MOLDYWARPS SPELEOLOGICAL GROUP JOURNAL, CHRISTMAS 1968.

This is the sixth MSG production, following three 'Reports' (Dec. 1966, Easter 1967, May 1968), one newsletter (Sept. 1967), and one Journal (Dec. 1968). In both size, price, and possibly quality, there is an increase with this, the second, Journal.

Briefly summing up the Group's work in 1968, there has been no further new discovery on a scale comparable with Smeltmill Beck Cave, our 'find' of 1967 (described in Report 3). A few small but interesting caves have been found, the longest being Hazel Bush Hill Hole, an unusual sink cave in a remote valley three miles south of Bowes. The resurgence for this system is also enterable, but rather shorter.

In cave surveying, the MSG have made some definite advances. The entire contents of the Treasurer's little black box were spent at one fell swoop on a compass, and some of the hoped-for profits on the sale of this Journal will go to pay for our 100' surveying tape. We have an Abney level (on loan), two supposedly waterproof 'note-pads', constructed from adhesive plastic sheeting by the Hon.Sec, and a wide assortment of pencil stubs, donated by the artistic adviser. With all these it is theoretically possible to produce a Grade 5C Survey - which, in a few cases, has been done. The ecstacy of surveing the muddy crawls of God's Bridge and the wet ones of Hazel Bush Hill Hole will not be lightly forgotten. The crowning effort of all this surveying is the Joint MSG/YURT survey of Smeltmill Beck Cave - the main streamway being covered at the remarkable velocity of 611·8' per hour. Unfortunately the Group's economics have so far prevented the commercial reproduction of this work of art.

There have been many MSG trips to remote corners of the Northern Dales to search for new caves - success has been very limited, but there remain far more remote corners that have not yet been visited. Other caving clubs from the south (i.e. south of Wensleydale) have been visiting "our area", and finding new caves without the labour of digging or blasting - as far afield as Upper Weardale and Coverdale, where at least two systems over a thousand feet in length have been found. Possibly the MSG may have another 'big find' in the next few months.....

On the social side of speleological pursuits, the first MSG dinner has been held - the place of such a diversion can be questioned, especially as the time could haveebeen spent in a laudable cause, such as further digging in Trough Scars Caves or searching for biological specimens in the entrance crawl at God's Bridge..... However, on the day following the dinner MSG members and guests were persuaded to indulge in a long surveying trip.

Thanks are due to all those who helped in the preparation and publication of this Journal. Our artistic adviser's long-suffering sister again took care of part of the duplicating, and Martin Davies the remainder. After last year's disasters (e.g. a blank page headed 'Survey of Lynkirk Cave'), it has been found that surveys and illustrations can be drawn on stencils.
Articles contributed to this Journal include two more C.Carson epics,

"Surveing Smeltmill Beck Cave" and "Flood Danger in Caves of the Northern Dales", and some J.Longstaff reminiscences on exploits in the Richmond Copper Mine (suitably amended). Unfortunately no-one else contributed any material - can this situation be remedied next time?.

As for the cover - even the most critical must admit that it is unusual, in its depiction of a group of stalactites cut through the middle and seen from the bottom. The psychological and mental effects brought on by staring hard at such a design are such that copies of the Journal, if left lying around, should be kept face downwards.

CONTENTS

NEW EXPLORATIONS.

Eller Beck

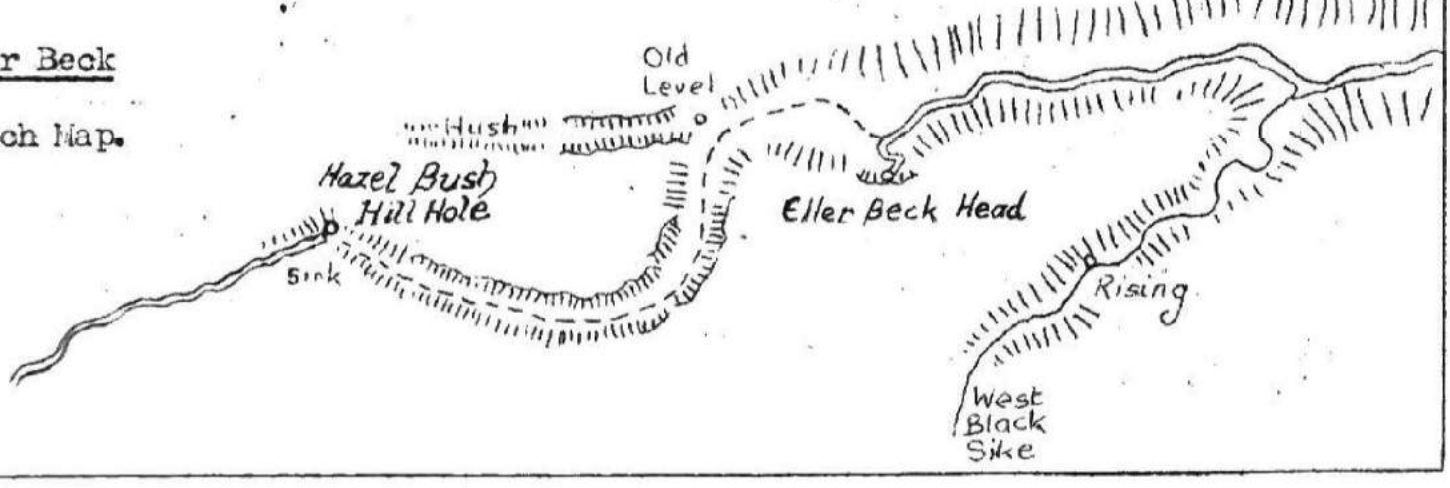
On the 17th July four MSG members decided on an evening's "surface walk" to Eller Beck, a tributary of the Greta draining the high moors between Stainmore and Arkengarthdale. Geological maps indicated an outcrop of the Main Limestone in the valley of Eller Beck, where no caves were known or rumoured, as far as we knew. A two mile moorland walk south from the Bowes - Sleightholme road to the Beck revealed a surprisingly impressive limestone gorge, entirely dry. Closer inspection revealed that the stream - of some size - was rising from a cave on the south side of the valley below the gorge. Proceeding up the dry gorge, the sink of the Beck was found. Most of the water went down in one large pool. Behind a boulder on the north side of the stream bed, beside the pool, was a cave entrance emitting a rumble of falling water. As close an inspection as was possible without caving gear revealed that the Beck water wasflowing into an open stream passage of crawlable dimensions.

Two days later Messrs Carson, Hodgson and Ryder returned to Eller Beck, with full caving gear, and both sink and resurgence caves were explored. A third visit, on the 27th July, resulted in a Grade 4 survey of the sink cave, by now named Hazel Bush Hill Hole, after Hazel Bush Hill, on the north side of the Beck (there already being various Eller Beck Caves in Chapel-le-Dale).

A fourth visit to the gorge was made on the 7th August, when an attempt to enter the postulated cave system between the two caves, by digging out a wet weather sink in the stream bed, downstream of the sink, failed due to 3" high bedding planes and sheep remains. One interesting phenomenon was noted this day - that (weather conditions being quite dry) the resurgence (Elled Beck Head) had ceased to flow (while Hazel Bush Hill Hole was taking a reasonable stream). This presented a problem. Eventually a rising from beneath a shale scree in the valley of West Black Sike (see sketch map) was found - and it was decided that this must be the Eller Beck water. The limestone dips steeply southwards from Eller Beck, and only the uppermost few feet are exposed in West Black Sike. In dry weather the local water table must drop below the level of the 'lip' of Eller Beck Head, while the West Black Sike rising, a foot or two lower, must flow at all times (but not be able to carry the whole stream except in dry weather).

Eller Beck

Sketch Map.



Hazel Bush Hill Hole.

Hazel Bush Hill Hole begins with a 6' climb down, behind boulders beside the stream sink, into a small chamber, with on the l. a short passage with water entering through the roof (this is beneath the pool in which most of the Beck sinks). Downstream the passage lowers to a crawl, and swings l., with on the r. a 7' high chamber with more water entering through the roof.

The stream passage continues gently downhill, a narrow crawl, with on the l. a roomier ox-bow. About 100' in is a sharp double bend, with a foam-covered pool ("Froth Corner"). A few yards further in the passage turns l. again, and gains height, until crouched sideways walking is possible. The passage suddenly ends at the head of a c.10' waterfall into a small circular chamber - easily descended by climbing down large, but rather fragile chert ledges. The stream immediately plunges down a second drop, this time about 9', into a rift, again easily climbable. At the foot of this second waterfall the stream completely sinks in a small pool. The passage beyond turns sharp r., becoming a narrow crawl, turns l. again, and then closes down entirely, c.260' from the entrance (and about 40' down).

The cave shows no signs of previous explorers, and no previous report of it can be traced. The system obviously floods to the roof rapidly after heavy rain, and there are no possible refuges from flood water.

Eller Beck Head.

The entrance of the resurgence cave is narrow, and of 'stooping' height. A few feet in the passage swings r. and enlarges to c.8' square, with water almost waist deep. After c.40' the roomy passage suddenly closes down and bifrucates. To the l. are two crawls, each becoming too tight. On the r. is a passage leading through an unpleasant tight duck in deep water. This passage ends where another passage or small chamber can be seen through a tiny chink in the wall. The total length of the cave is perhaps c.80'. In some respects, Eller Beck Head is very reminiscent of the entrance series of Smeltmill Beck Cave on a smaller scale.

Green Pot Hill Cave.

Two cave entrances, both discharging small streams, in the Main Limestone gorge through which flows the infant Ure, had been noted in 1967, when Jingling Sike Cave was visited. It was confirmed that the N.P.C's investigation of the area had stopped at Jingling Sike.

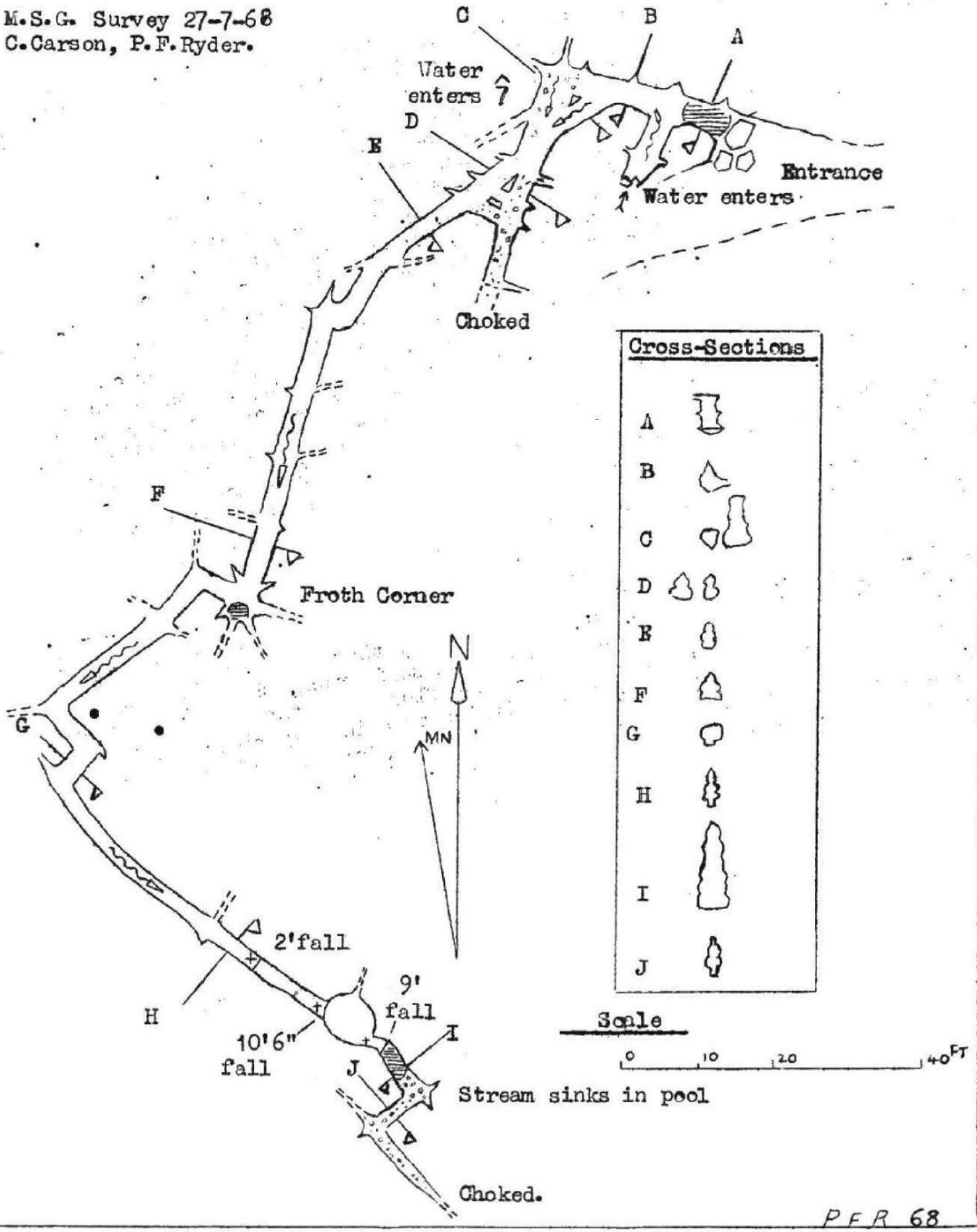
Colin Carson and the Langthornes revisited the area on 14-7-68. The rising cave on the N. side of the gorge closed down after c.25', as did a dry cave alongside it. The second rising, on the S. side of the gorge, required a little 'gardening' before it could be entered. The main passage varied in height between 3' and 1'6", and continued for c.125', before becoming a bedding plane, wide, but only a few inches high. An ox-bow led off downstream but sumped after c.20', the water re-entering the main passage c.40' from the entrance.

It was decided to call the cave 'Green Pot Hill Cave', after the hill above the gorge (in preference to suggested Ure Head Caverns and similar titles). The cave presentsno difficulty beyond being a rather wet crawl.

HAZEL BUSH HILL HOLE,

Killer Beck, Bowes. NGR NY 990.103.

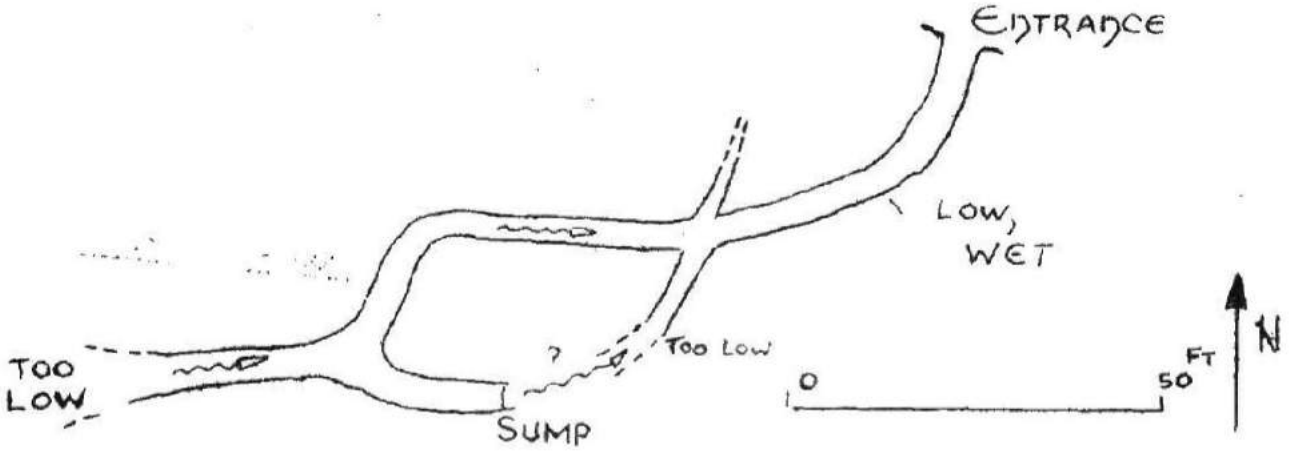
M.S.G. Survey 27-7-68
C.Carson, P.F.Ryder.



PFR 68

The stream in the cave is derived from sinks in the stream bed further up the gorge.

Green Pot Hill Cave Sketch Plan CRG Grade 1.



C. Carson.

Cruckle Pot

There are no recorded 'open' caves in the Lunehead area, although there is a wide expanse of Main Limestone plateau. Lunehead Mine Caverns, reputedly of considerable extent, were reached via a level beside Cleve Beck. Although open a year or so ago, the disused level has now run in at the entrance, and digging out the fall would be extremely hazardous.

In the small dry valley running down to the old mines, and a few yards from the south side of the Brough-Middleton road is a cave entrance, apparently a former sink. A small passage, c.3' square, floored with broken glass, rusty tin and other debris, closes down after c.25'.

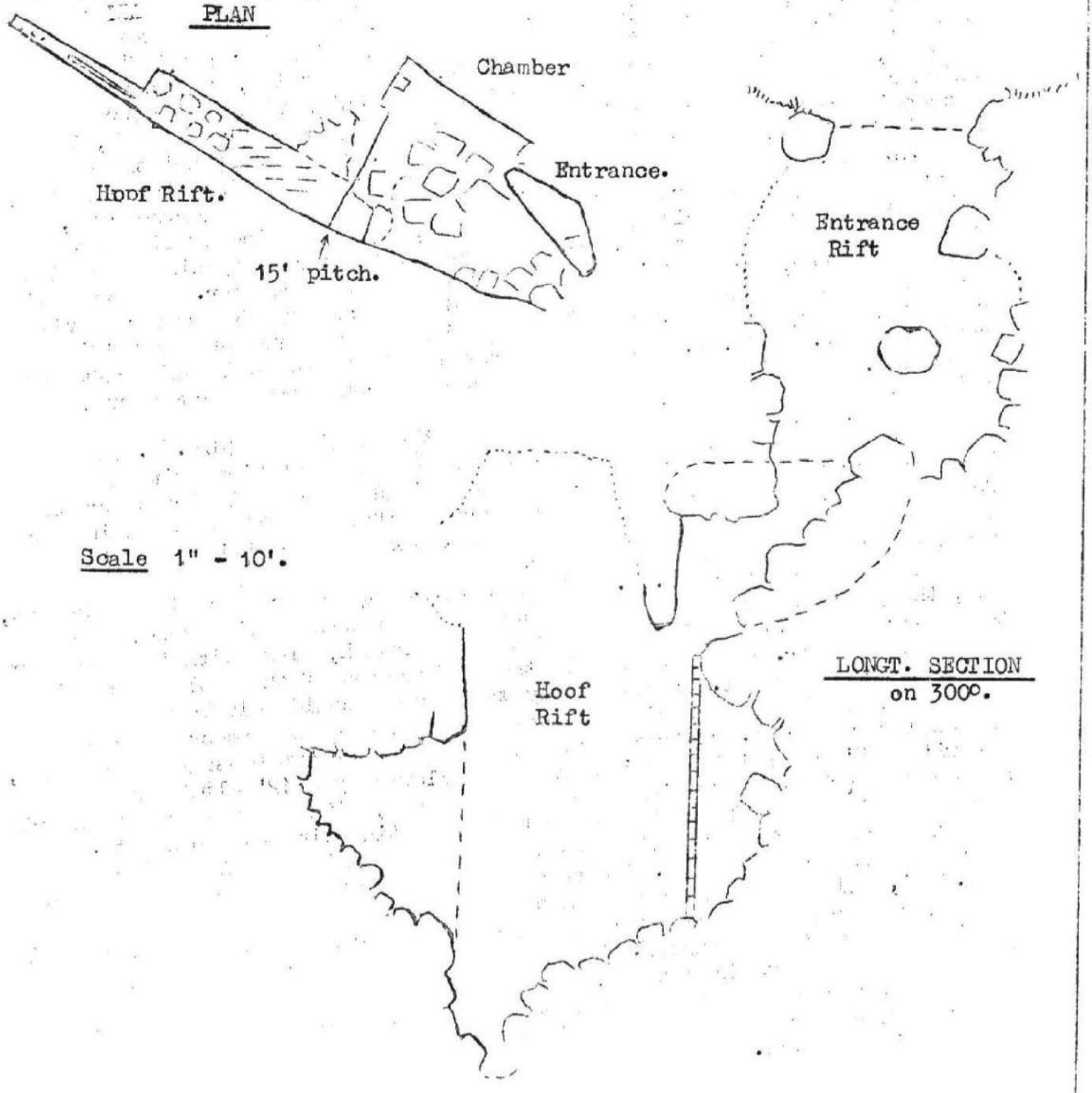
At the rear (south) of the limestone plateau is a long row of shakeholes. At NY 856.203, near a prominent sheep shelter, is an exceptionally large and rocky shakehole, with an opening, covered by metal sheeting and wood, in the bottom. This hole was found by Messrs Cooper and Ryder on 14-9-68. The covering was removed, revealing an open rift, with boulders wedged across it. An easy climb led down into the middle of a rather insecure ruckle of large boulders - only one wall of the pot seemed to be solid tock. At the deepest point of the ruckle was a small chamber, and nearby a hole leading on downwards but choked by one large rock. Half an hour or so of hammering in uncomfortable surroundings (with the constant possibility of the whole ruckle collapsing) reduced the rock to a size enabling it to be pushed forwards - when it fell c.20' into a chamber below. It was decided ladder was needed for further progress.

A return trip was made to the hole - now named Cruckle Pot, on 24-9-68. A solid-looking (?) belay was found and ladder lowered into the newly opened hole. The pitch proved to be c.15'. Unfortunately there was no way on from the rift chamber at the foot of the pitch - in solid rock, the only part of the pot to be so. A sheep's hoof found on the floor gave the name 'Hoof Rift'. A Grade 5 survey was carried out (some difficulty being experienced amidst the boulder ruckle), and the pot found to be 60' deep (from the bottom of the shake-hole - perhaps 75' from moor level) and c.40' long.

CRUCKLE POT, Lunehead.

NGR. NY 856.203. Length 40', Depth 60'
M.S.G. Survey 24-9-68. C.Carson, J.Cooper, P.Ryder, J.Wilson.

C.R.G. Grade 5.



PER 68

CROSS POT, Swindale.

Cross Pot, the most westerly of Swindale Pots, has been a centre of interest in the M.S.G. for some time, and prospects of its extension have often been discussed. There are actually three holes at Cross Pot - the nearest to the road (on the east of the road) being Cross Pot II, the main sink a few yards further east being Cross Pot 1, with Cross Pot III on the other (west) side of the Middleton-Brough road. Cross Pot II takes a small stream, and is quite an interesting little hole, with perhaps 100' of passage, but little prospect of extension. Cross Pot III, the entrance of which can be found by digging in a malodrous rubbish tip, is a narrow descending passage ending in a choke after a few yards. Crpss Pot 1, the main hole (NGR NY 819.177), takes a sizeable stream, suprisingly not shown on the O.S. Map. The stream cascades down under a rock arch into the open pot, about 35' deep, then turns back on itself and flows into a narrow rift, which after about 30' closes down to a slit, through which a wider passage can be seen, but not entered. From the open pot a second opening leads into a small chamber, with a 10' climb down into a second chamber. A narrow 12' drop beyond this leads to the furthest point reached by MSG members until recently, a very narrow rift , through which another drop of about 10' could be seen. On 13. 4. 68. Colin Carson had been wedged in this rift for some time, with other members offering vocal encouragement from above, but failed to squeeze through.

The M.S.G. Annual Dinner was held on the evening of 19.9.68. One of the guests was Alan Brook, of U.L.S.A., who has a reputation (with his brother) for forcing tight caves. It was decided to show him Cross Pot the following day. Alan easily passed the narrow rift, and climbed down into the small chamber beyond, finding two passages, the more promising downstream passage being blocked with a boulder.

A few days later (24. 9. 68) an M.S.G. party returned again to the pot, and, the psychological obstacle of passing the squeeze having gone, both Colin Carson and Jeff Wilson managed to get through, along with the secretary's geological hammer. This was used in the destruction of the boulder blocking the downstream passage. Unfortunately the passage could only be forced for about 30', until a combination of very small passage and excess water made the explorer retreat. Upstream from the smallchamber two passages were found, one with a 5' climb into a 25' high aven followed by a 12' climb into a higher aven (the top of which could not be seen), with faint daylight entering through an impenetrable slit (presumably connecting with the open pot). The other passage is a low wide bedding plane, becoming too low and choked near the downstream passage. The total length of passage found was estimated at c.100', all low and narrow and most of it wet.

A rope should be used for the descent and ascent of the very narrow rift leading down to the extension. Cavers of average and larger sizes may consider it unwise to attempt the squeeze.

The importance of the Cross Pot extension is that this is the first time that horizontal passages have been found at the bottom of any of the potholes in the area.

M. S. G. MEET REPORTS. SUMMER 1968.

1 - 6 - 68. Cliffe Beck, Hard Level Gill.
The l. hand of the two stream passage forming Cliffe Beck Head was explored further than previously (when the passage had almost sumped after c.70'.). The passage was found to end (?) when the roof dropped to within an inch or two of the water, about 200' from the entrance. Cliffe Force and Hard Level Gill caves were also visited, but nothing new found.
Party: C.Carson, J.Cooper, C.Langthorne, J.Longstaff, P.Ryder.

2 - 6- 68. Borrowdale Beck Head.
The furthest point previously reached by MSG members was passed, and the streamway re-joined. One side passage, with crawls alternating with small well decorated chambers, did not appear to have been traversed before. Lack of time forced a retreat, the end of the streamway not having been reached. The length of cave traversed was estimated at over 1200'.
Party: C.Carson, C.Langthorne.

3 - 6 - 68. Swindalehead Cave.
A Grade 4 survey of the cave was made, proving the total length to be c.400', as was previously estimated.
Party: C.Carson, M.Crowhurst, P.Ryder.

22 - 6- 68. Priorsdale.
Further attempts were made to force the end of Priorsdale Cave, but with no success at all.
Party: J.Cooper, M.Crowhurst, J.Longstaff, P.Ryder.

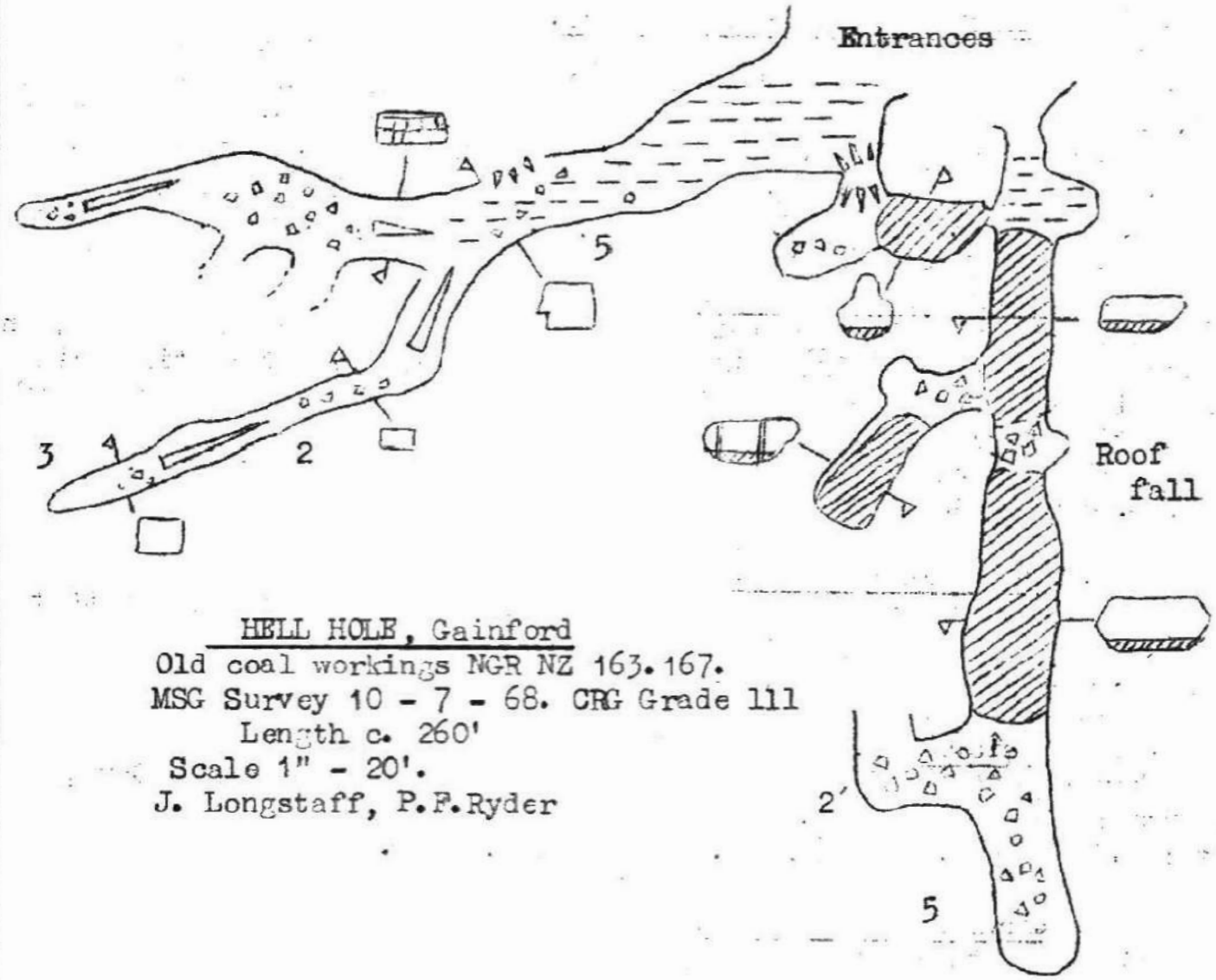
6 - 7 - 68. Richmond Copper Mine.
See report elsewhere in this Journal.

10 - 7 - 68. Hell Hole, Gainford.
This is a 'cave' mentioned in 'Pennine Underground' as being 45' in length. Investigation revealed that the hole is in fact an old coal working (at some time there were several in the area), in places dirty, wet and highly unsafe, and in length about 260'. A Grade 3 survey of the hole was made (see overpage).
Party; J.Longstaff, P.Ryder.

13 - 7 - 68. Burnhope Moor Area.
A long walk to investigate sinks, risings, and shake-holes in the Main Limestone on Burnhope Moore. One hole was found, 12' long.
Party: J.Longstaff, C.Carson.

14 - 7 - 68. Hallerstang and Garsdale.
The meet on which Green Pot Hill Cave (see above) was found. Two small caves, 15' and 20' in length, were inspected near Shaws Youth Hostel.
Party; C.Carson, C.Langthorne, G.Langthorne.

17/19/22 - 7 - 68, 7 - 8 - 68. Eller Beck
See above.



HELL HOLE, Gainford
Old coal workings NGR NZ 163.167.
MSG Survey 10 - 7 - 68. CRG Grade III
Length c. 260'
Scale 1" - 20'.
J. Longstaff, P.F.Ryder

27 - 7 - 68. Kexwith Moor Area

A "surface walk" to investigate the outcrop of the Main Limestone in the valleys of Arndale Beck and Moresdale Gill. Several sinks and risings were found, but none that were enterable. One cave was found in Arndale, a dry crawl about 20' long.
Party: S.Hodgson, C.Lanthorne, P.F.Ryder.

3 - 8 - 68. Smeltmill Beck Cave

A surveying trip, reported elsewhere in this Journal.
Party: C.Carson, M.Davies.

10 - 8 - 68. Tailbrigg Area

A walk along the limestone outcrop north of Dunkerdale failed to reveal any caves. Dunkerdale Head Cave was again examined, and forced to its extreme limit - there is perhaps 35' of passage, all very small, running parallel with the cliff face. The day was concluded with a Grade 5 survey of Blue John Hole, during which great difficulty was experienced with the prismatic compass (borrowed from the Y.U.R.T.), which kept steaming up. The total length of the hole is about 270', including "Blue John II".
Party: J.D.Atkings, C.Carson, J.Longstaff, P.F.Ryder.

13 - 8 - 68. Richmond Copper Mine.
See elsewhere in this Journal.

1 - 9 - 68. Smeltmill Beck Cave

Further surveying.

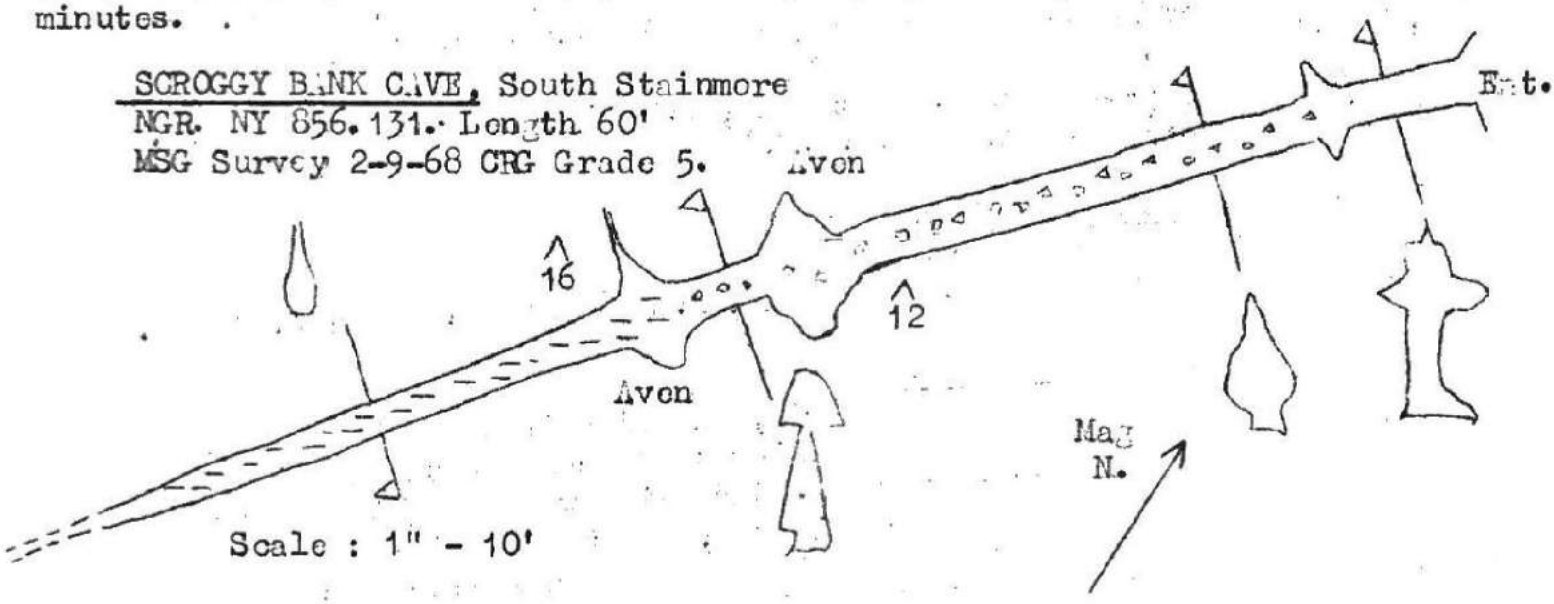
2 - 9 - 68. West Scrafton Pot.

Rumour had been heard of a newly discovered pothole at West Scrafton in Coverdale, with its entrance in a stream bed virtually beneath West Scrafton village bridge. The hole was found, and an enjoyable four hour trip proceeded. The entrance is a 15' climb down a rift, and a few yards in, around a corner, is an impressive 70' pitch, in a very large shaft. The series below is extensive, and very complex, with a further 25' pitch into a chamber which is the deepest part of the pot.
Party: C.Carson, S.Hodgson.

3 - 9 - 68. Stainmore Area

Investigation of the outcrop of the Main Limestone around South Stainmore revealed one small cave in the escarpment of Scroggy Bank. A Grade 5 survey of the cave (see below) was produced, in a matter of five minutes.

SCROGGY BANK CAVE, South Stainmore
NGR. NY 856.131. Length 60'
MSG Survey 2-9-68 CRG Grade 5.



An old mineshaft beside Borrowdale Beck, just below the Beck Head cave, was descended, to investigate the sound of running water which could be heard from the surface. The water, at the foot of a 70' shaft, proved to be only leakage from the bed of the nearby Beck. Exploration of the old coal mine workings was not pursued.
Party: C.Carson, C.Langthorne, P.F.Ryder.

5 - 9 - 68. Windmore End Cave

An extension to this cave, first found by the D.C.C., and not noticed on a previous MSG trip, was visited. This series is entered by squeezing through a tight rift on the r. of the main rift, and contains a sizeable chamber, as well as some very good formations. The passage beyond the chamber was not forced to its termination by the one member of the party who suceeded in passing the squeeze.
Party: J.D.Atkins, J.Lon staff, P.F.Ryder and friends.

6 - 9 - 68. Cold Brow Pots.

These potholes had been noted some weeks previously by two MSG members on a "surface walk". They have evidently been descended before, but not 'published'. Sketch plans are here reproduced of the two main holes, at NZ 011.084. The pot at the main sink does not contain the stream, which sinks in boulders. Two other potholes at NZ 009.087 were investigated, and proved to be less than 30' deep, with no continuations.
Party: C.Carson, S.Hodgson, P.F.Ryder.

7 - 9 - 68. West Scrafton Pot.

Another 'tourist trip'.
Party: C.Carson, J.Cooper, G.Langthorne, S.Hodgson, P.F.Ryder.

14 - 9 - 68. Lunchead Area.

See elsewhere.
Party: J.Cooper, P.F.Ryder.

19 - 9 - 68. Cross Pot and God's Bridge Cave.

As related elsewhere, the squeeze in Cross Pot was passed. Meanwhile, at God's Bridge, the survey had been commenced. Messrs. Brook and Ryder, returning from Cross Pot, had a 'tourist trip' through God's Bridge Cave.
Party: C.Carson, J.Cooper, G.Langthorne, P.Robinson, P.F.Ryder (M.S.G.) A.Brook (U.L.S.A.), M.Davies (Y.U.R.T.)

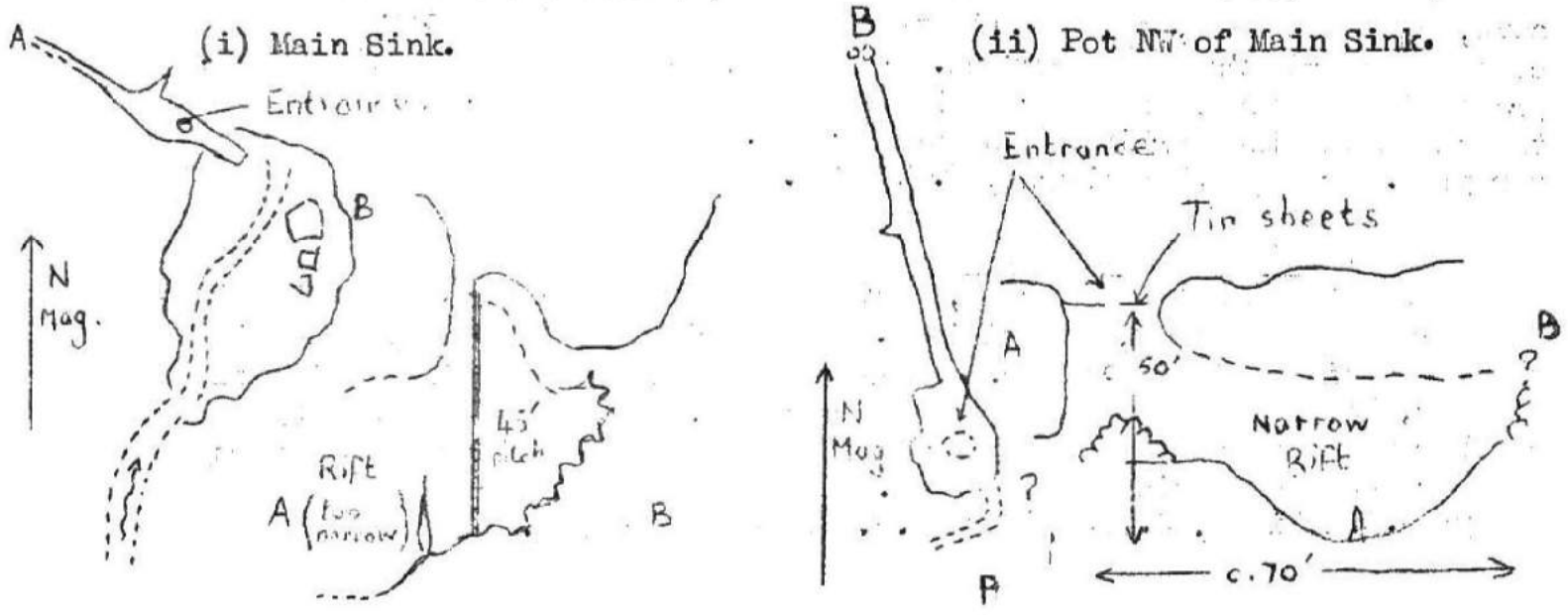
24 - 9 - 68. Lunchead and Cross Pot

Again related elsewhere.
Party: C.Carson, J.Cooper, G.Langthorne, P.Robinson, P.Ryder, J.Wilson.

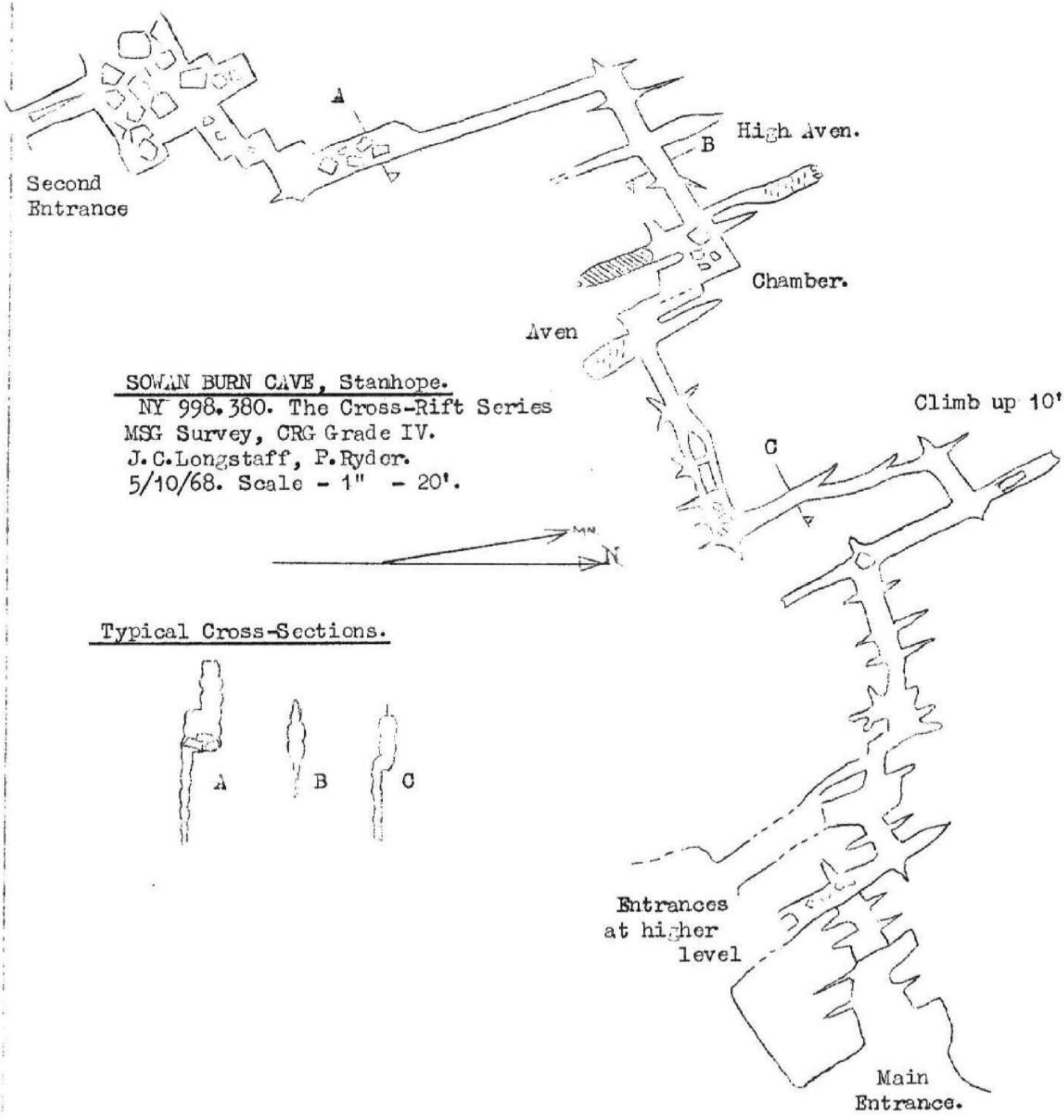
28 - 9 - 68. Windmore End Cave.

A rather eventful surveying trip, on which it was noted by all concerned that it is considerably easier to descend vertical chimneys with mud-coated walls than return up them. Surveying was brought to a tragic halt by the breaking of the pencil in use, and the inability of the secretary to sharpen the stub on a piece of broken stalactite. The total length of the cave is about 500', 400' of which were surveyed.

COLD BROW POTS Sketch Plans.



To Stream Passage.



SOWAN BURN CAVE, Stanhope.
NY 998.380. The Cross-Rift Series
MSG Survey, CRG Grade IV.
J.C.Longstaff, P.Ryder.
5/10/68. Scale - 1" - 20'.

Typical Cross-Sections.

PER 68

29 - 9 - 68. God's Bridge Cave

This was to be a practice rescue for the Durham C.R.O., and cavers from several different clubs turned up. The practice rescue was not carried out, due to the impossibility of haulking a stretcher through the vile mud of the "old" entrance crawl, or dragging it through the two tight squeezes of the "Exit". MSG members present continued with the survey, in the series of crawls leading off Stalagmite Aven.
Party: C.Carson, S.Hodgson, G.Lan thorne.

5 - 10 - 68. Sowan Burn Cave.

Another surveying trip - since the MSG already possessed a copy of a survey of the stream passage of the cave, the Cross-Rift series was surveyed to Grade IV. The cave proved far less complex than remembered, and the total len th of the Rift series only comes to c.300'. Inspection of various quarries around Sowan Burn revealed no further cave entrances.
Party: J.Lon staff, P.F.Ryder.

26 - 10 - 68. God's Bridge Cave

The survey of the system was at last completed. The total length of the main River Cave is c.1900', most of this streamway. In the stream passage between the two ends of the oxbow in which the 'Exit' crawl terminates, a pure white eel some two feet long was encountered. Attempts at fraternisation or capture were deemed unwise.
Party: C.Carson, C.Lan thorne, P.Ryder.

The MSG Meets Report, from which these extracts are taken, deals only with meets in the Northern Dales (i.e. Wensleydale and further north). Various 'outside meets' (arranged by Colin Carson, as "outside-meets-secretary") are not reported. These include visits to such systems on Craven as Lost John's System, Little Hull Hole, Bar Pot and Lancaster-Easegill Caverns

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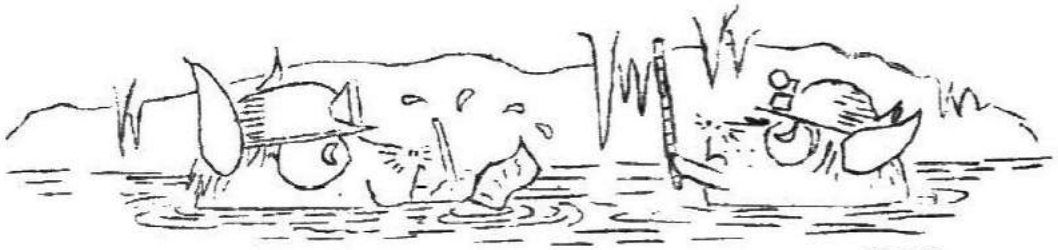
Additions to the M.S.G. Survey Collection.

Blue John Hole, Cruckle Pot, God's Bridge River Cave - MSG Grades 4/5. Hazel Bush Hill Hole, MSG Grade 4. Holl Hole, Gainford, MSG Grade 3. Sally Grain Cave, Weardale, YURT Grade 5, Scroggy Bank Cave, MSG Grade 5. Smeltmill Beck Cave, MSG/YURT Grade 5. Sowan Burn Cave, the Cross-Rift Series, MSG Grade 4, Swindalehead Cave, MSG Grade 4, Three Neuks Pot, YURT Grade 3.



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Miscellaneous Northern Dales Cave News.

AYLEBURN MINE CAVE - has been inaccessible for some time due to the collapse of the mine level. Recently, however, local miners have dug out the fall, and the cave system is now open again. Visitors should have at least one good climber amongst them, and about 30' of ladder, for the ascent from the mine level into the cave system.

SHOOTING PALACE POT (??) - First reported as a 1000' new discovery by the Kendal CC in an ULSA publication a year or so ago. MSG Enquiry to the KCC recieved reply stating that the entrance had collapsed and would probably not be dug out. Month or so later, 'Speleologist' report that the KCC had just found 'Shooting Palace Pot', c.1000' long with two small pitches, and that earlier ULSA report had been false rumour. Eventual MSG expedition to the alleged site finds a tight and nasty hole, certainly not 1000' long, and apparently known for years (as 'Hooker Gill Hole' - a more reasonable name, as Hooker Gill sinks there). Mystery remains unsolved - unless 'Speleologist' report was a misprint, and KCC are claiming to have found a pot 100', not 1000', long - this appears to be the most reasonable solution.

SALLY GRAIN CAVE - discovered by YURT in the wilds of Upper Weardale, near a large sink which may well feed Priorsdale rising. Cave 320' long, 27' deep.

DEVIS HOLE MINE - Near Grinton, which led into natural caverns, has collapsed a few yards from the entrance.

COVERDALE - As well as West Scrafton Pot, already becoming quite well known, there have been several recent cave discoveries in Coverdale, mainly in the thick band of Middle Limestone (as opposed to the Main Limestone, in which caves are most commonly found in the Northern Dales). Both C.P.C. and Y.U.R.T. have been active.

BARRAS END MINE CAVERNS - An old map of lead mines in the Hard Level Gill-Arkenarthdale area shows a very extensive range of natural caverns beneath Great Pinseat, the fell on the north of Hard Level Gill. Have they been entered recently? There are probably many natural caverns in old mines which the miners did not bother to record, waiting to be found by speleologists with a bent towards mine exploration.

Flood Danger in Caves of the Northern Dales.

Colin Carson.

Thumbing through Thornber one often comes across a reference in italics such as -

"Note - Very dangerous in unsettled weather as entire cave fills in minutes"

How, one wonders, is it known that the entire cave fills? The point is that such flood warnings are usually based only on surmise. The intelligent caver can usually pick up a few clues in a cave as to the possibilities of flooding, and note any safe places if he should ever be cut off from the entrance by rising water.

In discussing the systems of the Northern Dales (i.e. Wensleydale and further north) it is obviously only the longer systems which require coverage as the smaller systems take only a short time to explore, thus limiting the possibilities of a heavy downpour whilst underground.

Starting in Coverdale (a tributary of the Ure) there is West Scrafton Pot (SE 074.836). In normal conditions this swallows the whole of Lead Up Gill, which has a large catchment area on West Scrafton Moor and Great Haw. Flood debris in the pot indicates that it fills almost completely. A refuge might be found in the large bedding plane in the series to the left of the main pitch. Lead Up Gill can rise rapidly and the entrance to the pot and the main pitch will quickly become impassable. Settled weather is a necessary prerequisite for a trip.

The stream in Thackthwaite Beck Cave (SD 987.911) can rise sufficently to cut off the entrance as there is a low section of streamway with no alternative route a few hundred feet from the entrance. However there are several safe places to await the lowering of the water level.

In Swaledale caves which may be dangerous in unsettled weather are in East Gill and Hard Level Gill. Crackpot Cave (SD 963.955) may be impassable in very wet conditions as the 1. entrance crawl may be sumped.

Around Stainmore there is more danger. God's Bridge Cave (NY 967.126) normally swallows the whole of the River Greta. In times of spate the river flows on the surface. In these conditions the cave may be enterable. The eastern ('old') entrance crawl may be sumped when the 'exit' further west affords an entrance to those slim enough. Both upstream and downstream sections of the cave are usually sumped or very nearly sumped in these conditions. If the river rises enough to flow into the two entrances the whole cave will be flooded.

Hazel Bush Hill Hole (NY 990.103), although only 270' long, could be a death-trap if a sudden rise in the level of Eller Beck occured, as there are numerous inlets from the normally dry stream bed.

Smeltmill Beck Cave (NY 848.146) is fairly dangerous. The entrance series readily sumps for about 200' if there is a rise in water level. The water can rise rapidly and if a party was in this section at such a time there sould be a tragic outcome. The upstream end of the cave, especially Handwrecker series, also fills to the roof. However, the system from the end of the "Ducks" to the Main Junction does not seem to fill easily, and a dry place is afforded in Cascade Traverse for a long vigil.

Borrowdale Beck Head Cave (NY 833.161) is a cross rift system, much of it crawling in the stream. This is an especially dangerous cave as the streamway near the entrance can sump rapidly, and there seem to be no safe refuges in the cave, which is of considerable length.

Pate Hole (NY 678.121) is a rather unusual system. In dry weather it is neither a sink nor a resurgence. In dry summer months North Passage and Oxbow Passage are fairly dry, but in winter they are generally sumped. In fairly wet weather the cave acts as a sink (the main passage, about 4' high, slopes downwards for a considerable distance), and the cave is best avoided, since in very wet weather the system fills and the entrance disgorges a stream.

Moking Hurth (NY 863.311) and Moking Pot (also known as the W.S.R.S. System - NY 869.312), both contain a small stream, but flooding seems unlikely, and these caves are fairly safe in wet weather. In Weardale, the largest accessible system at present is the Hope Level Four Fathom Mine Cave, now open again. This system seems fairly safe in wet weather, except the upstream crawls, dug out by the Durham Cave Club, that lead up to the "Glory Hole".

The Nyleburn Mine Cave (NY 724.497) near Alston contains a fairly large stream, and it is apparent that the passage upstream from the waterfall can sump in places.

Flood dangers are only relative. Very occasionally there are exceptional freak conditions such as occured in Southern England this summer (1968). These wrought havoc with Mendip caves causing changes no-one thought possible, and, incidentally, filling almost every cave completely, including normally dry ones.

Underground in Skye.

P.F.Ryder.

The Isle of Skye is well known as a mecca for rock-climbers and walkers, with its spectacular mountains (notably the Cuillins, both Black and Red varieties). Less well known is the existance of a broad belt of genuine limestone (Cambrian - of considerably greater age than the Pennine limestones), between sundry granites, gabbros, hornblendes, schists and other geological delicacies. Having seen a mention of caves in this limestone in a recent N.P.C. newsletter (July 68), David Atkings and myself, on a weeks holiday wandering round Scotland, decided to investigate.

The N.P.C. article mentions the finding of a 70' cave, and a visit to the previously known Beinn an Dubhaich cave, 300' or so long. There is also a reference to a sink which the writers did not have suitable gear to enter, as the entrance was rather wet.

We easily found this wet sink, directly below the cart track which runs along the coast on the east side of Loch Slapin (a sea loch), at NGR NG 584.188. A small stream, (shown on the O.S. 1" map as flowing on the surface straight down to the sea, which it can never do) flows off granite onto the limestone, and immediatly falls into a sizeable rocky sink-hole, before flowing round a dead sheep into a low cave entrance. Crawling round the sheep, I found two passages. Straight ahead is a low but dry crawl, which after c.15' splits into two. Both branches could have been pushed, but these would have involved moving loose rocks.

The stream passage was a low wet crawl, with a selection of oil drums wedged in it, and another dead sheep. After a 2' waterfall the going became a little easier, into a small chamber where the water sank in gravel. After a few yards of walking the passage ended, and I was about to return to daylight when I noticed a crawl above the stream sink, which after a few feet dropped down into the streamway again. The cave continued around several corners, and through an unpleasant flat-out wet crawl. Eventually, when my light was rapidly failing (due to faulty charging), the passage became easy walking, and daylight appeared, but could not be reached without another crawl in the stream. The length of this section of the cave is probably around 300'.

The stream flows from the lower entrance of the cave across the surface for a few yards, before plunging over a dolerite dyke, which has obviously controlled the depth to which the cave could develop, into a pothole about 25' deep. Nearby was another, shallower, hole, connecting with the side of this shaft. A few yards nearer the sea was a third depression, with two openings. One of these led into a roomy passage, leading to an easy climb down to the streamway, at the foot of the 25' pothole. Downstream the streamway is more crawling, to the foot of the other hole in the depression, and a large pile of rubbish, including broken glass and rusty saw blades. This could have been climbed over, but wasn't.

The stream resurges, above a second dolerite dyke, half way down the sea cliff. The cave entrance at the resurgence is low, but inside is an easy walking passage, continuing for about 100' to the other side of the rubbish tip referred to above.

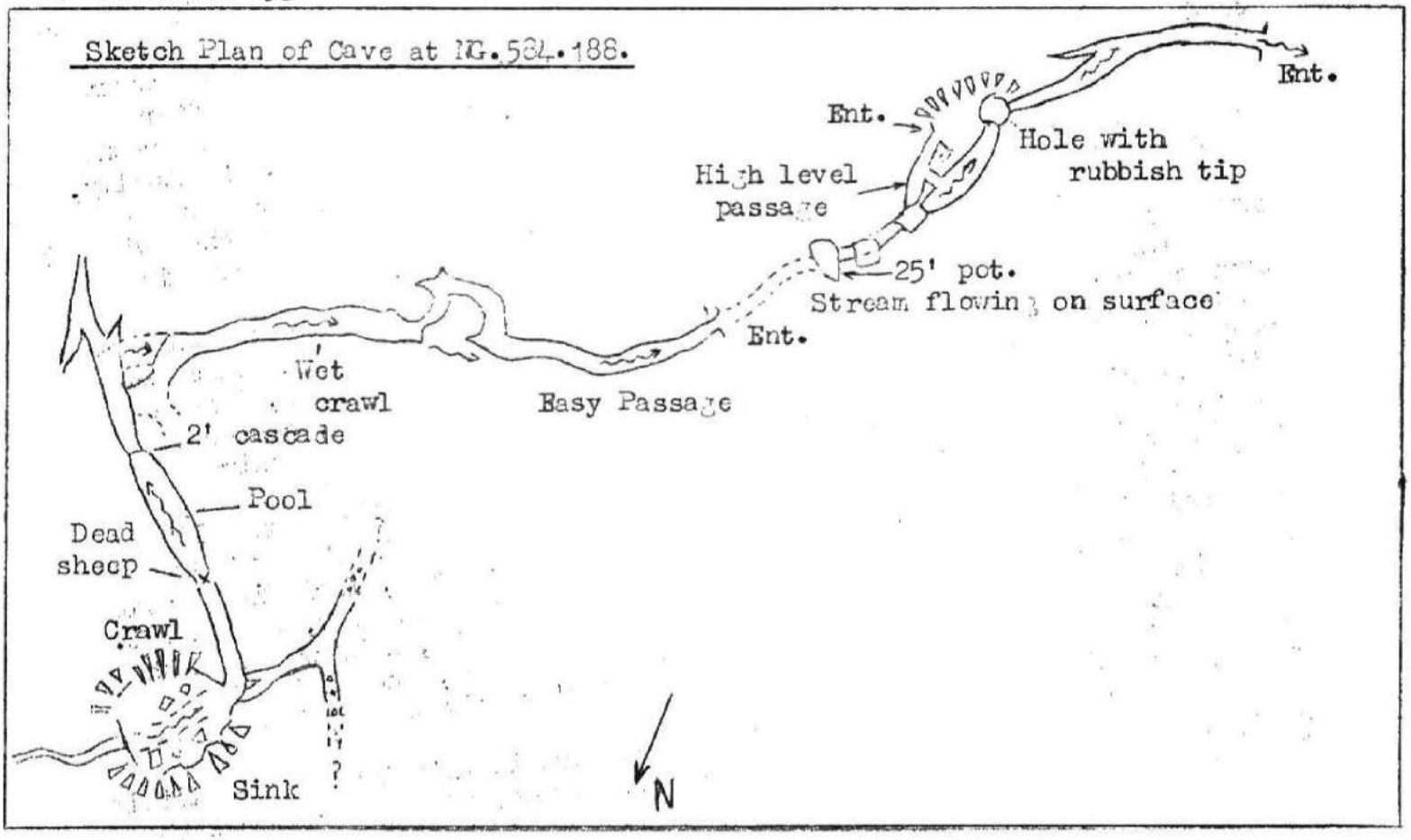
There is no evidence of previous explorers in this interesting little cave, notable in that the entire underground course of the stream can be followed.

Various holes on the north side of the Allt nan Leac valley, mentioned in the NPC article, were briefly inspected. One cave was explored, presumably the known Beinn an Dubhaich system.

The entrance to this cave - or rather, the most obvious entrance - is in a rocky shakehole about a quarter of a mile from the sea, where a small stream sinks. A squeeze in the stream, enlarged with my geological hammer, leads into a low steeply descending passage, opening into a long narrow chamber, with the stream disappearing into an impenetrable bedding. From the r. end of this chamber is a crawl into a large (6' high) chamber, from which another short crawl opens into a roomy 'walking' passage, with a short branch on the r. This passage opens into the bottom of an open 15' deep pothole, disguised at the surface by a tree growing in it. On a second visit to the cave this hole provided a far easier entrance. On the far side of the pot the passage continues, descending gradually, as a narrow canyon with a wider section at the top - followable by sideways walking in the canyon or an easy traverse in the roof. The lower route becomes unpleasantly narrow. The roof traverse ends in a climb down a narrow passage and a stalagmite cascade to the floor of the main passage, which after a few muddy yards opens into a roomy chamber with three feet of water and mud on the floor. This sump is presumably at the same level as the rising - an impenetrable pool - in the valley, although the greater part of the cave is now deserted by the stream.

A walk over the limestone around Torrin and on the north side of Beinn an Dubhaich revealed a few small sinks and risings, some of which might be enterable with a little work. The area of limestone around here could well yield a few more pleasant little caves. The steep dip of the limestone produces caves more akin to the Mendip type than the familiar Yorkshire type.

Sketch Plan of Cave at NG.584.188.



Surveying Smeltmill Beck Cave. Colin Carson.

Upon return from university at the start of the summer vacation I was informed that Martin Davies of the YURT (Yorkshire Underground Research Team) had been invited to the Moldywarp meeting the next evening to discuss the surveying of Smeltmill Beck Cave. At the meeting I agreed to aid the avid surveyors sometime in August, when Martin would be free, as he was lending us personal assistance as well as surveying instruments.

The start of August found Moldywarps spread all over the globe (actually Spain, Malta and Scotland). Thus when I rang up Martin on August 1st it was agreed that the two of us should start the survey. It was agreed that the survey should be the joint copyright of the MSG and the YURT, but to be published by the MSG (it is hoped that copies will be available in the next month or so).

On the late evening of Friday 2nd we set out for North Stainmore. Martin wished to go underground immediately, but I was already erecting my tent and had my hot water bottle in my sleeping bag. Thus at 10a.m. on Saturday after a hearty breakfast of ham and eggs at the transport cafe just up the road from the cave we entered the system, quickly making our way to the end of Handwrecker Series. Here I took the instruments out of my waterproof (?) ammo-can to discoer that they were intact. The few yards of passage before the sump proved very unpleasant, as the water was neck deep plus, and I had several holes in my wet-suit. We proceeded as quickly as possible down Handwrecker with chattering teeth and shaking hands not suited to reading the compass to within $\frac{1}{2}^{o}$ accuracy. We left out the 120' downstream end of the Handwrecker series (surveyed on the later trip when we surveyed Keyhole Passage), and surveyed through 'Hope' to the Main Junction.

From the Main Junction we decided to survey towards the entrance, leaving Keyhole Passage, the main inlet, for a later date. All went smoothly and some quite long survey legs were achieved, over 80' in places. Martin was recording the data and drawing at a fantastic pace. We found that the clinometer was hardly used as the cave is level for long distances, proved by a number of extensive water surfaces. It was a pleasant change to get out of the stream onto Cascade Traverse, where at last there was a measurable drop. Soon we were back in chest deep water near Shrimp Inlet, and felt the cold again. Pressing on downstream past the formations known to us as the 'Hanging Gardens' we again managed some long survey legs. From Cairn Chamber towards the entrance survey legs became shorter as the passage twists and turns a lot. We emerged from the cave and surveyed on the surface up to the main road (the A66) before changing, after a surveying trip that had taken $8\frac{1}{2}$ hours (covering over 5,000' of cave).

The evening of 21st August saw an MSG party at the cave again. Peter Ryder and Chris Langthorne agreed to start the surface survey using a prismatic compass, abney level and cloth tape. Underground Phil Robinson and myself surveyed the remaining part of Handwrecker Series and Keyhole Passage, which proved to be c.450' long, rather more than estimated.

Saturday 24th arrived and was wet. In the afternoon Chris, Phil and I finished the surface survey after investigating some old coal shafts by Borrowdale Beck.

A week later, on Saturday August 31st, I persuaded Chris and Stuart Hodgson to finish the underground survey with me. This consisted of grovelling around in the Ducks and the two side passages in the entrance series. All of this is very wet and a miserable time was spent doing a

Grade IV. Our task was now completed. Woe betide anyone who finds an extension!

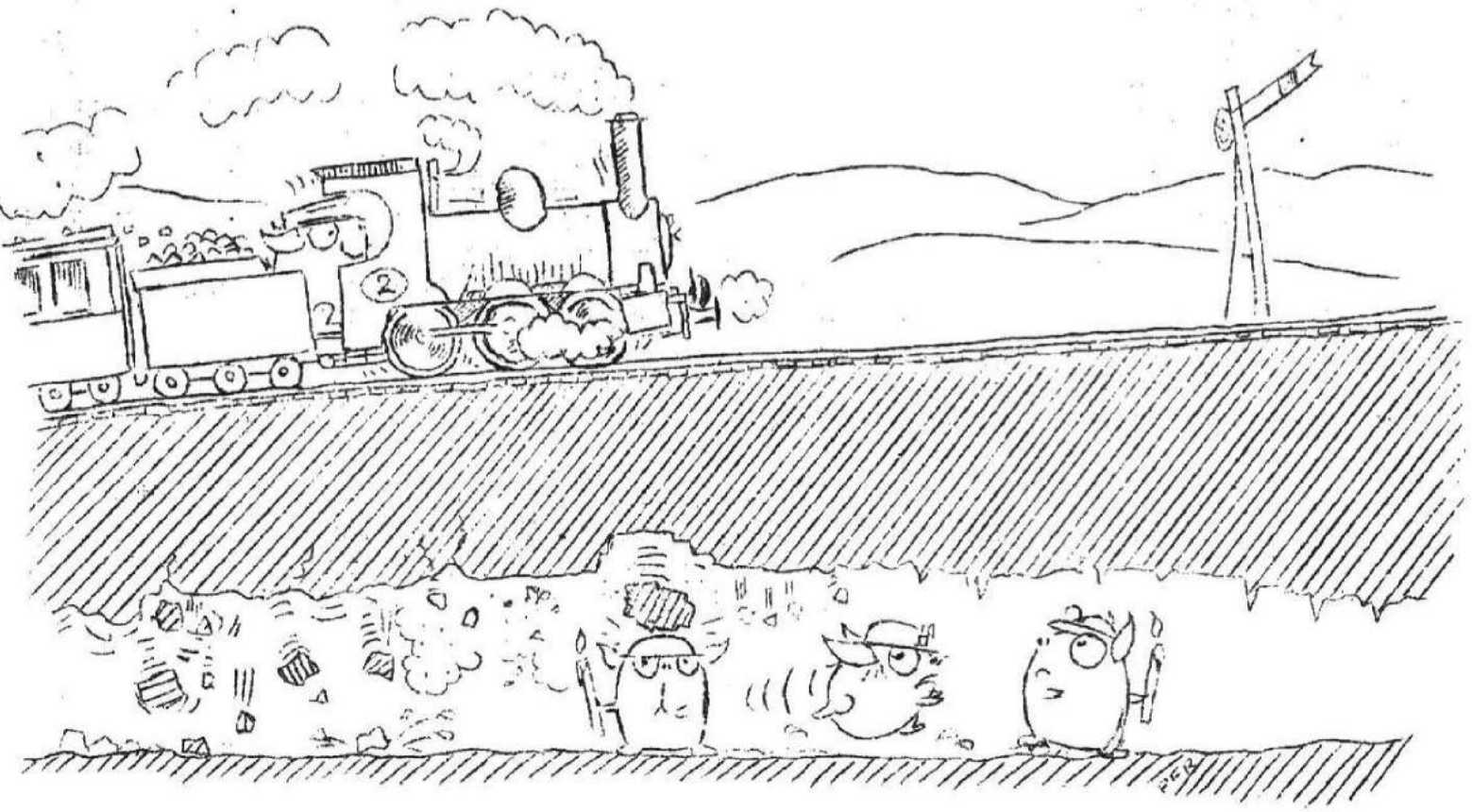
Martin of the YURT had agreed to plot the survey and the finished product is a fine job, especially as he had to comprehend my survey notes, which included representations of shakeholes appearing as hummocks.

The correlation of underground with surface details has raised some interesting points. Choke Aven at the end of Keyhole Passage is only 150' away from the sink in Smeltmill Beck at the edge of the limestone plateau (although about 70' below the surface). Plucka Hill Pot and the nearby shakeholes are just about on the line of the cave near Main Junction. Handwrecker Series runs under the gritstone outcrop on Plucka Hill, and is a long way from the two sinks hypothesized to feed the cave stream - there could be a lot more passage beyond the sumps at the end of the Series. There is no shakehole on the surface above the side rift where the deer bones were found in Red Deer Rift, thus it seems that they must have been washed into the system through one of the sinks.

The cave system does of course run under the A66. As this is the most winding part of the cave there is about 200' of passage actually under the road. A dual carriageway is being built a mile up the road, and if this is to be extended westwards, it may be neccessary to get a nature conservancy order on the cave to preserve it.

(Although the cave passage is only about 30' beneath the main road, no vibrations or traffic noise have been noticed by cavers, and no broken formations. A similar case was provided by God's Bridge Cave when the Stainmore line was open - Cavers who were in the system at this time say that it was quite a disturbing experience to be in the cave when a train passed overhead - again only about 25' above the cave. Yet there seem to be very few rock falls in God's Bridge, although one might expect some to be caused by vibrations.)

(Sec)

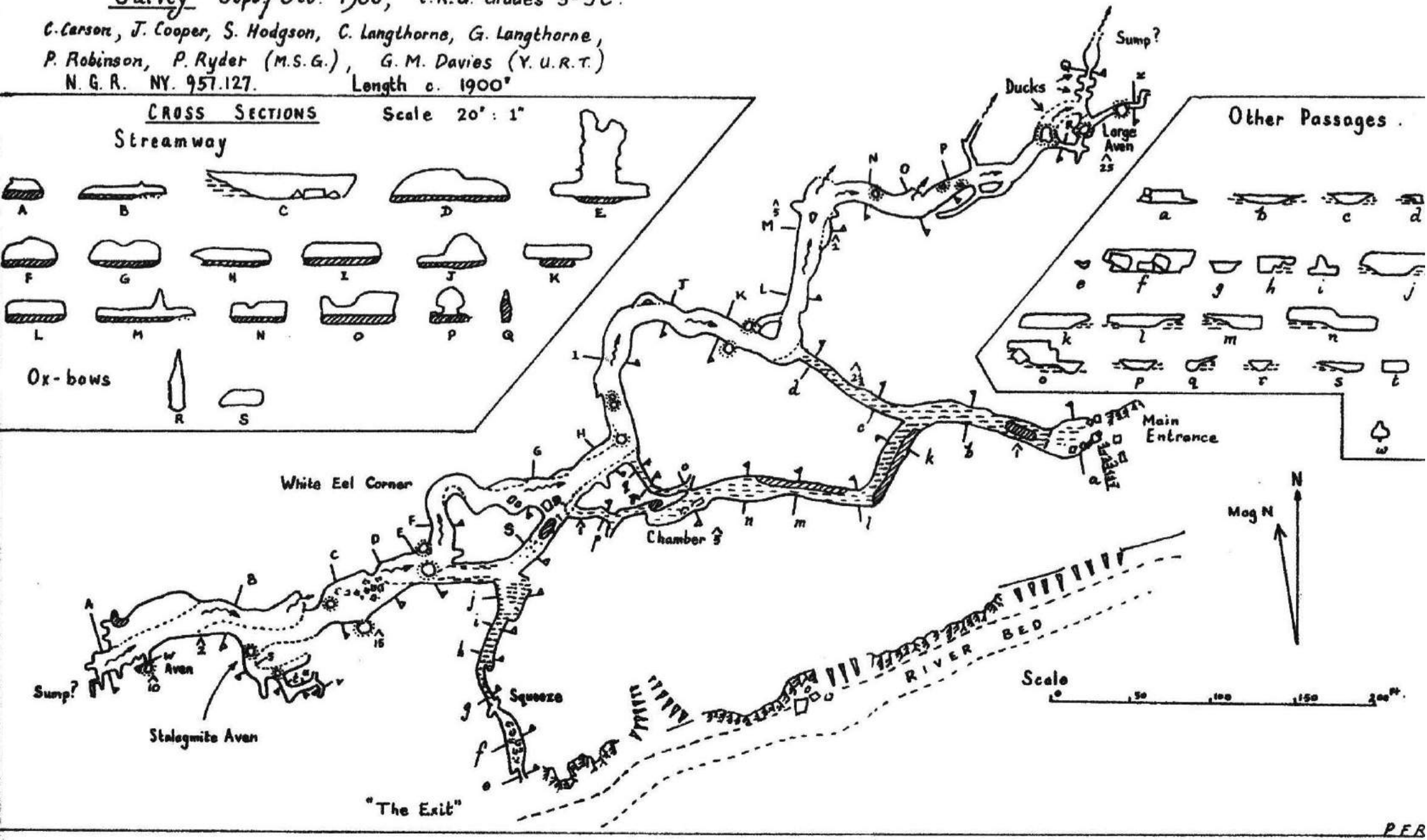


GOD'S BRIDGE RIVER CAVE, Gretadale

Survey Sept/Oct. 1968, C.R.G. Grades 3-5C.

C. Carson, J. Cooper, S. Hodgson, C. Langthorne, G. Langthorne,
P. Robinson, P. Ryder (M.S.G.), G. M. Davies (Y.U.R.T.)

N.G.R. NY. 957.127. Length c. 1900'



PFR

Exploits in the Richmond Copper Mine - John C Longstaff.

Richmond Copper Mine is situated about half a mile up the Swale from Richmond on the south side of the river. It has been disused for about fifty years (?), after having been worked since Elizabethan times, when German miners came over from Newlands Valley in the Lake District.

Because of the situation of the entrance, by a well-used footpath very close to Richmond, it has tended to be ignored and taken for granted by speleologists, although it is possible that there may be up to three miles of passage (with rumours of a 'through-trip' to Hudswell).

Over the past couple of years a number of small and usually unprepared MSG trips have been made to the coppermine to explore the lower series of passages, many of which contain vast and cold amounts of water. Therefore this writer has decided that they are of little interest, although some good specimens of azurite can be found in the more inaccessible reaches of the water-filled passages.

Earlier this year, Alan Holmes accompanied by our Hon.Sec. visited the mine, and found a negotiable 20' climb into upper levels, after demolishing a wall of rotten wood and corrugated iron and creeping through some extremely unsafe passages. Alan ascended the climb, leaving the Hon Sec. at the bottom. He made a brief exploration of the area immediately around the top of the climb, and after finding an exceptionally fine piece of azurite returned to the climb, and threw it at the Hon. Sec. (but missed), before returning to daylight.

It was some months before a return visit was arranged. The 20' climb was again ascended, with the aid of a rope, and the upper passages explored.

Whilst looking down a small blocked passage, the writer found a small vein of malachite and copper pyrites. Upon his seeing this vein, it was noted that the Hon. Sec.'s eyes glazed over and he was transformed into a vicious snarling creature, trying to claw it out. Eventually it became apparent that the Hon.Sec.'s finger nails are not so hard as pyrites, so he was lowered back down the climb on a granny knot, exhausted but happy.

About a month later a resolute and well equipped party returned (myself, Alan Holmes, Marilyn Crowhurst), determined to achieve something. Upon reaching the "extremely unsafe" section my two companions wavered, but eventually saw sense and realised that the risk of being crushed by tons of rock was preferable to getting wet above the knees (the alternative route to the climb contains between five and six feet of cold water), and followed me. We eventually reached the bottom of the climb after having spent an hour or so looking for it, and Miss Crowhurst decided that she couldn't get up it. After spening another hour or so hauling Miss C. up the climb our lights were nearly dead. However, almost immediately we found a large slab of chalcopyrite, which was smashed from the rock face with much relish and foaming at the mouth. When we had built up a nice pile of specimens we decided we should make our way out. It was than I noticed that I was the only one with any pockets amongst us. Heavy with minerals I descended the climb in about three quarters of a second, after spending three quarters of an hour watching Miss C. make a fool of herself trying to get down. We staggered back to daylight having failed again to make any real progress, except that I lost a much cherished geological hammer (one of the few tragedies to befall the MSG). At the time of writing this was our last trip into the workings, and a great deal remains to be done - there are at least four more rises leading to upper levels, and it is a great pity that the system, unique in the Northern Dales, should be ignored as it is. It would be a tragedy if our investigations of the upper levels were curtailed permanently by the collapse of the lower series.

It cannot be over-stressed that the Richmond Copper Mine is extremely dangerous in parts, and great care should be taken anywhere beyond the dry and often over-populated entrance series.

Surveying Equipment in Use in the MSG

The surveying equipment at present owned by, or on loan to, the MSG, consists of - one Suunto compass, accurate to $\frac{1}{2}^{o}$, 100' synthetic fibre tape (at the moment the property of Colin Carson), one Abney Level (on loan from YURT), supplies of waterproff pads (two) and a selection of pencils (donated by John Longstaff). On some surveys a liquid filled prismatic compass, more YURT property, was used. The 7 yard chain (made for use in domestic conveniences), and purchased for surveying purposes, proved unsuccessful, and was alas lost whilst trying to recover an unexploded shell (the property of the treasurer) from a local stream bed). The Hon. Sec. possesses a tagged 20' length of non-stretch washable plastic clothesline and a Silva compass, which will be loaned to any member who wishes to make a sketch survey of a cave. Many caves of the Northern Dales remain tragically unsurveyed, and it is the ambition of the MSG, at last suitably armed with the above equipment, to survey them. Surveying volunteers please apply to the Hon.Sec.

Hydrological Problems of the West Stainmore Area - P.F.Ryder.

The main centre of MSG activities in the past year or so has been the outcrop of the Main (or Great) Limestone on the west side of Stainmore - around the heads of the valleys of Argill, Augill and Swindale Becks.

On the S. side of Argill - the area south of the main Stainmore road (the A 66) - is quite an extensive limestone plateau, on which is situated Bleathgill farm. At the rear (south side) of this - e.g. at NY 857.126 - are two or three stream sinks, all fairly small and impenetrable. The water sinking here is probably accounted for by local risings - as at NY 858.132. The only known cave in the area, Scroggy Bank Cave, is completely dry, and only 60' long (for description, see elsewhere in this Journal).

Further S. is Mousegill Beck, which joins Argill to form the River Belah. Mousegill flows through impressive gorges in both Main and Four-Fathom (Undersett) limestones. In dry weather the entire Beck sinks in loose rocks in the Main Limestone gorge, at NY 853.119, and does not resurge locally - at any rate the water does not re-enter Mousegill, which in such conditions is dry all the way down to its confluence with Argill Beck, far below the limestone, at Argill Bridge.

The limestone outcrop continues for some distance further south, but the only sink of any size is Black Scar Pot (NY 861.107), which probably feeds nearby springs.

North of Argill Beck is a long Main Limestone plateau, for two miles followed by the main A66 road, from which the features of the plateau - the shake-holes at its rear, the scarp face, and clints-and-grykes - can be well seen. Two streams - Yard Sike and Slapestone Sike - flow onto the Limestone at NY 863.135, and, in dry weather, sink into impenetrable fissures a few yards S. of the road, at c.1160'O.D. The resurgence of this water poses another major problem. The stream bed continues dry through a gorge and below the Main Limestone, into the valley bottom. There is a second dry ravine, presumably in the Four Fathom Limestone. At the downstream end of this gorge, at NY 859.133, and c.1000' O.D., is a large rising from a grass slope, on the S. side of the stream bed - sizeable enough to account for the sinks of Slapestone and Yard Sikes, as well as for a few smaller sinks on the Main Limestone plateau further W., at c.1200'O.D. - though the connection is by no means certain, since the water would have to pass through the shales between the Main and Four Fathom Limestones (there are known cases of this happening - e.g. Thackthwaite Beck Cave).

Continuing westwards along the Main Limestone plateau, past the Transport Cafe, one comes to Smeltmill Beck, which, in normal conditions, sinks into its bed on reaching the limestone, at NY 852.148. Further W. are more sinks, including Plucka Hill Pot, and a pair of larger sinks, one under a substantial stone wall, at NY 848.151, and a large sink, in a pot-hole choked with boulders and a myriad rusty oil cans, at NY 845.153 (c.1225'O.D.). All these sinks probably feed Smeltmill Beck Cave, c.6,000' long, a resurgence at the base of the limestone at 1104'O.D., above Light TreesFarm. This is the only rising of any size between the head of Argill and Borrowdale Beck.

Further NW is a somewhat confused area, disturbed by faults, around the former Cabbish Mine (NY 837.156). A stream, Powbrand Sike, flows over the Main Limestone (coated here with drift?). Below the Main Limestone, this stream sinks (in the Four Fathom Limestone?) and resurges after a short distance, both sink and resurgance being in impenetrable fissures.

Following Powbrand Sike further downstream again, at NY 836.154 (975'O.D.), the stream again vanishes, this time into an artificial culvert - and reappears virtually on the same level, about two hundred yards further west, in a marshy pool, to form Punchbowl Gill.

The next major stream to flow across the Main Limestone is Borrowdale Beck, at NY 835.161. The limestone here is shown as the Main on the Ordnance Survey Geological Map (of mid 19th century vintage), but, whereas the Main Limestone at Smeltmill Beck is almost 100' thick, here it seems to be little more than 30' or 40' in thickness. A small part of Borrowdale Beck sinks in the limestone, and resurges nearby, from Borrowdale Beck Cave, at the base of the limestone.

About 150 yards westwards from Borrowdale Beck is a very large rising, Borrowdale Beck Head (also known to some cavers as Augill Beck Head - apparently first explored by the D.C.C.), at NY 833.161. The cave system is of considerable length and some severity, although the sink is only about 350 yards away, and at the most 30' higher. The sizeable stream sinks in several choked fissures.

Borrowdale Beck and the Borrowdale Beck Head water - similar sized streams - flow roughly parallel southwards, and then join, a yard or so south of the small road, beside Borrowdale House Farm. Beside the road another bed of limestone outcrops in the stream beds. Some water from both streams sinks in this limestone - the Four Fathom?. Attempts have been made at some time to plug the fissures in the stream beds with concrete, to stop water sinking - apparently the water enters old colliery workings. In dry weather all the Borrowdale Beck Head water sinks, beneath the road, and a large proportion of the Borrowdale Beck water. Between the road and Borrowdale Beck Head more water sinks - though not in any defined limestone bed - and enters the base of a 70' deep old coal shaft on the west side of the stream (NY 832.159). The rising - or rather, the re-emergence to daylight - of this water must be from some disused mine in the area.

Returning to the Main Limestone, the stream which sinks above Borrowdale Beck Head, is fed by a peculiar rising at NY 832.164 (c.1200'O.D.). This is in another area disturbed by faulting, which throws the limestone to a higher level to the north-west. The rising - in the form of a large pool - is at the foot of a gritstone, not a limestone, scarp. In wet weather, when the rising is extremely large - water pours from the bankside a few feet above the pool, leaving holes which prove the slope to be composed of masses of loose rocks, mostly grit. This rising - presumably that for Swindale Pots, the nearest of which is three quarters of a mile further N. and 175' higher - can be classed as "definitely impenetrable".

Midway between Swindale Pots and the rising, and entered by an inconspicous hole in a depression in the limestone scarp, is Windmore End Cave. Although the cave is c.500' long, and c.40' deep, there is no trace of any stream passage, active or fossil. In wet weather two small streams - dry in normal conditions - do enter the cave (one in a tight side passage on the west side of the Main Rift, near the entrance, the other from the roof of the chamber in the 'New Series'), but both sink into the gravel and rocks of the floor, and offer little prospect of a way downwards. Not far from the cave, on the limestone plateau behind Windmore End farmhouse (at NY 827.166, alt. c.1325'O.D.), is a large sink-hole, choked with domestic rubbish, including broken glass, rusty tins, and the greater part of a large car of antique type. Any progress here would require a most unpleasant 'dig'.

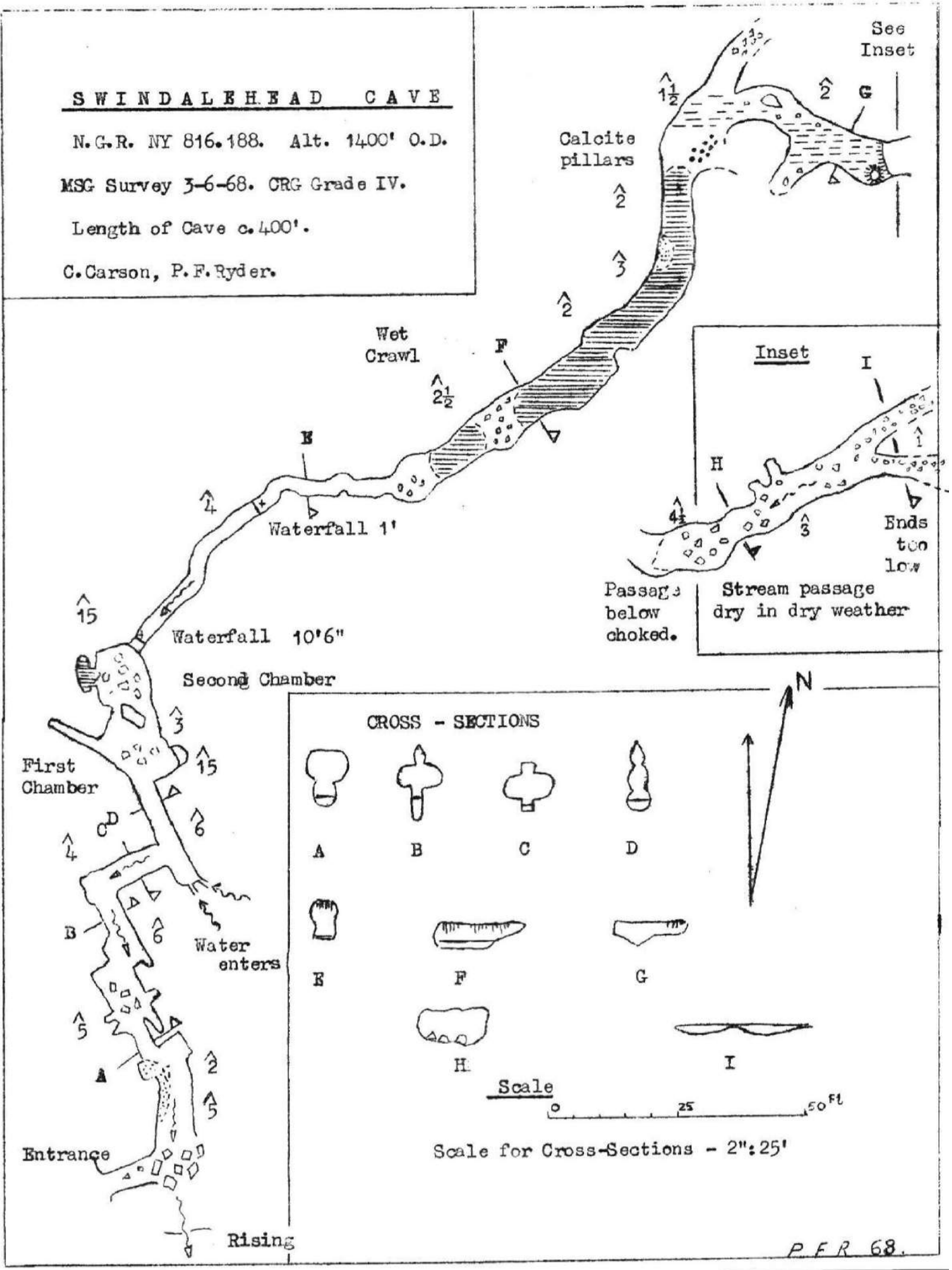
SWINDALEHEAD CAVE

N.G.R. NY 816.188. Alt. 1400' O.D.

MSG Survey 3-6-68. CRG Grade IV.

Length of Cave c.400'.

C.Carson, P.F.Ryder.



PER 68.

There are two major sinks at Swindale Pots - shown on the O.S. maps as 'Jingle Holes'. In wet weather, these two streams can be quite sizeable. Continuing northwards, with the sweep of the limestone outcrop, past the Green Lane leading up to Cow Howe, and along a line of shake-holes and small sinks, one comes to Cross Pot, on the east side of the Brough-Middleton road (NY 819.177, c.1410' O.D.), another major sink. This is the only one of Swindale Pots - and one of the few sinks in the Alston Block - where horizontal passages have been entered (for a description see the 'New Explorations' section of this Journal), at a depth of perhaps 80' below moor level. Cross Pot II, the hole between the main sink and the road, can take quite a strong stream after heavy rain. Further N. still (at NY 819.181), on the other (W) side of the road, is another stream sink, in impenetrable fissures, near the last of Swindale Pots, a shallow hole choked with highly odiferous rubbish and sheep remains. Presumably this sink and Cross Pot feed into the "Swindale Mast System" (if it exists), which would also collect the water of Swindale Pots before resurging in the pool above Borrowdale Beck Head. Such a postulated master cave would hardly be of the size of the 'Master Caves' - Kingsdale, Lost Johns, Lancaster-Easegill, etc. - of Craven, but would nevertheless be quite sizeable, if developed to the same extent as Smeltmill Beck Cave - which is fed by fewer and smaller sinks, less than three miles away. The sinks of Smeltmill show far less development than Swindale Pots.

There are several areas in the Northern Pennines similar to Swindale Pots - i.e. with several pothole sinks feeding one resurgence. Generally (again, as at Swindale) the sinks show only vertical development, and end 60' or 70' down with the water sinking in impenetrable fissures or gravel. This does not mean that there is no horizontal development, and there may be a well developed cave system enterable from the resurgence, with no penetrable connections with any of the sinks. The peculiarly impenetrable resurgence for Swindale Pots poses the speleologist with problems, and it seems that if a way into the hypothetical "Master Cave" is to be found, it will be from the Sink end. The Swindale water may, however, merely flow through a bedding plane with width but no height, or the cave may well be sumped for long distances - the downstream end will certainly be a sump of some length, or a massive boulder choke.

From Cross Pot the outcrop of the Main Limestone, closely followed by the road, curves north and then eastwards again round to the Lunehead area, where there are some more interesting hydrological and speleological problems, with the further complication of mine caverns, developed by static water beneath the water table rather than flowing (vadose) streams. The outcrop does, however, extend part of the way round the head of Swindale Beck (again, the situation is somewhat confused by faulting), and there is one more hydrological system, that of Swindalehead Cave (see survey). The resurgence of this system, at the base of the limestone, is at NY 816.188, at c. 1400' O.D. What it apparently the sink for this cave is in Coalgill Sike, at NY 818.191, 100' higher than the rising. Again, this is a sink which only takes the whole of the stream in relatively dry conditions, and again in impenetrable fissures. The course of the stream in the 400' long Swindalehead Cave is somewhat confusing. The whole stream flows through the first 70' or so of the cave, in a pleasant stream passage. The greater part of the water then appears from two tiny fissures in the wall.

The cave continues through two chambers, and up a 10' waterfall into a smaller stream passage, carrying the remainder of the water. This rises from more fissures in the wall and the passage continues as a crawl, at first through static pools, and then over mud. The crawl drops down into a 4' high stream passage again, containing, in normal and wet conditions, a sizeable stream - presumably all of that resurging at the entrance. This passage rapidly lowers and divides, becoming too low about 400' from the entrance. In dry conditions, this final streamway is totally dry, and the resurging stream is not seen again in the cave after the first 70', although from the final point reached, a wide very low bedding, a distant rumble of water can be heard.

The second cave at Swindalehead - another resurgence - is fed by a sink in the stream-bed only a few yards away. The cave is a flat wet crawl after the first few feet.

Westwards from the Swindalehead area is another extensive area of Main Limestone outcrop, a plateau tilting gently eastwards. Due to its distance from roads, and the liberal scatter of unexploded military hardware across it (which makes the dropping of stones into any holes, to see how deep they are, a somewhat hazardous proceedue), this area has recieved less attention from the MSG. Peatmoor Sike, a tributary of Tarn Gill (which is the main feeded of Swindale Beck), has a sink and rising a good half mile apart, but both are small and impenetrable, and it seems unlikely that there is any cave of any size. Tarn Gill itself, above the derelict and isolated ruins of Tarn House, flows underground for some distance in dry weather, and has a long limestone gorge, but the rock is rather shattered, and there are no obvious cave entrances. The antiquated O.S. Geological map is not easy to interpret for this area, there being more faults, and the extra complication of steeply dipping limestone beds. In such a bed, possibly the Main Limestone (unlabelled on the O.S. Map), Boundary Sike sinks (NY 806.197, alt. 1750' O.D.)

The Swindale area is still a centre of MSG activities, and further work may disclose answers to some of the problems mentioned in this article - as may the rather costly process of water testing. The only sink in the area to have been tested - apparently - is Swindale Pots, going to the Pool Rising above Borrowdale Beck Head (this is from hearsay only).

North west from the Swindale area is the impressive Pennine escarpment above the Vale of Eden, the scarp face of which, seen from the valley, appears to consist almost entirely of limestone. This is the Melmerby Scar Limestone - the Main Limestone being confined to the highest summits - Mickle Fell, Great Dun Fell, Cross Fell etc. The Melmerby Scar limestone can be up to 400' thick, but as yet contains no cave systems of any extent, although there are sinks and risings, of some size, considerable distances apart (e.g. the beck below Dogber Tarn, the Christy Bank sinks to Amber Hill Rising system). The only known caves are the small Christy Bank Pot, in another Swindale, near Hilton, and 'Little Hole', a 60' crawl found by the N.C.&M.R.S., in Hilton Beck.

The next few years may well see extensive new systems discovered in both 'The Escarpment' and Swindale areas, although a considerable amount of work may be required.

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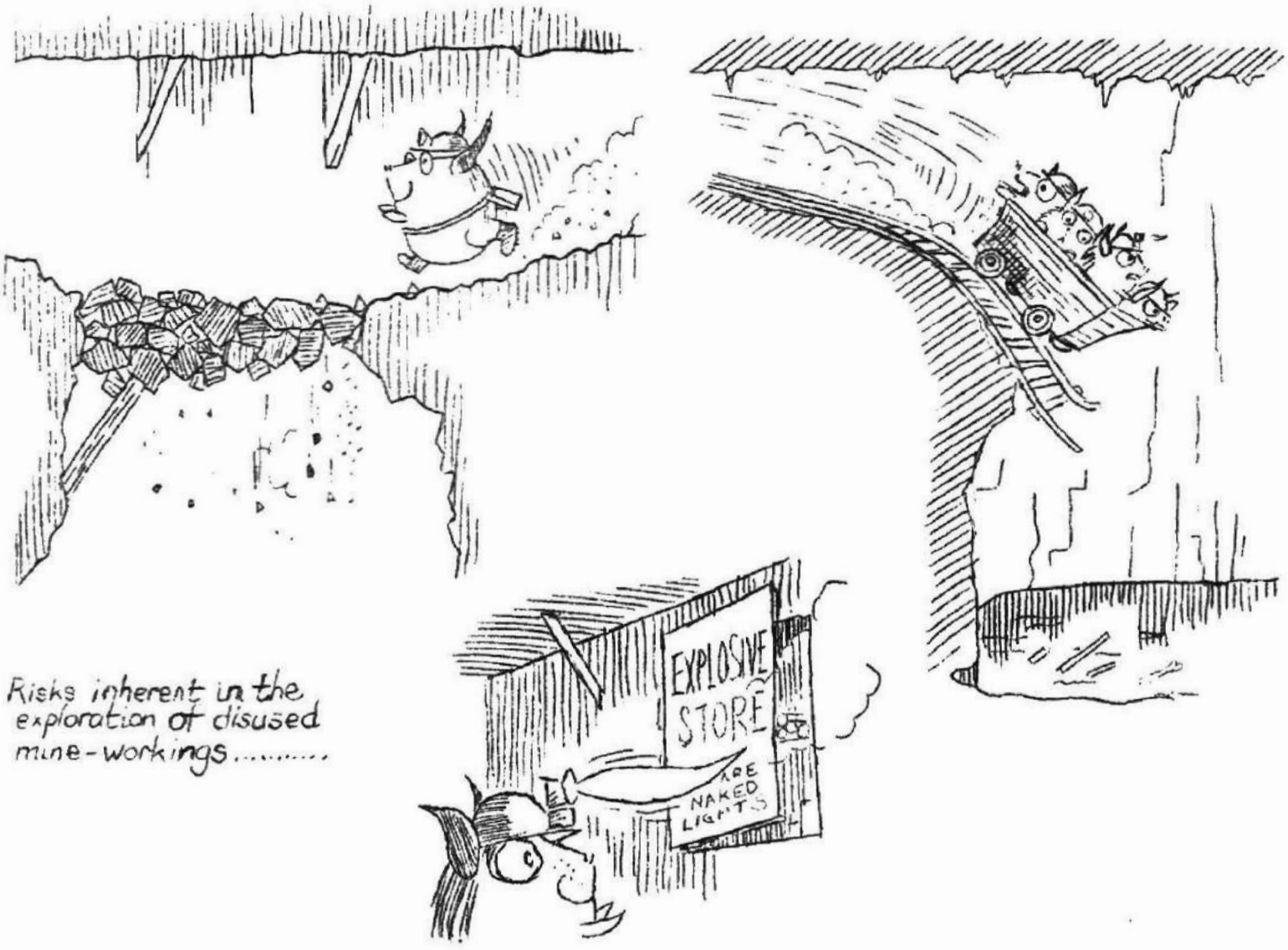

Risks inherent in the exploration of disused mine-workings.....

The End.