

LANDSLIP CAVES OF THE NORTHERN COTSWOLDS

by

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ABSTRACT

A brief description is given of natural caves formed by landslip in the Cotswolds north of Cheltenham. The paper is an overview and thus includes previously published sites for the sake of completeness and clarity, new data from the sites, and some new sites. Surveys of the main caves are presented.

INTRODUCTION

This paper is the third and concluding part of the documentation of the gull caves formed in the Cotswold Hills by cambering and mass movement. The earlier papers describe caves in the southern Cotswolds (Self and Boycott, 2000) and caves in the middle Cotswolds (Self and Boycott, 2005). A more detailed study of the processes by which such caves are formed is contained in papers by Self (1986, 1995).

The term “northern Cotswolds” is not an officially recognised geographical area, but has been devised by the authors for convenience. The trunk road corridors of the A40 and the M4 divide the Cotswolds Area of Outstanding Natural Beauty into three readily defined geographical units. The “northern Cotswolds” is the Jurassic limestone upland lying north of the A40 at Cheltenham. The geology of the area is outlined in the discussion, below.

The existence of a cave on Cleeve Hill, Cheltenham has been well known locally for at least a century. Originally called Cleeve Hill Cave, a detailed description of a visit said to have lasted three hours was published by the Cheltenham Chronicle (Anon, 1910). The cave was sufficiently famous to feature on two postcards, one showing a man standing by the entrance (Figure 1) and the other an interior view (Figure 2). The cards are undated, but the Cheltenham Chronicle article ends with the statement: “*A postcard view of the interior, taken by flashlight, is on sale at local newsagents.*” This photograph (Figure 2) must therefore have been taken before 1910.

The site later became known as Isaac’s Cave and in 1957 gained notoriety when a man became stuck there and had to be rescued. This incident made several national newspapers, but the best reports are by the unfortunate individual himself (Theirons, 1957) and by a member of the cave rescue team (Lloyd, 1957). Isaac’s Cave is still the best known of all the Cotswold caves. The other caves of Cleeve Hill were explored in the 1950’s and have been popular with local cavers since then. The caves in the Broadway region are little known and were seldom ever visited. With the exception of Boxer Pot, they are now no longer accessible.

THE CAVES

The caves are described in order from south to north. They tend to occur in groups so the nearest town, or a named hill together with the nearest town, gives the general location

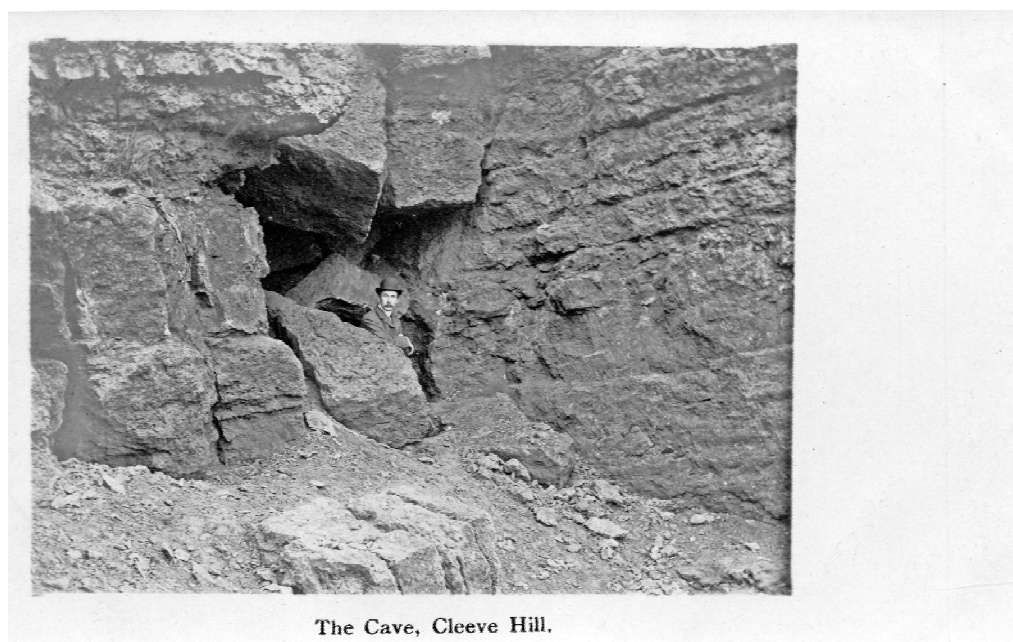


Figure 1. *Postcard photograph of the entrance to Isaac's Cave.*
Date circa 1910; photographer and publisher unknown.
 Reproduced by courtesy of D. Mellor.

while named quarries are used as subgroups. On the location map (Figure 3), each marked site may refer to a group of caves. Altitudes for the sites have been estimated from Ordnance Survey maps, but the caves are mostly located in quarry faces so no great accuracy is claimed.

Cleeve Hill, Cheltenham.

Cleeve Hill lies 5 km north-east of the centre of Cheltenham and is the highest point on the Cotswold escarpment. The easiest access onto Cleeve Hill is from the car park at the viewpoint overlooking Bishop's Cleeve on the B4632 road, a few hundred metres north of the Rising Sun Inn. For cavers, a better and more secluded car park can be reached by continuing to the top of the hill and turning right past the Golf Club building onto the Common itself. Immediately to the left is a small quarry, used as a public car park.

From this car park, follow the Cotswold Way footpath downhill past the front of the clubhouse, passing above Mount Quarry. An unsurfaced road is soon reached (from the viewpoint car park entrance to the Common) which leads south for 1 km beneath the grassy face of the escarpment past Cleeve Cloud, an old stone quarry popular with rock climbers. Here some narrow gull fissures can be found, visible from a distance, but there is nothing of speleological interest. Three smaller rock outcrops below Cleeve Cloud have various holes and fissures, but no caves. Continue south for another 200 m, leaving the road (which goes to Nutterswood farm) and following a footpath to another impressive line of quarried cliffs with

an Iron Age hillfort on the plateau edge above. The caves are in the southern part of this quarry, concentrated around a prominent nose (Figure 4). The hillside now turns from south to a south-easterly direction and the footpath continues for another kilometre to a cluster of masts on the crest of the escarpment, where there is an alternative car park.

There is some confusion over the names of the quarries on Cleeve Hill. On the Ordnance Survey 1:25000 scale map, the climbers' cliff is named "Cleeve Cloud" while the cavers' cliff is unnamed. On the Rural Geology Trail for Cleeve Common (published by Gloucestershire Geoconservation Trust), the names are "Castle Rock" and "Cleeve Cloud" respectively. In the April 2002 field trip guide of the Gloucestershire Geoconservation Trust, the map (adapted from an Ordnance Survey 1:2500) names the cavers' cliff as "Cleeve Cloud South". The authors have used this last name for clarity.

*Cleeve Cloud South Quarry,
Cleeve Hill.*

In the 1950s, cavers from the Gloucester and Cheltenham Speleological Societies were active in the exploration of the caves in Cleeve Cloud South

Quarry, but no definitive report was ever published. Hall (1959) gives some details of four of the caves, plus a useful sketch plan of their location, though his theory of how they formed is mistaken. Before this, only Isaac's Cave and St Paul's Cave had specific local names (I. Standing, *pers. comm.*). The most complete list of names used by the Gloucester Speleological Society appears in the Biological Records of the Cave Research Group (Hazleton, 1961, 1971). These are: St. Pauls Cave, Bladders Hole (i.e. St. Peter's Cave), Isaacs Cave, Winfries Hole, Badgers Hole, Corner Cave, Corner Hole (i.e. Corner Cave), Cleeve Hill Cave (i.e. Isaac's Cave) and Moff's Cave. (N.B. apostrophes were usually omitted in these Records). These names correspond to the seven caves described below.

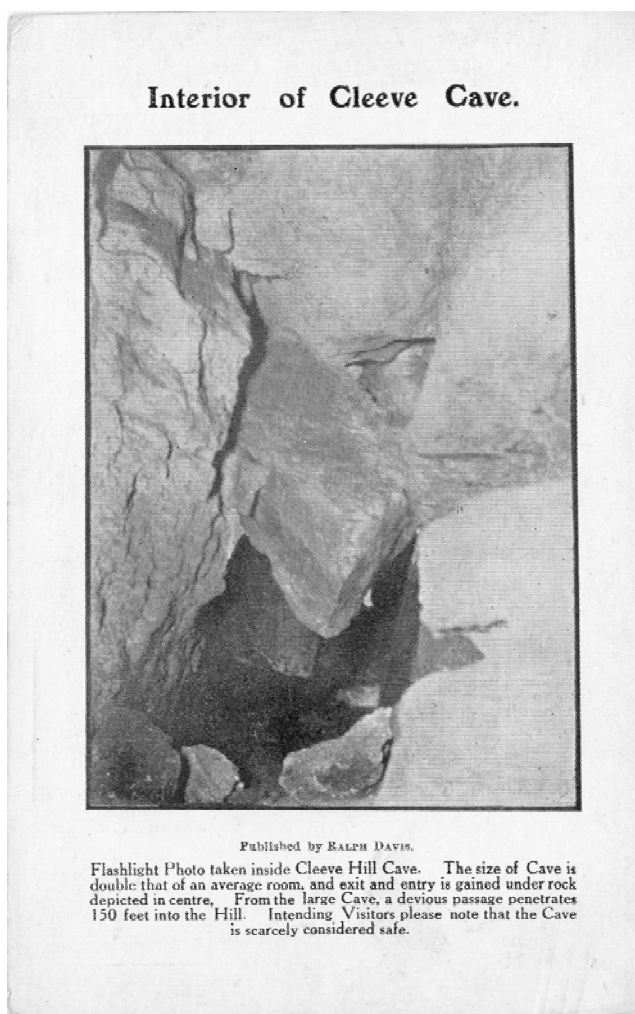


Figure 2. Postcard photograph of the interior of Isaac's Cave. Date circa 1910; published by Ralph Davis, photographer unknown.

Reproduced by courtesy of D.J. Irwin.

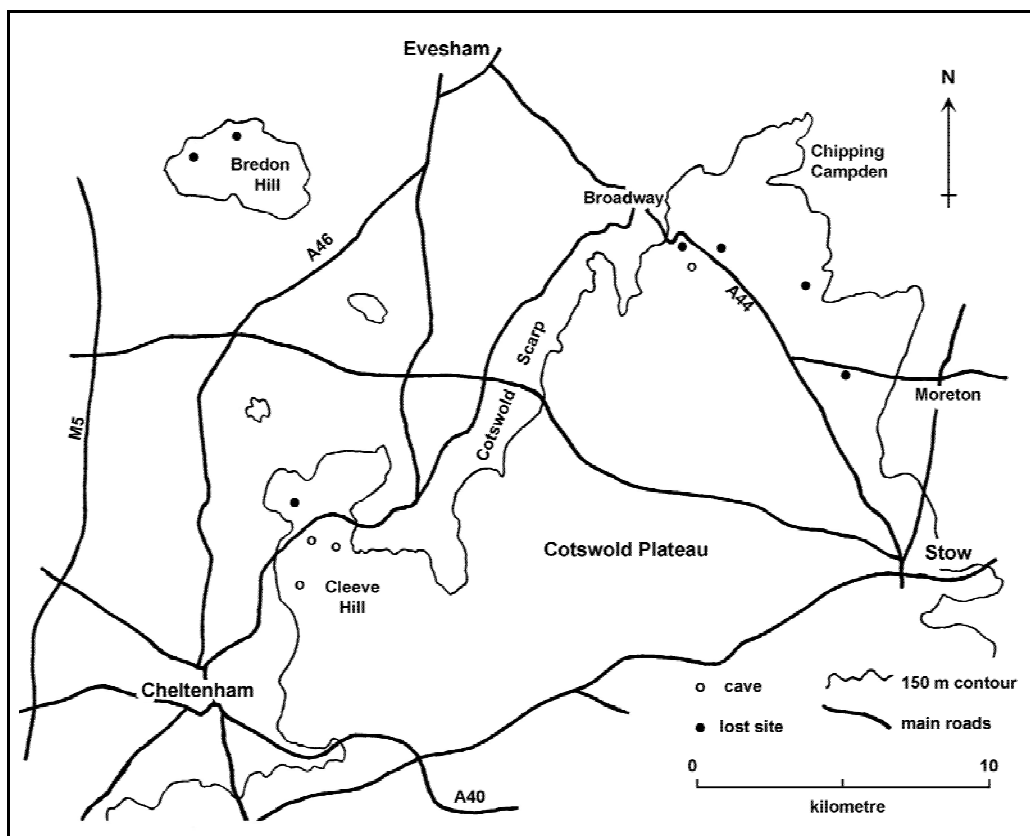


Figure 3. Location map.

Standing (1964), in his checklist of Gloucestershire caves, gives the bare result “12 known caves” for Cleeve Hill, but this included some narrower fissures that have now vanished due to erosional changes to the various cliffs. (I. Standing, *pers comm.*). Smart (1974) gives the fullest description of the caves; he also recorded seven in Cleeve Cloud South Quarry but some discrepancies between his list and our findings still remain.

St. Peter's Cave. NGR. SO 9842 2547

Alt. 280 m.

This site was originally called *Bladder's Hole*, after the nickname of its first explorer (I. Standing, *pers comm.*), but soon became known as *St Peter's Cave*. It lies some 43 m south of the prominent nose of the buttress which contains Isaac's Cave (see Figure 4). The cliff line here is relatively straight and a small footpath runs along its foot past the entrance. The cave follows a single joint to the south-east, before turning to the south along a second joint (Figure 5). The cave is 34 m long and 6 m deep.

The entrance passage is a prominent crack in the cliff, obstructed almost immediately by a large boulder. This can be passed easily at floor level to gain a rift passage up to 1 m wide, floored with wedged boulders. Daylight can be seen through a crack in the roof. The passage continues over a hole in the floor and is crossed by a narrow fissure with daylight visible from

the right. Just beyond this it is possible to descend to the foot of the rift, but this route becomes too narrow after only a few metres. At high level, the rift remains 30-50 cm wide and a route can be followed which steadily descends to floor level. Soon after, the way on becomes a low crawl into a second rift, at a shallow angle to the first. This rapidly becomes very narrow.

The only previous account of this cave is by Hall (1959), who merely stated that it "has a very nasty squeeze in it. It is best for tall people to go straight through the squeeze, but for smaller people an opening in the floor provides an easy by-pass." This would appear to refer to the squeeze over the boulder near the entrance, in which case the route underneath must have been enlarged since then allowing all cavers to use it.

Isaac's Cave. NGR. SO 9842 2551

Alt. 280 m.

At the beginning of the 20th century, this site was known as *Cleeve Hill Cave* (Figures 1 and 2). The name seems to have been abandoned in the 1950s in favour of *Isaac's Cave*, the last known use

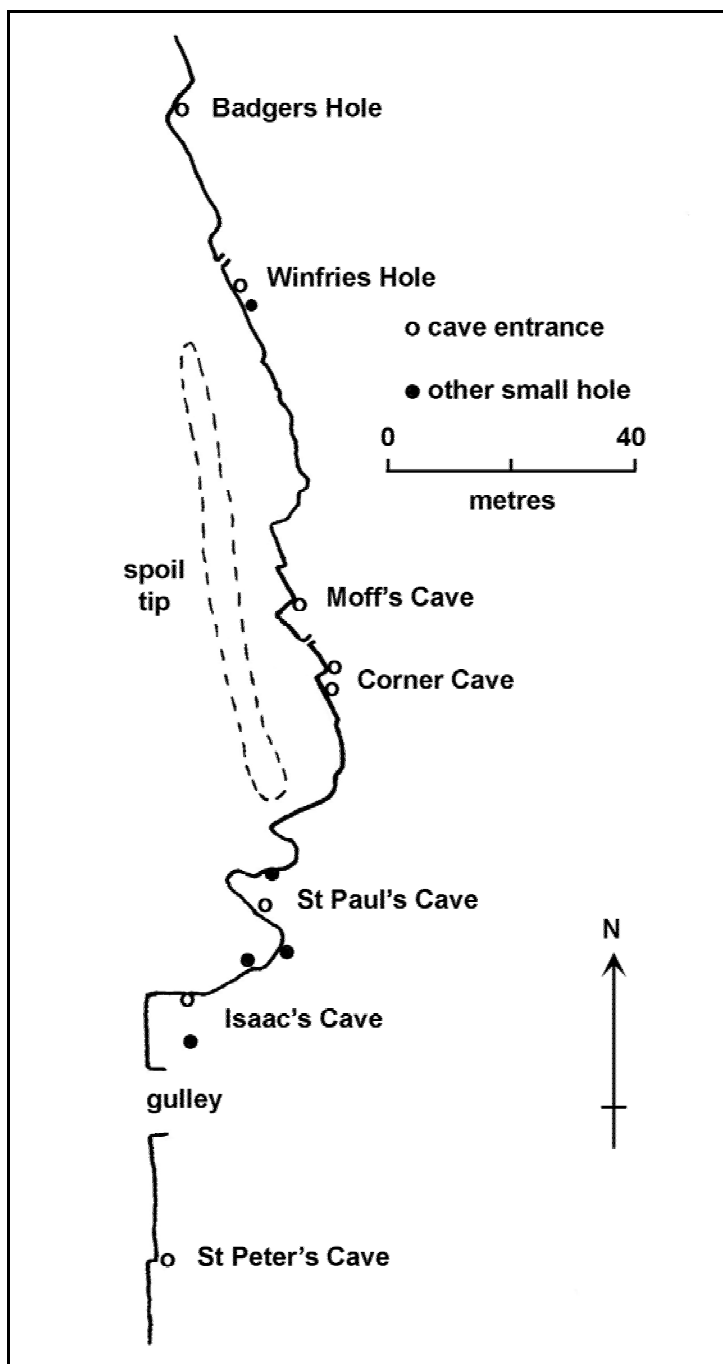


Figure 4. Map of the southern part of Cleeve Cloud South Quarry.

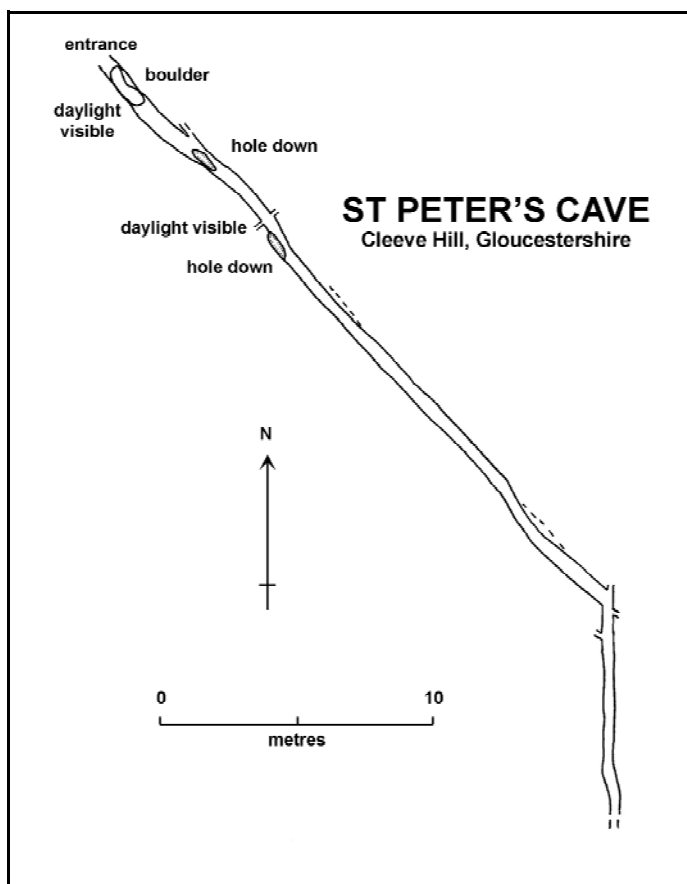


Figure 5. Survey of *St. Peter's Cave*.

explosives to prevent further accidents. As a result, a large boulder partially obstructs the entrance. A muddy slope under the boulder leads down into a roomy entrance chamber, with daylight entering through a crack in the roof. The chamber contains an even larger boulder, beyond which is a rift passage up to 1 m wide. This leads to a cross rift, passable to the right, with daylight coming in from a hole in the roof. This hole is found in the gully which borders the south side of the buttress. A side passage on the right leads back towards the entrance chamber, but is separated from it by a boulder choke. This was once passable (Smart, 1974).

The main rift passage can be followed under a rock bridge to a sharp left bend at a cross joint, where the cave opens up at roof level. A small passage continues ahead but soon becomes too tight. Following the main route, a bend to the right gains a second rift passage and the cave returns to its original direction. The rift narrows briefly, then descends steeply to a boulder obstruction. After an awkward grovel under the boulder, the rift continues to descend. At the foot of this drop, the cave levels out but the left wall has foundered. The way on is a miserable tight crawl to the boulder obstruction where Mr Theirons was stuck for 13 hours in 1957. Smart states that beyond the Theirons boulder the passage ends at a choke (J. Smart *pers comm.*).

of the name *Cleeve Hill Cave* being in the Biological Records of the Cave Research Group (Hazleton, 1961). Lloyd (1957) notes that at the time of the cave rescue, the site was known to some cavers as *Winchcombe no 1*, but no other reference to this has been found.

At the southern end of the main quarried embayment of Cleeve Cloud South there is a prominent buttress, beyond which the cliff is straight and steadily decreases in height (Figure 4). A steep grassy slope leads up the north side of this buttress to the obvious entrance to Isaac's Cave. The cave runs in a south-easterly direction for 34 m to the Theirons boulder squeeze, the site of the cave rescue in 1957. Here the cave is 12 m deep. Three small side passages bring the total length of the cave to 48 m (Figure 6).

In 1957, an attempt was made to seal the cave with

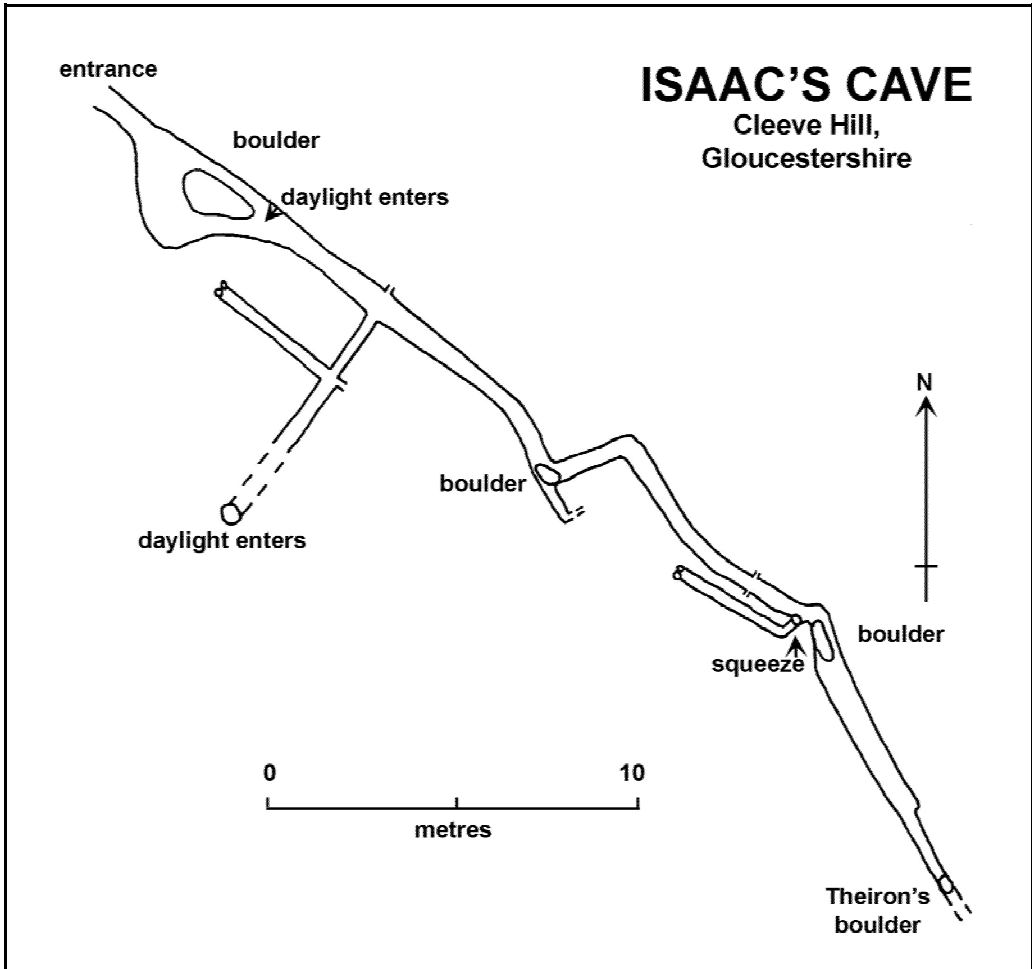


Figure 6. *Survey of Isaac's Cave.*

Just before the boulder obstruction, there is a very tight horizontal hole into a narrow cross rift. A short drop enters a slightly bigger rift which heads back towards the entrance for a few metres, then ends in a choke. The changes of direction on the plan survey of this cave are due to horizontal and vertical deviations of the jointing.

There are many references to this cave in the speleological literature, but few give any useful information. Hall (1959) gives an accurate estimate of its length, but no other details. Kay (1974) produced a good plan and section survey, but his text is mainly concerned with a karst based theory for the cave's formation. Smart (1974) offers the only detailed description and his report includes a plan survey.

St. Paul's Cave. NGR. SO 9843 2552

Alt. 280 m.

St Paul's Cave lies 17 m north-east of Isaac's Cave, on the left side of the same small embayment in the cliff face. The cave is essentially two intersecting joints, separated into different levels by very tight sections and fallen boulders. The horizontal development from the entrance to the end of the cross rift is 11 m with a depth of 12 m (Figure 7). For thin cavers, alternative routes may exist between levels to the one described below.

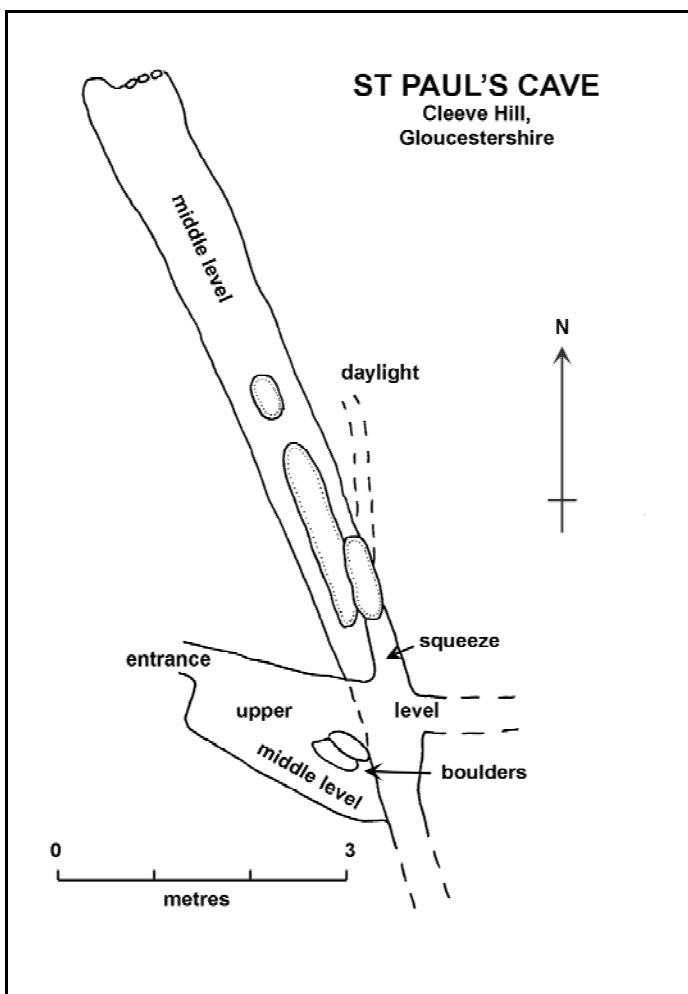


Figure 7. Survey of St. Paul's Cave.

A small entrance drops into a rift passage, hading to the right. In the upper level, a traverse reaches a bridge of boulders at a cross joint. The rift continues both forwards and downwards, but is very narrow. To the right, the cross joint is very narrow with an open hole down between boulders. To the left, the cross joint is a little wider and a squeeze leads to a potentially viable hole downwards. Above this hole, the cross joint continues as a tight rift rising up to the right. Daylight enters through a fissure in the cliff.

To reach the middle level, descend from the entrance to the foot of the rift passage where a muddy stony slope leads down through an awkward hole to the cross rift. To the right and ahead, the rifts are very narrow. To the left, the cross rift can be negotiated easily to a boulder choke. Part of the way along this passage is a hole up to the upper level. There is also a hole down, making a potential drop from upper to lower level of about 10 m. The hole

down to the lower level is very tight with few hand or footholds. A drop of 6 m lands in a short section of rift passage with no way on. A ladder is advised for this.

St. Paul's Cave does not easily lend itself to a brief description. Hall (1959) comments that it "is very good for squeezes" but his text, describing a round trip between the upper and middle levels, is somewhat confusing. His estimated length, 45 m, is greatly exaggerated even if the different levels are added together. Cave 2 is described by Smart (1974) as "about 10m

north of Isaac's Cave. It comprises a 10m rift with a 6m pot halfway along leading to a sporting lower series immediately below". This could be a description of St. Paul's Cave, but the location better fits a small rift at the top of the embayment (see Other Caves). His Cave 3 is in the correct location for St. Paul's Cave and the description offers two routes to the bottom of the cave, via the middle level and via the upper level, although the text implies that the two routes do not rejoin.

Corner Cave. NGR. SO 9844 2556

Alt. 280 m.

About 40 m north along the cliff line from St. Paul's Cave, a linear spoil tip creates a trench between the bottom of the cliff and the footpath. The entrance to Corner Cave is an obvious hole at the foot of the cliff which enters the side of a tall rift passage, choking to the right after only 2 m. To the left, a climb up reaches a very narrow passage leading to a second entrance, located in an abrupt right-angled corner of the cliff. From the first entrance, a hole down on the left leads to a lower part of the narrow route referred to above. A low crawl beneath a boulder in a descending passage leads south, back under itself and away from the second entrance, over a small hole in the floor. Beyond this the route narrows and begins to rise; 12 m of passage are gained without a definite conclusion being reached, giving a length of at least 19 m. The cave is developed in a single joint so a plan survey would offer no useful information.

This description closely matches that of Cave 4 in Smart (1974). However, he describes the hole down as "a ridiculously tight squeeze". Ian Standing (*pers. comm.*) states "Corner Cave had an entrance on each of the 2 joints which formed it".

Moff's Cave. NGR. SO 9844 2557

Alt. 280 m.

Moff's Cave is about 15 m north along the cliff face from Corner Cave, in a second abrupt right-angled corner of the cliff. Though narrow, it is an impressive fracture that splits the cliff from top to base. It is currently very popular with pigeons, whose feathers and droppings cover the floor. The rift passage is oriented 140° and can be followed for only 5 m before it becomes too narrow. There is a slight widening at floor level which would require flat-out squirming in pigeon litter to enable further progress to be made.

Hall (1959) notes: "Moth's Hole is a very tight cave and gradually gets thinner and thinner until about 4 inches [10 cm] wide". The name *Moth's Hole* would appear to be a misreading of *Moff's Cave*, as used by the Gloucester Speleological Society. Cave 5 of Smart (1974) is described as a cave with two entrances, which seems more appropriate for Corner Cave. On his map, Smart places Cave 5 in the position of the second entrance to Corner Cave and his Cave 6 in the correct position for Moff's Cave.

Winfries Hole. NGR. SO 9843 2562

Alt. 285 m.

Winfries Hole is just beyond the northern end of the spoil tip which forms a prominent ridge in front of this part of the cliff. The entrance is high in a conspicuous and easily climbed gully. Just inside the entrance is a chamber 2 m in diameter, with a continuing rift on the right hand side oriented 75°. This can be followed as a crawl for 10 m and meets a cross joint just before the end. This can only be followed for 2 m in either direction. This description corresponds with that of Cave 6 in Smart (1974).

Badgers Hole. NGR. SO 9842 2565

Alt. 280 m.

This cave lies at the foot of the cliff about 30 m north of Winfries Hole. A tight descending rift oriented 120° can be followed for 6 m to a cross joint, where all ways close down except for a 2 m long crawl to the left. This description corresponds with that of Cave 7 in Smart (1974).

Other Caves

A biological record by Collins (1962), states "Entrance No.ii (St. Paul's?) explored. Entrance second on left from Isaac's Cave." This suggests that the entrance between these two numbered sites did not refer to an explorable cave. At the top of the embayment between St. Paul's and Isaac's, there is a small cave of perhaps 2 m length. This is the correct position for Cave 2 in Smart (1974). A tiny rift between this site and Isaac's Cave is not accessible.

On the right side of the embayment between St. Paul's Cave and Corner Cave, an obvious fissure is the source of the daylight in St. Paul's Cave. There is a very tight, smooth sided rift at the foot of the cliff about 4 m south of Winfries Hole.

Mount Quarry, Cleeve Hill.

Mount Quarry Cave. NGR. SO 9878 2712

Alt. 255 m.

Mount Quarry is immediately south-west of the Golf Club building, close to the main road. At the back of the quarry, a bouldery gull oriented 35° can be followed for 7 m before it closes down in boulders. The gull is 2 m square at the entrance. To the right of the entrance, a small hole down becomes too tight after 2 m. Other inaccessibly small fissures can be seen in the left side of the quarry, some containing a thin veneer of flowstone.

Postlip Quarries, Cleeve Hill.

Postlip Quarry Cave. NGR. SO 9929 2643

Alt. 255 m.

The upland of Cleeve Common is bounded on the east by the deep Postlip valley. An equally deep dry tributary valley joins the Postlip valley from the south-west. The Postlip Quarries sit high on the hillside between these two valleys. At their western end, one quarry has been cut deeper into the hillside than the others. Ascending a steep scree slope to the back of this quarry, a body-sized hole can be seen. This can be followed for 5 m, descending and turning to the right between boulders, before it further reduces in size. The direction of the jointing at the entrance is 127°.

Nottingham Hill, Bishop's Cleeve. NGR. SO 984 281

Alt. 260 m.

Standing (1964) notes the presence of "2 curious shelters" on Nottingham Hill, but gives no further details. The small quarries on this hill, which lies just north of Cleeve Hill, are now so degraded that it is barely possible to find any exposed limestone. Nothing of speleological interest can now be found.

Bourton-on-the-Hill.

Hawes (1951) reports on a hole exposed by bulldozing operations on the hilltop near Bourton-on-the-Hill, but gives no other location details. "The sloping entrance shaft was just large enough to permit entry of an average size person." The shaft was about 6 m deep, partly blocked by fallen rocks which were removed. The passage then became horizontal but "after clearing several yards (they) found a large limestone slab completely blocking the passage." The smaller rocks were stacked on the side of the passage, but it was felt that the roof would collapse if an attempt was made to shift the slab. For safety reasons, "the shaft opening was sealed with the excavated material."

From such meagre data it is not possible to say with certainty how the cave was formed. Some surface water was draining into the shaft at the time of the visit, but this was easily diverted away. Such drainage could be due to the preexistence of the cave, rather than the cause. The fact that Hawes feared a roof collapse in the horizontal passage suggests that it was composed of boulders rather than solid bedrock. There are some similarities between this cave and the nearby Blockley Pot (see below), but it is believed that they are different sites.

Blockley

The village of Blockley lies north of the A44 trunk road, between the towns of Broadway and Moreton-in-Marsh.

Blockley Pot. NGR. SP 155 353

Alt. 225 m.

In 1981, the weight of a combine-harvester turning in the corner of a field caused the collapse of an artificial roof into a substantial pothole near Blockley on the Cotswolds dip slope. The field containing the pothole is about 1 km west of the village, between a minor road and the deep valley of Norcombe. There is no hole marked here on the 1:2500 Ordnance Survey map of 1884, so it can be assumed that it was covered over at some time prior to this date.

The hole was investigated in 1982 by members of the Oxford University Cave Club (Beckinsale, 1983), who found it to be 11 m deep with a rubble infill. A hole was dug in this infill for another metre and a small piece of timber recovered, possibly part of the artificial roof. No other woodwork was seen, but it is thought that timber was used to support a roof of quarried oolite slabs, stacked edgewise across the hole. Some slabs remained in place outside the rim of the existing hole. The pothole was almost circular in section, a little over 2 m across, but widened near its base where "shallow lateral cavities cause the sides to be partly overhanging". One was blocked "with largish stones crudely piled across a side-cavity and the space behind it proved to be filled with small boulders". This observation suggests that other cavers had already visited the hole.

Beckinsale's report included a photograph of the entrance with two distinctive trees behind, allowing the location of the pothole to be determined to within about 2 m. At the time the authors' visited, there was nothing to see but ploughed earth, so the pothole has either been covered over again or infilled completely. The pothole, which is in the Lower Freestone of the Inferior Oolite, lies only 100 m from where the ground steepens on the flank of the deep Norcombe valley which has cut down into incompetent Liassic sediments.

Broadway Hill, Broadway

The town of Broadway nestles beneath the northern end of the Cotswolds escarpment. At a distance of 2 km south-east from the town, the scarp edge is still over 300 m high and is known as Broadway Hill. To the north, the Cotswolds reduce in height and soon cease to be a distinct geographical feature.

Boxer Pot (Fish Pot). NGR. SP 115 359

Alt. 300 m.

This vertical cave can be found in a small wood at the top of the dip slope of Broadway Hill. This wood is marked on the map as "Sally Beds" and is on the east side of the road, opposite Broadway Tower Country Park. The hole lies 400 m south of Broadway Tower itself and has a wire fence around it. The original belay was an oak tree growing on the lip of the hole, but there is now also a tripod of scaffolding poles.

The first recorded descent was in 1966, when the Gloucestershire Cave Rescue Group was asked to retrieve a dog whose barking could be heard coming from a hole in the ground (Anon, 1969). The hole was a mud collapse above a natural rift in oolitic limestone. The dog had fallen down the shaft onto a "ledge" at approximately 40 m depth, "but it was estimated that hole dropped possibly another 100 ft. (30 m.) below the ledge." In their report, they describe the dog as a foxhound yet name the site *Boxer Pot*. Some members of this group returned three years later to complete the descent of the cave. They found that the "ledge" was composed of "debris which had come down the shaft and now blocked the hole. At either end of the rift was a hole through which stones could be dropped to rattle on for quite a way." The rift itself was about 0.5 m. across, with a "perfect water eroded pot about half way down."

The only other recorded descent is by Hatherley (1981), who called the site *Fish Pot* because the nearby main road is known as Fish Hill as it ascends the scarp. This group had heard of the dog rescue visit, but believed the cave "to be 100 feet (30 m.) deep and the sound of rushing water was heard from the bottom." They found the entrance, which was draughting strongly, under the root of a large oak tree. It was necessary to squeeze past a fallen boulder, wedged across the rift. Below this, the rift opened out to reach "a highly fluted part of the shaft, where one is able to get off the ladder and rest on top of the fluted limestone." From the length of lifeline mentioned, the depth of the cave was about 30 m. A 5-6 foot stick was pushed into "glutinous mud at the bottom." A colony of bats was noted in the cave.

Since these early visits, there has been extensive slumping of earth around the entrance. This and other debris has congealed on and around the boulder obstruction, creating a filthy and extremely tight squeeze at a depth of about 5 m. This material would need to be excavated to ensure a safe return back up through the squeeze. During the authors' visit, large clods of clay were dropped and bounced for several seconds down the pitch, confirming that this is open below the squeeze.

The 1969 report notes that the cave is one of several subsidence sites "roughly in a line through the valley. The most recent collapse was conveniently sited (for the farmer) where it received the overflow from his cess pit!" Hatherley (1981) also noted "a line of depressions through the woods".

Coombe Farm Hole. NGR. SP 132 369

Alt. 245 m.

Coombe Farm lies on the dip slope of Broadway Hill, on the southern flank of the deep valley of Tilbury Hollow. Numerous springs in this valley join together to form a stream that flows north-east through Chipping Campden.

According to Beckinsale (1983), a similar hole to Blockley Pot existed about 200 m to the east of Coombe Farm. "This circular hole was used over a long period for the disposal of unwanted objects and today is scarcely traceable. There is talk of other holes in the area that suffered a similar fate." The reported location is a farmed hillslope, but there is nothing to indicate where the pot might have been. A shallow dry valley runs through Coombe Farm itself, with a small spring 200 m to the north and 20 m lower. Other small springs at a similar altitude around the head of the valley of Tilbury Hollow indicate that impervious clay strata and a possible slippage plane underlies the site.

Robinson's Pot. NGR. SP 118 369

Alt. 270 m.

In 1985, Robinson (1986) discovered a cave in Fish Hill Quarry where "the owners had been moving stone from the top beds with a JCB, revealing some interesting rift cracks." The largest of these was the entrance to the cave which draughted strongly. The quarry has been considerably extended since then and is now known as Broadway Quarry. Stone has been removed to a depth of 20 m from where the rockface was in 1985, so the cave has almost certainly been quarried away.

According to Robinson (1986), a 9 m ladder pitch landed in a large rift chamber. In one direction, three obvious routes ended in a huge choke after 6-9 m. From the sketch survey, these appear to be three different levels of the same rift.

In the other direction, a route went around the left side of a huge slab, then dropped into a high and narrow descending rift which snaked for about 9 m to a rock bridge. After this it was possible to walk along the continuation of the rift for about 18 m to a choke. A hole was excavated up through the choke into an extension of the high rift. After about 6 m, a Y-junction was reached. Left quickly choked, while right widened a little to gain a three-way junction. The passage on the right choked almost immediately, that on the left went 3-4 m to a loose choke, while the central route led to a loose choke with a draughting hole into a small chamber with bat droppings. Ahead was a massive choke with suspended blocks, where an impassable connection was established with the left hand passage.

Robinson's survey showed the cave had been developed along a single joint, with some complication at the far end where there are cross joints and breakdown. However his sketch survey has no orientation and is marked "not to scale". The party did have a tape measure, but it may not have been used as their report only gives approximate distances, as if these were estimates. If so, the length of the cave may not have been "200 ft approx" (60 m). In the authors' experience, estimated cave lengths in Cotswold slip rifts are often twice the true survey length as the strenuous nature of the caves make them seem longer than they really are.

Bredon Hill, Bredon

Bredon Hill is the largest of the Cotswold outliers of Inferior Oolite limestone and can be found between the towns of Tewkesbury and Evesham. There are two sites here with evidence of the former existence of caves, now eroded away.

King and Queen Stones. NGR. SO 946 386

Alt. 170 m.

The King and Queen Stones can be found on the south-western flank of Bredon Hill, about 1 km NE of the village of Westmancote. They are 3-4 m tall, about 1 m wide and can be seen from the nearby footpath (Figure 8). Despite the name, there are in fact three stones, in line and roughly oriented south-west, on steeply sloping ground which falls away to the left of the footpath. The upper and middle stones are joined together at ground level.

The Stones are of gull infill material which has been cemented together by speleothemic calcite. This material has proved to be more resistant to weathering than the surrounding Inferior Oolite bedrock, leaving the Stones standing as large upright slabs. The lower parts of the Stones, particularly in the lower Stone, contain material of boulder size; the upper parts are of cobbles. The cementing material is mostly pool spar, though a 2 cm thick flowstone can be seen in situ on a boulder that forms part of the lower Stone.



Figure 8. *The King and Queen Stones, Bredon Hill.*

Banbury Stones. NGR. SO 957 402

Alt. 285 m.

The Banbury Stones lie within an Iron Age hillfort at the summit of Bredon Hill. They are in a hollow immediately east of the tower, just by the scarp edge. The Stones are about 2 m tall and almost as wide, oriented roughly north-west. The Banbury Stones are made of gull infill material of pebble and granule size, much finer than that of the King and Queen Stones. They are also more thoroughly cemented, with pool spar seen only within small voids. In places the Stones have been covered by a 5 mm thick flowstone veneer.

DISCUSSION

The geology of the northern Cotswolds is essentially similar to that of the northern part of the middle Cotswolds region, described in Self and Boycott (2005). Inferior Oolite limestone caps a great indented scarp made of Liassic siltstones and mudstones. The Inferior Oolite has its greatest development at Cleeve Hill, Cheltenham and steadily becomes thinner to the north. Beneath the Inferior Oolite, the uppermost formation of the Lias Group is the Cotteswold Sands (Bridport Sand Formation). This is not particularly well developed in the northern Cotswolds region and in many places is absent altogether, the Inferior Oolite resting directly on Upper Lias clays (Whitby Mudstone Formation).

The caves in this region fall into two distinct groupings, one around Cleeve Hill near Cheltenham, the other between Broadway and Bourton-on-the-Hill. In many of the reports in caving journals, a karst origin for the caves has incorrectly been claimed. This deserves some comment. In the northern Cotswolds region, the jointing is noticeably irregular with both horizontal and vertical deviations in direction. Along a single joint, deviations of 20° are quite common. This gives a sinuosity to the caves that can be mistaken for vadose meanders.

On Cleeve Hill, there is a concentration of caves at the southern end of Cleeve Cloud South Quarry, where the hillslope changes in orientation from west to south-west. The four main caves of Cleeve Hill, those over 10 m long, are found here and they are less than 100 m apart. A possible explanation for the significance of this location would be that there are two directions of landslip movement, to the west and to the south-west. If this is correct, there should be a set of gulls running into the hillside along the “tear” zone between the two moving rock masses. (This can be clearly seen in Sally’s Rift in the Southern Cotswolds region; Self and Boycott, 2000; Self, in preparation). However, the surveys of the Cleeve Hill caves do not support this theory, and a rose diagram (Figure 9) of gull orientation proves that the only significant movement has been to the south-west. It would appear that the reason for this concentration of caves is that the hillslope here is unsupported in the crucial south-westerly direction. Beyond St. Peter’s Cave, the hillside is not supported but has not been quarried and so no gull caves have been exposed.

The other group of caves, located at the northern end of the area described in this paper, all have vertical entrances. Robinson’s Pot, which was unroofed by quarrying operations, was a typical landslip cave of the Cotswold scarp edge. For most of its length, it followed a single joint which meandered in much the same way as those of Cleeve Hill. The other “Pots” are significantly different and may have a different origin. Boxer Pot, Coombe Farm Hole, Blockley Pot and the unnamed hole near Bourton-on-the-Hill are all on the Cotswolds dip slope. They have no significant horizontal development and water may have played a part in their formation.

Boxer Pot is a deep fissure whose walls have been carved by drip dissolution. The question is whether sinking water created the pothole, or whether a pothole formed by mechanical processes became the focus of local drainage. The Pot lies only about 100 m from the road that runs along the crest of the escarpment, with the scarp face dropping away steeply about the same distance west of the road. The Pot is in one of a line of depressions running approximately parallel to the scarp face. This suggests a geological structure, either a major gull or a fault. The depressions accept local drainage, but their catchment is minuscule.

The location of Blockley Pot can be precisely determined from old photographs. The Pot was located in a flat part of a field, some 100 m from where the ground begins to drop away into the deep valley of Norcombe. Despite there being no evidence above or below ground of water having flowed into the pothole, Beckinsale (1983) considered it to be a karst stream sink

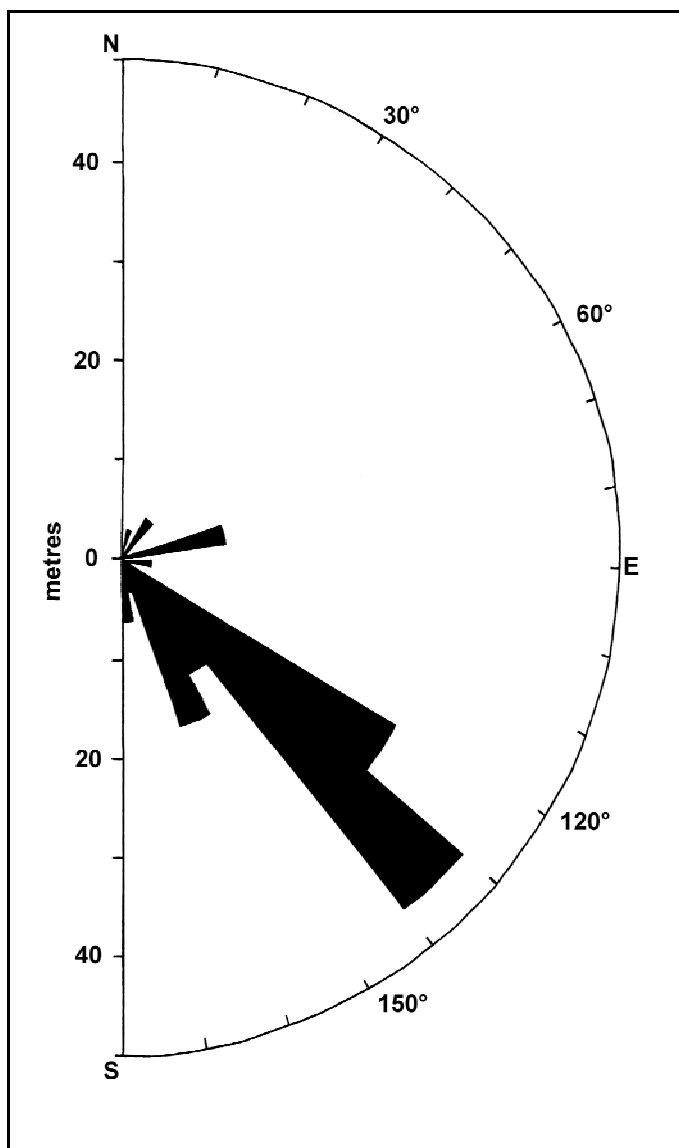


Figure 9. *Rose diagram showing gull orientation on Cleeve Hill, Gloucestershire.*

formed during periglacial conditions during the late Quaternary. However, he did not actually descend the hole himself.

If the reported details of Coombe Farm Hole are correct (Beckinsale, 1983), this site was in gently sloping farmland some 300 m from where the ground steepens on the side of the valley of Tilbury Hollow. There are no location details for the unnamed hole “on a hilltop” near Bourton-on-the-Hill, but there are steep hillslopes nearby. The hole did have some horizontal development, but Hawes (1951) seems to have been excavating rubble rather than stream sediments. This may have fallen from an unstable bedrock roof, or it could be that he was digging along the strike of an infilled gull.

There are small karst sinks taking local field drainage on the Cotswold plateau but there are no known karst caves or potholes (Self and Boycott 2005). The “Pots” of the northern Cotswolds are located close to major changes of slope and so the probability is that they are geological features, either gulls or faults associated with landslip, that have become the focus of local drainage.

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REFERENCES

- ANON. 1910. Exploring Cleeve Hill Cave. *Cheltenham Chronicle* 26th February.
- ANON. 1969. Boxer Pot near Broadway. *Gloucester Speleological Society Newsletter* **Aug/Sept.** 6-7.
- BECKINSALE, R.P. 1983. Potholes on the escarpment summit of the North Cotswolds. *Proceedings of the Cotteswold Naturalists' Field Club* **38.** 3/4. 62-70.
- C[OLLINS], M.D.H. 1962. Cleeve Hill. *Gloucester Speleological Society Journal* **2.** 1. p15.
- HALL, R. 1959. Cleeve Hill rift caves. *Chelsea Speleological Society (and London Speleological Group) Newsletter* **1.** 1. 1-5.
- HATHERLEY, D. 1981. Fish Pot. *Belfry Bulletin* **35.** 3/4. (395/396) 2-3. Edited version reprinted as "A Cotswold conundrum". *Descent* **49.** p17.
- H(AWES), L.A. 1951. New caves – Cotswold area. *Hereford Caving Group Newsletter* **1.** p1.
- HAZLETON, M. (Ed.) 1961. Biological record part VII, 1957-1959. *Biological Records of the Cave Research Group* **7.** 49-50, 54-55.
- HAZLETON, M. (Ed.) 1971. Biological record no. 13, 1969. *Transactions of the Cave Research Group* **13.** 3. 209-210.
- KAY, R. 1974. Isaac's Cave, Gloucestershire. *Sheffield University Speleological Society Journal* **2.** 3. 22-25.
- LLOYD, O.C. 1957. Cave rescue at Cleeve Hill. *Wessex Cave Club Journal* **4.** 61. 176-178.
- ROBINSON, M. 1986. A new cave system in the Cotswolds. *Gloucester Speleological Society Newsletter.* 11-12, 28.
- SELF, C.A. 1986. Two gull caves from the Wiltshire/Avon border. *Proceedings of the University of Bristol Spelaeological Society* **17.** 2. 153-174.
- SELF, C.A. 1995. The relationship between the gull cave Sally's Rift and the development of the River Avon east of Bath. *Proceedings of the University of Bristol Spelaeological Society* **20.** 2. 91-108.
- SELF, C.A. and BOYCOTT, A. 2000 (for 1999). Landslip caves of the Southern Cotswolds. *Proceedings of the University of Bristol Spelaeological Society* **21.** 3. 197-214.
- SELF, C.A. and BOYCOTT, A. 2005 (for 2004). Landslip caves of the Middle Cotswolds. *Proceedings of the University of Bristol Spelaeological Society* **23.** 2. 97-117.

SMART, J. 1974. Caves of Cleeve Hill Gloucester. *Cotham Caving Group Newsletter* **7**. 1. 21-23.

STANDING, I.J. 1964. Caves and swallets in Gloucestershire. *Gloucester Speleological Society Journal* **3**. 1. 10-11. Reprinted with minor changes as "A check list of caves in Gloucestershire." *The British Caver* **40**. 67-71.

THEIRONS, H. 1957. Trapped under Cleeve Hill. *The Speleologist (Derbyshire Speleological Group)* **2**. 1. 42-44.

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