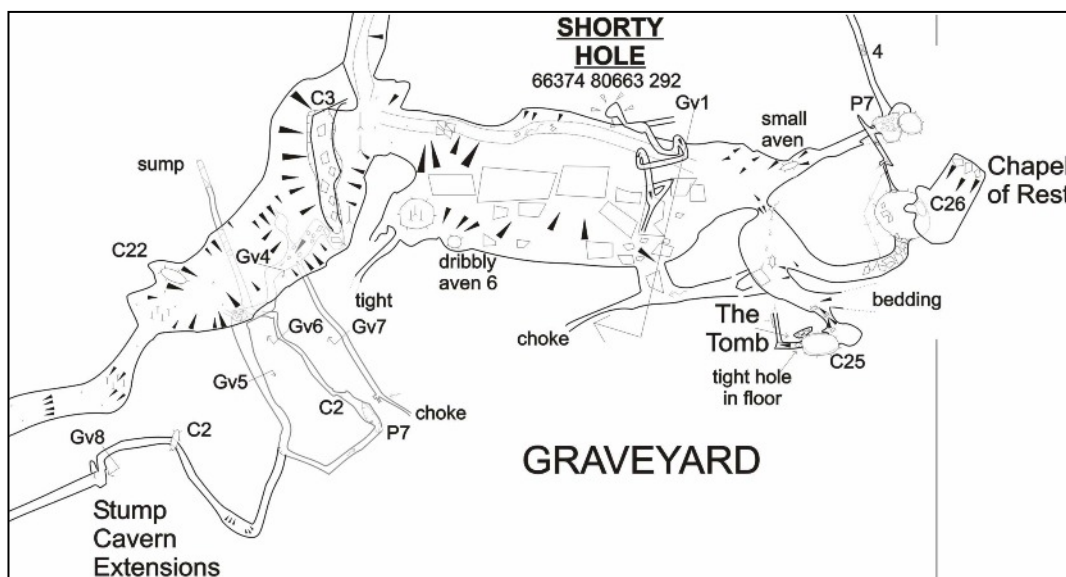
WARNING: The first 200m from the Lancaster Hole's Main Drain are very flood prone and can sump completely. The ducks can also sump after a moderate amount of rain.

A few metres upstream from Fall Pot is a small inlet on the right, this is the start of Woodhouse Way. A short bedding plane crawl enters a rift passage that continues for about 80m, passing an awkward climb, some traversing and crawling to reach a flowstone blockage. A squeeze to the left of the flow stone drops down into a flat out wet crawl to the First Duck, beyond this is a 1m high 'chamber' followed by the Second Duck that is tight and awkward. The ducks usually need clearing of rubble and flood debris. From the Second Duck follow along the rift and through an eyehole until a junction is reached after 30m. The inlet to the right becomes too tight after 50m and the way on is to the left through a 6m long bedding plane, the Third Duck. The way on now gets easier as the passage develops into a 6m high but narrow meandering streamway for 150m to reach a complex junction. Here all ways close down or loop back, but to the right is a 6m climb up in the main inlet to a bedding plane and a further chimney up into Haemorrhoid Hall. Across the

'grikes flooring the hall is an area of complex inlets, The main way on is via the first climb on the left, a 10m chimney up to an eyehole opening to Bat Chamber. The largest aven in the roof, Bat Aven is an 8m pitch which intersects another passage. Upstream is the blind 10m Radio Aven with a choked tube at its base, and downstream the passage soon chokes. The only option now is to retrace your steps back to Fall Pot.

The Graveyard Series

On the left at the base of the boulder slope in Bridge Hall, heading away from the Lancaster Hole entrance pitch, is the entrance to a crawl. After crossing two blind 4m pots in the floor a 7m pitch down into the Graveyard Series is reached. Two "P" anchors are in place in the roof here for a ladder or SRT descent. An inlet enters from the boulder choke on the left but the way on is to the right starting as a narrow rift for 15m that then widens out. The main passage leads to the Graveyard, but to the left a passage leads off to the Graveyard Aven Series. Continuing downstream into the Graveyard the chamber has several avens and also a mud and boulder-strewn floor, abundantly covered with stalagmites and is split by a gully containing a small stream. Upstream leads to a loose choke connection to the dug hole below the Colonnades climb up in Bridge Hall. Climbing down the gully passing large blocks and heading downstream reaches a junction. To the right the passage, mostly crawling, joins back into Stump Cavern. To the left at the junction the passage descends to a 7m pitch with a spit belay, following is a 2m climb down, to reach a short duck to small air bell and a sump. The sump has been dived but was found to be badly silted-up and impassable. Continuing across the gully (**please follow taped route**) via a rock bridge and up a slope, another aven over to the right is reached. This aven has been climbed for 22m to where it closes down. Straight ahead a wide crawl leads to Stump Cavern, the way on being a flat-out crawl to the western extremity where a crawl through and climb down boulders leads to a letterbox continuation and into a small rift passage. On the right, in the floor of the rift is the passage from the gully in the Graveyard. After traversing the passage gradually enlarges and descends a steep, muddy and awkward on return slope, to reach a junction with three ways onward. Beyond, the passage enlarges and leads to a junction with a far larger passage. To the left here leads into Skittle Alley and a deep sump pool.



Skittle Alley Sump

Directly opposite the point of entry to the junction, on a ledge, is a crawl. This becomes too low after 15m, whilst above the junction is a small aven, that closes down immediately. Downstream at the junction the passage enlarges and leads into Skittle Alley and a deep sump pool.

Directly opposite the point of entry to the junction, on a ledge, is a crawl that becomes too low after 15m whilst above the junction is a small aven that closes down immediately. Down-

stream at the junction the passage enlarges and leads into Skittle Alley and a deep sump pool.

The downstream sump in Skittle Alley is formed in a large rift. At the near end it descends 2m to a silt floor but this shelves-off to a depth of 6m at the far end of the rift. At the far end of the sump pool there is a miserable inlet above water but no outlet. A thorough search of the perimeter of the floor has revealed a 3m deep alcove but failed to locate a way on. The water appears to flow down an impenetrable gap between the left-hand wall and the silt floor. The water may reappear in Pegleg Pot. An exposed traverse in the roof over the sump leads to a dangerous choke and avens, a climb up the right wall just before the sump leads to a wet crawl and series of loose climbable avens on a fault.

Montagu South

Straight on at the junction is a crawl which gets too low after 15m, whilst above the junction is a small aven which closes down immediately. To the right at the junction leads to a muddy sump, Aqua Mud sump, that can be bailed to enter Montagu South. This commences as a low passage, but enlarges into a rift, which terminates at a seemingly blank wall. However by scaling this for 8m a way over and down an 8m pitch into a large chamber, Newton Hall can be found. From the far end a large passage soon degenerates into a low wide crawl that can be followed for over 80m until the way on gets too low. This is now known to be close to Saturday Afternoon Series off Portcullis Passage and Hemingway Hall. Back near the bottom of the 10m aven below Stump Cavern a small passage in the floor can be followed into the Stump Cavern Extensions to link back up with the gully in the Graveyard.

Graveyard Aven Series

Back at the entrance passage to the Graveyard, 10m beyond the entrance pitch, a window off to the left over a mud bank enters a flat-floored passage with ways straight ahead or to the right. Ahead leads over a dubious boulder slope to the base of the circular Graveyard Aven No.1. This has been bolted and partly climbed for 25 m past several alcoves to a ledge. From here a route up through boulders enters the Chapel of Rest, a chamber with formations and all exits choked. A narrow rift in the wall of the aven leads to a climb which reaches a further two avens. The first of these has water falling from it in wet weather. To the right a small stream sinks under a large boulder and behind this is a narrow slot leading to a tight bedding connecting with the main Graveyard passage. The main way on bears left up a steep slope and a short climb up to Graveyard Aven No.2. This has been climbed for 25m to a small loose chamber, The Tomb. Across the base of the aven a hole leads to a dig, on the right of the dig a narrow rift passes over a pitch that is too tight.

COW POT

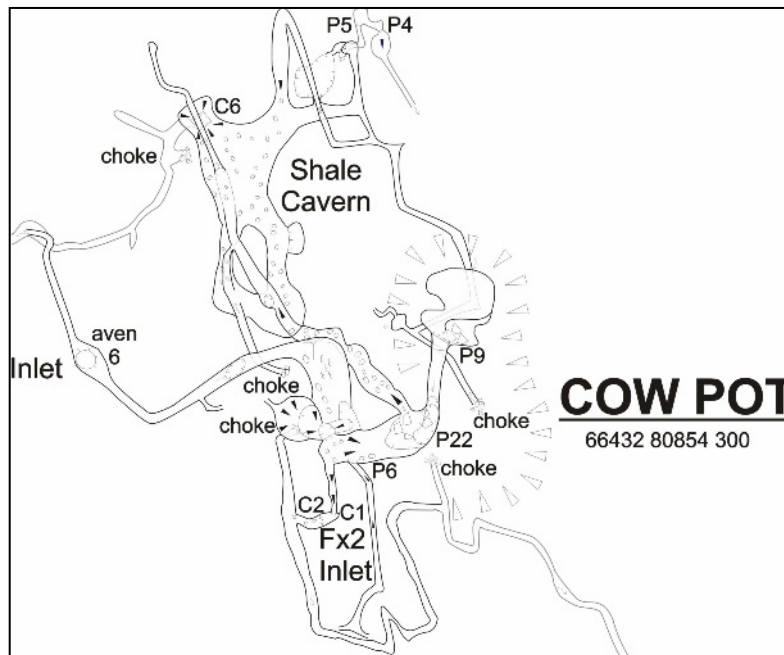
The entrance to Cow Pot lies in the shallow valley running north from Lancaster Hole, in a walled enclosure with a stile. (See access notes for

Lancaster Hole). The entrance pitch of 22m can be rigged from the 'P' hangers on the flat area of rock at the entrance. Alternatively, there is a route rigged with spits near the opposite end of the entrance hole. This gives a good practice circuit just in daylight and involves two pitches of 9m and 13m, with an optional traverse between them. Leading off from the entrance shaft are several short inlet passages including Fx5 Inlet.

This is up the rock slope off to the right of the bottom of the pitch, and is a series of short climbs up into avens, and a balcony overlooking the open pot. From here a bedding-plain leads to a stream inlet that can be followed over a blind 6m pot to end in two avens. Almost opposite the bottom of the pitch a large, meandering passage descends several short cascades to where the roof lowers, and a short crawl continues over large cobbles to a wide low chamber formed in a washed out shale band, Shale Cavern.

A number of passages radiate from here, the first one being on the left of the point of entry to the chamber, is a short crawl running back in the direction of the entrance and soon chokes. Only a few metres, clockwise around the wall in the chamber is another passage, this starts as a short crawl in a phreatic tube in the roof a few metres above the floor and soon chokes. Moving on round the chamber, a hole in the floor down through large boulders is met. This leads down a 3m, shored climb, and a descending rift passage towards the sound of falling water. The way on is an awkward passage followed by a tight rift. This leads out over a 12m pitch, which is tight at the top. This is the top of the final aven of Aardvark Country. The next passage out of Shale Cavern is up on a shelf in the washed out shale band. Continuing past a hole in the floor leads to a junction, the way to the left spirals back into the chamber and continues on to the top of a 6m pitch. To the right continues as a stooping walk to a further junction. To the left here leads up an inlet to a

choke very close to the foot of the entrance shaft waterfall, whilst to the right is a squeeze and a 2m climb down into a small chamber, the only outlet being an impassable slot taking the



stream. The final exit from the chamber is the one that connects with the left-hand branch of the above passage, but to one side is an opening onto a 4m pitch. From the foot of this a short crawl leads to an acute corner and a short drop into a small chamber.

The way on is an awkward squeeze in the right hand wall, which immediately arrives at the lip of another 4m pitch. A small chamber at the foot of this leads to a very narrow rift passage, becoming too tight within a few metres. This is currently being dug. Back at the foot of the entrance shaft up the rock slope to the right is the route through to the Lancaster Hole Main Drain. This starts as a narrow rift, which quickly swings to the right and after a short awkward climb down reaches a junction. To the right ends in a choke after a few metres, whilst to the left is the main way on in a low crawl. After passing several acute bends a stream inlet is met entering from the left and the crawl continues through a long pool. Gradually the passage enlarges until a short climb is reached down into a wide chamber, with a thick shale band in the walls. The stream sinks here in the floor but by continuing on across the upper ledges leads to a direct pitch of 46m into the vastness of Fall Pot. An alternative route is via a short traverse in the gully to a boulder platform with a 9m pitch to rejoin the stream before it drops into Fall Pot. Across the stream passage and through a window is a dry pitch down the north wall of Fall Pot. 15m down this pitch it is possible to step off onto a ledge, level with the top of a huge boulder, which can be reached by a very exposed traverse (lifeline recommended) or up a slippery mud slope to the passage from Lancaster Hole.

Aardvark Country

Just 20m down the Lancaster Hole Main Drain from Fall Pot on the right hand side at floor level is a low arch leading into Burgess' Passage, the start of Aardvark Country. This steeply rising passage enters a wet chamber containing a 7m pitch up. On the left the tunnel leads back towards the Main Drain, splits at the end and both ways end in sandy chokes. To the right a larger passage heads under a false floor until it lowers to a junction. The left continues very low for over 30m to a mud and calcite choke and is close to Montagu West Passage. Right at the junction is Keyhole Passage an awkward narrow meandering tube at the end of which is a 3m free climb onto a balcony, The Pulpit. From the Pulpit there is a 10m pitch down into a large spray lashed chamber. The inlet in the roof is a 12m pitch from a passage from the hole in the floor of Shale Cavern in the entrance series of Cow Pot. From the base of the chamber a 16m wet pitch lands on a ledge below that is a water filled rift. From the ledge a passage can also be followed to a further 4m pitch into a system of narrow rifts back at the same level as the Lancaster Hole Downstream Sump.

SHORTY HOLE

The entrance is in an enlarged grike, 60m south west, in the dry valley from Lancaster Hole. A short drop leads immediately to a tight crawl followed by an awkward downward squeeze. A 6m climb followed by a section of narrow rift leads to a squeeze in the floor, that opens out onto another 6m climb. Below the climb is a final chamber and terminal slot. It is thought that this may lead to one of the avens in The Graveyard Series in Lancaster Hole as a positive smoke test proved the connection.

HELLOT HOLE

The shaft by the track to Hellot Scales Barn is a straight but tight 15m descent, best laddered. A small inlet can be followed to a wet squeeze where the passage ascends rapidly to become tight and choked. Downstream from the pitch, the small stream runs down the rubble floored tunnel to where the water sinks down into a narrow fissure to the right, while to the left a large passage immediately chokes with mud.

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This is by no means a definitive list but contains the main references referred to in the text, earlier guides to the system and publications since Appendix 3 of The Ease Gill System - J.Eyre (1989) which contains a detailed reference list.

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Other publications in the "Ease Gill Caverns Survey" series include:

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