

REVIEW ■

AUTUMN, 1967  
PRICE: HALF A CROWN

## Comment

Having listened to, and read, the views of numerous "experts", and many a not-so-expert about Mossdale, and the recent events there, I think perhaps it is time that the matter was seen in perspective, and some of the views were heard of those who can claim some knowledge of the cave - and of the people. No doubt many will dismiss this as sheer "emotionalism", as happens every time we try to discuss it; after reading much of the statement and comment already delivered by others, I wonder just *who* is getting emotional?

White Rose Pothole Club, Northern Cave Club, and University of Leeds Speleological Association members knew most of the six cavers extremely well. The members of these clubs (all Leeds-based) form one of the largest units of experienced manpower available to the rescue organisations. More than sixty cavers from Leeds, belonging to these and other clubs, spent a long time at Mossdale, and a large proportion of the underground personnel were drawn from these members. Also, members of the University have been engaged in exploring and surveying the passages in Mossdale for more than eight years, and the number of man-hours spent in the system totals thousands. It is solely due to these efforts that the system is known as well as it is, and ULSA members must be excused for thinking themselves at least as expert, as far as Mossdale is concerned, as many of the quoted "experts", who may have had one, two, or perhaps three trips into the system.

It was always obvious that the words "Mossdale Caverns" and "floods" were inseparable, at least ever since the caverns were discovered (it is within living memory in Grassington that Mossdale Beck used to flow past the Scar and on round the corner to the Bycliffe Sinks, until it was diverted by the farmers into the sink at the foot of the Scar). What was totally unexpected and unprecedented was the ferocity of the storm which occurred in June, and the speed with which the floods occurred. Mossdale can transmit large amounts of water (shown by the speed with which the floods subsided), the danger being caused by the "backing up" of the water behind certain bottlenecks when rain is heavy or prolonged. In the exceptionally heavy storms which occurred this summer, the "backing up" would have taken place very quickly, without the usual (fairly long) time lag between rain and flooding (it is possible for rain to fall faster than the moor can soak it up, thus cutting out one of the natural safety factors which operates during normal rainfall). This situation is by no means peculiar to Mossdale however, and there are numerous potholes which were flooded, at least in part, by the same storms that inundated Mossdale; had the storm occurred on the Sunday, when most of the potholes have their visitors, the demands on the rescue services may well have been overwhelming.

It is inconceivable that an extensive and interesting system like Mossdale will be neglected for ever because of what happened last June. Marathon is but one far corner of the system, and there is more than three miles of passage on the near side of the Marathon. Re-entry may well be made sooner than many think; it will by no means be a difficult task to find another way into Mossdale, and the odds are that it will be a wet, unstable, and extremely dangerous one. The New Entrance (the one which was sealed) itself was perfectly safe (rescue personnel were going in and out on Sunday morning while most of the system was still flooded and the long-term effect of its sealing may well be to have made

it much more hazardous for the next visitors; it would be all too easy for them to find their exit blocked by falled boulders and/or rising water while the New Entrance was still high and dry - but with a plug of concrete in the opening.

It is also a matter for concern that the sealing was carried out while a large amount of communications equipment was still underground. The weather on Wednesday was not threatening, the dam and ditch were better than they had ever been, and a team was ready to go and retrieve it from its position about half an hour inside, yet they were prevented from doing so, thus leaving the rescue organisations with a dangerous shortage of such equipment. The situation is incredible that the persons on the "sharp end" of a rescue, the underground teams, who are all volunteers, and called upon by the police to effect a rescue, yet are completely subordinate to the police, and have to obey police orders. Of course, the rescue organisations are consulted, but the consultations are inevitably with the officers or the older men, whose caving days are, on the whole, past, and thus have no recent first-hand knowledge of the cave, the conditions, or the cavers themselves. Caving standards are forever improving, and, particularly with the equipment now used, trips which would have been unthinkable twenty years ago are becoming commonplace. Cavers, at least those in the rescue teams, are not a set of brainless brawny idiots who need to be protected from themselves, and are not given to useless heroics in dangerous circumstances. It is ludicrous that they can be prevented from doing their best by surface "organisers" who have no knowledge or experience of the situation.

It is difficult to avoid the conclusion that the decision to seal the New Entrance was hasty and unnecessary. A far better solution would have been to put a lid on the entrance, when, after a short interval, controlled access could be allowed to responsible clubs, in the same way that control is already exercised over several areas by the Council of Northern Caving Clubs. Too dangerous? - No more so than it ever was - hundreds of visits have been made to it, with increasing frequency over the past few years; and hardly less so than many others which are still wide open, and presumably will remain so at least until somebody dies in them? It should be respected as a tomb? Is Peak Cavern respected as a tomb? Is Goyden Pot? .....As we noted before, Marathon is but a corner of the system, and will probably be shunned for a very long time, but there still remains another 3-4 miles of passage before we come to Marathon. Marathon will still attract the foolhardy, adventurous, or plain unsavoury types? If there are any such cavers, they will be firmly squashed. Marathon is not such an easy trip that it can be attempted without a certain amount of experience, some knowledge of the cave, and some competent companions. There is no chance of one or two idiots gaining access, or, having gained it through membership of a large club, being allowed to slip away on their own. Even in this event, it is no simple matter to find Marathon; I know of no able, experienced caver yet who has found it on his own, first time, without guidance.

Of course, there are people who would not want to go within miles of Mossdale; but there are many who would not have been dragged by wild horses to the Scar even before the events of June. Mossdale probably had more visitors in two

days last June than it had had in the previous 20 years. However, there are others, and always will be others, who want to accept the challenge of Mossdale, who want to probe the secrets it still holds, and make the discoveries which are known to be waiting there. Why should they be denied by hysterical people who have never had any understanding or sympathy for caves or cavers - why indeed all the fuss about six deaths? Some deaths, it seems, can be accepted calmly (or ignored) as a matter of course, but not others. If those six had been walking down the valley when the flood engulfed them they would have gone practically unnoticed. Had they emerged safely and died in a car accident on their way home, they may have rated an inch or two of newsprint on an inside page. But because they happen to be inside a cave, emotions rode high, hundreds attend a memorial service. Why? - Because their deaths were "tragic", and "unavoidable"? Are not all premature deaths equally tragic? Any how many deaths on the roads this summer were inevitable? And servicemen by the hundred are sent overseas, with absolutely no choice in the matter, and in the name of every citizen, to be shot at by crazy Arabs and Asians. Why are all these deaths so less worthy of anger and horror and comment than a mere six? We never hear proposals for walls around mountains, or the banning of sea bathing; proposals to introduce speed limits and reduce drunken driving are greeted by a barrage of protest. Is it because these would be felt by too many people? Hundreds, no, thousands, of deaths yearly we cannot help, and there are six here that we **can** do something about. Is it the drain on the rescue services that is so worrying? The cave and fell rescue organisations are charities, and not financed from the rates; Councils have said that the costs of the Mossdale operation were small; and the other services have to be paid for whether they are used or not. Can anyone provide a sensible answer to the questions - **What** is so special about the Mossdale deaths? **Why** was the entrance sealed?

Dying is an inescapable part of living, and is it not as foolish and deplorable to try to run away as it is to seek it? Caving is no more dangerous a pastime than many others, and less so than some. The six who died in Mossdale made the most of their living, and would not have regretted a moment of it, and would have been horrified to think that they would be the cause of denying to others something which they had enjoyed so much. I have heard much praise for the characters of the six victims, yet some people would remove or destroy, if they could, the very means by which they developed them. For whom are the miners and moaners really sorry? Why the concern for the safety of people they can never know or understand? Who are they really trying to protect by their ceaseless, senseless, prattling to close or to ban or to deny?

And so the matter rests for the time being. A finer "tomb" the six could hardly aspire to, nor a grander headstone than the 60 foot high, 100 foot long sweep of the scar; but what sort of memorial would they prefer - another tottering cairn on the moor, crumbling away in a century or two, or a plan of the age-old and ageless caverns which they sought, but were not to find?

*D. Howitt*, fully endorsed by U.L.S.A. Committee.

## **Black Shiver Pot**

### **Another rather severe pot**

Over the last few years the club has been surveying all the caves on the Ingleborough side of Chapel-le-Dale. Harry Long and Roger Sutcliffe had drawn our attention to Green Ridge Cave, which we eventually found and explored. The surface survey was extended beyond Hallam Moss and interesting features such as the "Gully", "dig", "P102", and "Pot" were included. The only open hole was the "pot", a low bedding plane with a few inches of airspace.

During the weekend of 29th-30th April, D. Brook went for a walk round Ingleborough to investigate many points of interest. Among them was the "Pot" on Black Shiver Moss. The entrance necessitated getting an ear wet, but after 20 feet the height increased to two feet where the stream sank. Some gritstone marbles were pushed aside and a rock bedding-plane squeeze 10 feet long and 7 to 8 inches high was passed to a pool. Beyond was a tight shingle crawl in which the helmet ploughed up the mud. The passage eased to one foot high but the explorer's wet suit back was still stabbed and ripped by sharp formations.

At a T-junction a stream came in from the left and the crawling eased to 2 feet high. Ahead it descended 3 feet into a 5-foot high passage, making the total length of the entrance crawl 250 feet. The large passage continued for 100 feet to a pitch which was estimated to be 15 feet deep. The side passages were investigated on the way out.

On the weekend of 6th-7th May a party camped at Mere Gill and a one-inch bolt was placed round the corner at the head of the first pitch in Ireby. D. and A. Brook then investigated Black Shiver Pot. There was three inches of air space in the entrance crawl, but shifting of some shingle soon increased this to four inches. Carrying ladder made the crawls impressive but the pitch was soon reached. One ladders through a bedding plane on the left with a 10-foot belay. The pitch has an awkward take-off and is 28 feet to a ledge, followed immediately by another of 17 feet, making the whole pitch 45 feet.

The pool at the bottom was three feet deep but had a ledge six inches below the surface. After 15 feet the passage swung left to follow a hading joint with calcite veins. This ended in an 18 foot pitch down a circular pot. We went back to the first pitch and replaced the 17 foot ladder with two long slings. At the new pitch a three-foot belay on the right is used and the climb is wet as the water splashes out. Another pitch of 13 feet follows, and the two are usually referred to as the 31-foot second pitch, Blood Pot.

A roomy passage left the chamber and after 50 feet a tiny inley came in on the right and the passage swung left. A narrower section with pools led to a pitch of about 15 feet into a large dark pool, Black Dub. We had no more tackle so we returned, doing a Grade Three survey on the way. The pot was 130 feet deep and 700 feet long with every prospect of a depth of 600 feet.

## **12th - 14th May. The Black Rift**

On Friday night Tony Salmon and Alan Brook, using public transport as usual, reached Mere Gill and took three ladders and two ropes down Black Shiver. Tony found the rocky crawl tight, but conditions were dry with five inches of air space. "The Black Dub" was found to be about four feet deep and was reached by a 14-foot pitch. A.B. shouted up "Don't throw the ladder down. The pool's deep and there's no way on. It's a sump!" It was not, however, for a low, wide and wet bedding plane led off, running south for 80 feet. Height increased until a 17-foot wet pitch was reached, Thunder Pot. Tony announced a big pitch ahead, but as there was only one ladder left, the pitch was only partly descended.

Laddering is from an "Eagle's nest" which holds two and is reached by a bedding plane on the left. The ladder thus starts 15 feet from the water. However, the stream hits a sloping ledge at two feet down and sprays out. From the bottom of the 30-foot ladder a sloping ledge could be seen about thirty feet below, and then blackness. Since stones could only be heard to strike at 60' down, it was assumed that the blackness must be dark pebbles on the floor. The pair surfaced fifteen minutes before midnight after a two-hour trip.

On Saturday, A.B. and D.B. went walking and met about ten B.P.C. members who told them about Tatham Wife Hole which had just "gone".

## **Episode Four**

At 7 p.m. on Saturday, Tony, Alan and Dave descended Black Shiver with seven ladders and a rope. Three ounces of fluorescein had been put in P102, and two ounces of red dye in Green Ridge Cave. Half-an-hour later the main drain was bright green. The hole was wet after the morning's rain, like a wet Swinsto. The ladder down "The Black Rift" was increased to 145 feet and it was now D.B.'s turn to go first. The ledge was found to be 75 feet down. The top 20 feet and the bottom 20 feet are near to the wall. On the ledge it was found that a large ledge existed under the water but this decreased in size until a psychological ledge reached a jammed block three feet by six feet across the void. Four feet beyond, and similarly jammed was a ten-foot cube boulder.

At the near side the shale-covered cube was jammed by a fist-sized pebble. The ledge formed a chute which rocketed the water across the void below. A rock hurled into the hole took 3 1/2 seconds to reach the floor, indicating a drop in the region of 200 feet. We withdrew since more tackle was needed. On the way out we met the dye at Blood Pot and noticed that it came down the main stream. It follows, therefore, that Green Ridge and P102 waters meet before reaching Black Shiver entrance. After our 2 1/2-hour trip we visited Tatham Wife.

## **20th-21st May. The Bottom?**

A.B. and D.B. should have met the third member of the team on the first bus on Saturday, but he had overslept. At Mere Gill they waited until 2 p.m., then went down Black Shiver with three more ladders and a 250 foot rope. The water was high again. All the ladder was put down the big rift, a mixture of half-inch and pencil rung. D.B. descended to the ledge and inspected

the stream route, a wet, free hang - not the best way. He now did the faith and friction traverse to the first jammed block. The ladder was fed down behind it. Beyond the ten-foot cube there is a useful gap which will accommodate two people. A krab was used to prevent the rope from jamming between the block and the wall, and the descent continued. What had looked like an easy descent by a wall was not, the wall being 2 - 3 feet away. The shaft is 15 feet wide and about 45 feet long. At 100 feet from the jammed blocks, the ladder and the water followed the same line. The floor was reached about 260 feet below the Eagle's Nest, but C-links which mark 270 feet of ladder are 10 feet above the ground. This is because it is advisable to rebelay to a flake by the first jammed block so that one can climb the first 75 feet while there is a ladder down the second part. At the south end of the rift a duck led to a grotto with a calcited mud floor and a 30-foot aven. At the north end after dashing under the waterfall, the stream passage was followed to a flooded bedding plane. Here there was evidence that the water could back up.

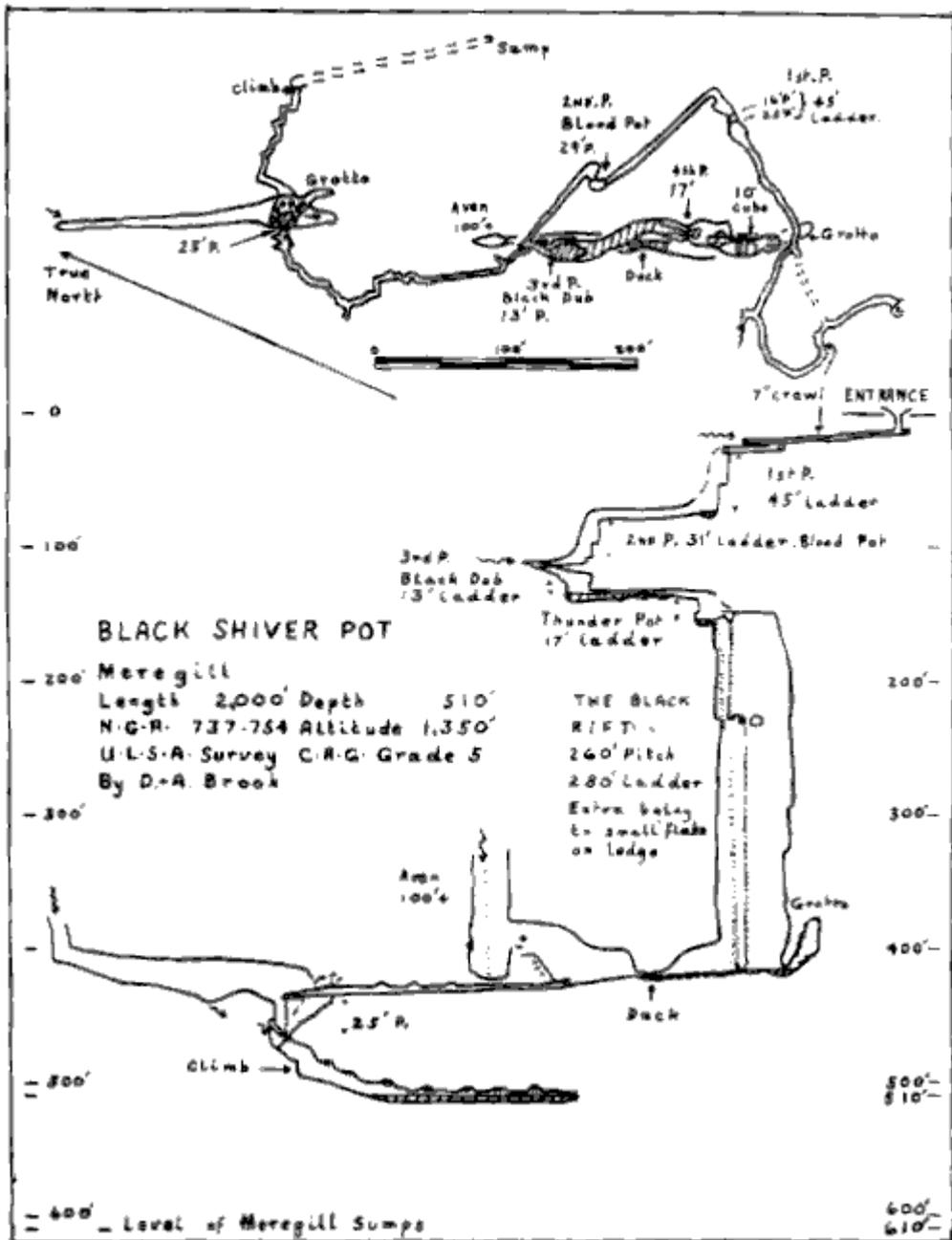
Now we must relate our communications trouble: D.B. returned to find the line gone. At the Eagle's Nest, A.B. heard the last whistle signals when D.B. was still 180 feet below him. After paying out 280 feet of rope and hearing no signal, he thought that D.B. must be on his way back. Having taken in for some time, with no signals, he realised that although the end of the rope was within whistle distance, there seemed to be nothing on the end. Eventually he took the rope in again with varying success. D.B. had tied on and waited. The line eventually went in and he started climbing, but 50 feet up the rope went through the ladder. Still no communications! The krabbing on, untying, and retying was a tug-of-war to be repeated ten feet higher up, and twice again in the next 70 feet. Before the top 75 feet of ladder could be climbed, 20 feet of ladder had to be pulled up from below. On surfacing, we found the trip had taken 3½ hours.

### **27th - 29th May: Whit**

Three charcoal detectors were put in the three main risings at God's Bridge and a flow estimate (combined) of 500 gallons per second was made. At 10.20 p.m. two pound of fluroscein were put in P102. Earlier in the day it had rained but now it really began to pour and continued all Sunday morning. At noon, God's Bridge had an estimated flow of 3,000 gallons per second. The Skit was an extremely muddy small river. On Monday the detectors were removed all showed positive results, indicating that all the risings are connected in full flood.

### **3rd - 4th June. Deeper Still**

A party of eight members arrived by thumb or private transport and set about improving the trench, which diverted the main water of P102 for about two days. Everyone then descended, and R. Rowan managed to pass the squeeze, which has since disappeared. Photographs were taken, and the big pitch was lined using whistles and a communications man on the ledge. D.B. went down the pitch first, and a communications man on the ledge. D.B. went down the big pitch first, and found that the air space at the sump was only three inches. Reluctantly he removed his helmet, blew away the froth, ducked through the rift in which the air space and height steadily increased. Ahead, the stream ran off left through an arch, and the rift continued to a mud slope. A streamway 400



feet long with canals, cascades and formations, led to a 25-foot pitch into a chamber. D.B. returned for A.B. who was bringing a ladder. In the chamber there was a blind mud slope on the right, but on the left above a vertical mud wall a black hole could be seen. The streamway descended to a 10-foot drop. The final canal had fine formations in the roof domes and ended in a mud bank. However, back in the rift after the duck, a squeeze over boulders led to a 15 foot pitch and a very large aven over 100 feet high.

The depth of Black Shiver was 510 feet, which still left the possibility of Black Shiver being the Torrent in Mere Gill. To confirm this dye was put in P102 at 9.30, 10.00 and 11.00 a.m., and we descended Mere Gill at noon. The Torrent was cleat and both branches were investigated. The right-hand one was pushed for 400 feet, 200 feet beyond the previous limit, and then it divided. In the left-hand branch a shingle bank was dug to give access to 1000 feet of crawling. The water came from a sump which is about 200 feet from the Black Shiver sump, but a tight bedding plane on the right draughts strongly. However, this is only six inches high. No dye was seen after five hours. The following weekend this passage was surveyed.

### **23 - 24th June. Black Shiver in flood**

A party of five assembled at Mere Gill and descended Black Shiver. Conditions were very dry and Friday's forecast only mentioned showers. At the pig pitch an alternative hang was considered so that there would not be a free climb below the jammed blocks, but the spikes high up in the wall were unsuitably loose and resting on shale. D.B. and A.B. went down first to photograph and survey, followed by M. Sutton who went to the bottom and then returned up the pitch so that P. Everett could go down. Those at the bottom of the pitch had just reached the chamber when they noticed an increase in noise from the stream, and what had been a clear trickle became strong and turbid. Within two minutes the pitch they had just descended became impassable. All they could do was wait until the water receded, so the survey was continued as far as the 10-foot drop which was also impassable. Photographs were then taken of the chamber and pitch, which was similar to Niagara in moderate flood. Next, D.B. amused himself by scaling the vertical mudwall. This was effected by putting wooden bars in the slope and hanging slings from them as footholds. Above was a well decorated chamber, stream passage and aven inlet, 150 feet of passage in all. We also climbed into another fine grotto. A slight lull in the power of the water was noticed so D.B. climbed the pitch, but only just made it. He told us to wait, so we went to the top of the chamber where there was less draught and spray. D.B. returned to shout that he had not reached the duck and went to find dryer spot. Eventually the water went down a little so P. Everett and A.B. climbed the pitch. The shaft was a thunderstorm, and the worst bit was between 40 and 120 feet up where the main water was deflected by a ledge. A.B. had great trouble with the lifeline and eventually had to krab on (always carry a krab and sling for this pitch). Some of the difficulty was due to the fact that two ropes of 100 and 250 feet were used when there was no-one on the ledge.

With much difficulty everybody was brought up the big pitch and we rejoined M. Rogers who had tried to get out when the water rose but had been unable to

pass the bedding plane crawl to Black Dub. At the start of the crawl they were surprised to find that the main stream was almost dry and all the water was coming from the crawl. The reason for this was evident after 50 feet; the water was coming from a side passage on the right, fed by the diversion on the moor. The party surfaced after a 19 hour trip.

If the 200-foot long sump can be bypassed, the hole will be 610 feet deep to the Mere Gill sump, its entrance being, its entrance being 40 feet above moor level at Mere Gill. From the top entrance to Green Ridge Cave to Mere Gill Sump would make Black Shiver 650 feet deep (all natural cave). The total length of Mere Gill would be increased from 3 to 3½ miles.

*D. and A. Brook*

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## Council of Northern Caving Clubs

Notes made at the committee meeting of September 29th.:

### Borrins Moor

Access is controlled by Dr. Edmonson (as for the Allotment). Applications sent to him will be granted (except in the grouse season), and written permission must be shown to the tenant farmers. Dr. Edmonson is concerned about extensive damage to his shooting huts. Whilst realising that clubs or bona-fide potholers are not responsible for such vandalism, Dr. Edmonson is naturally anxious to prevent recurrences, even if it means extensive restrictions. It is in the interest of everyone to make every effort to stop this sort of incident, and to pass on any information which may help to stamp it out.

### Leck Fell

Clubs **must** call at the lodge (Mr. D. Harnett) when visiting the fell. First turn right after Leck village, and the cottage is on the right, ½-mile ahead (passing the church).

### Southerscales

is now occupied by Mr. Church, who has spent a lot of money renovating the farm. He has no objection to sensible, well-behaved parties. Call at the farm, and act sensibly on the fell.

### Penyghent

Once again, clubs are ignoring the agreed procedure. All parties must make certain that they call in on Mr. Perfect on the way up.

### Ireby Fell

The farmer is losing patience at the continual damage to his wall (almost weekly). A stile is being erected - use it, and preserve the wall in good condition.

### Kingsdale

Since the bottom entrance to the master cave was opened, Mr. Shuttleworth has become concerned about the damage caused in the field by parking of coaches, landrovers, etc., and is considering closing the hole. Please leave all vehicles by the roadside; there is a large lay-by not far away.

### Booking of meets

Postage costs are a very heavy expense item. **A stamped addressed envelope must accompany all requests for meets.** Some clubs have a tendency to **overbook** the most popular potholes. In the interest of fair shares, book only the dates you will definitely take up. And if you find you cannot keep a booked meet, it is **important** to inform the

## Discoveries at Foxup (Littondale)

### Report from M.U.S.S. "Lank" Mills.

#### Littlewood Cave (Foxup Beck)

This resurgence was noted by M.U.S.S. at Easter 1967 and two weeks later a party of three dug out the boulder choke and found the tight entrance passage. Further digging reduced the water level sufficiently for access to over 1300 feet of new cave. Fifty feet from the entrance is a six foot pitch and several hundred feet of low passage to a division of ways.

The dry left hand passage closes in after one hundred feet but the right hand route, which is easier, though wetter, leads to a thirty foot high aven with an impossibly tight rift at the top. Continuing on below, the character of the passage changes suddenly and a series of small shattered chambers with straws two to three feet long leads to a much larger dry chamber thirty feet high with some fine formations in the roof. After finding the stream again one climbs up a five foot climb to a large inlet from where the water pours down a sixteen foot pitch. Beyond this four hundred feet of restricted passage end in a thirty-five foot aven which is impossible to climb.

The main passage continues from the bottom of the sixteen foot pitch and is two to three feet wide. Within fifty feet of the pitch there is a series of some of the best helictites the party has ever seen. They stretch in splendid array for at least twenty feet and it is necessary to traverse to avoid breaking them. A further fifty feet of passage brought the party to the terminal chamber in the system. It is of impressive dimensions in comparison with the rest of the cave and two inlets enter it; one from a small hole five feet up one wall, and the other pouring down from thirty-five feet up the other wall. There are possibilities of scaling here, and this will be attempted at a later date.

Two of the three main inlets in the cave have been connected by dye tests to two small shafts, about twelve feet deep, on the moor above the cave. With further work these may "go" to make a through trip.

#### Foxup Cave

(Length 1500+ feet)

This is a large resurgence half a mile upstream from Littlewood Cave on the north bank. The whole of Foxup Beck resurges here, and two weeks after getting into Littlewood Cave the water level was lowered sufficiently to gain entry.

The entrance passage is wet and runs into a shattered chamber. A climb down the other side of this leads to a complicated maze of phreatic passages with small air-spaces, which were probably flooded before the lowering of the water level.

One then proceeds down a tight rift with six feet of water and one foot of airspace. The passage changes dramatically to a flattened oval cross-section, but the roof soon dips again, so that the passage almost sumps (in wet weather it most probably does so). It draughts strongly, however, and a way through very small airspaces can be followed for fifty feet until the oval-sectioned passage returns. After several hundred feet, it is possible to walk, and some

meets secretary, to prevent other clubs being denied when the hole is, in fact, empty (as has been known to occur).

## Library

Some progress is being made. Please send copies of journals, etc. (including any back numbers to H. Long.

## Addresses

It is a further matter of neglect amongst clubs that they often fail to inform the secretary of changes of address, or changes of officers. Postage is wasted, and important access information never reaches the clubs.

To enable records to be brought up to date, the addresses of the officers of the Council are appended:

Hon. Secretary	T. Sykes, 11 Prospect Avenue, Lostock Hall, Preston, Lancs.
Chairman & Access Booklet	R. Sutcliffe, 16, Ryelands Grove, Heaton, Bradford 9.
Treasurer & Library Recorder	H. Long, 2, Dalacres Crescent, Embsay, Nr. Skipton.
Meets Secretary (Leck and Casterton)	J. Morgan, 23, Rimington Avenue, Colne, Lancs.
Meets Secretary (Penyghent, Fountains and Mongo Gill)	E. A. Shaw, Sough Lane Farm, Nr. Guide, Blackburn

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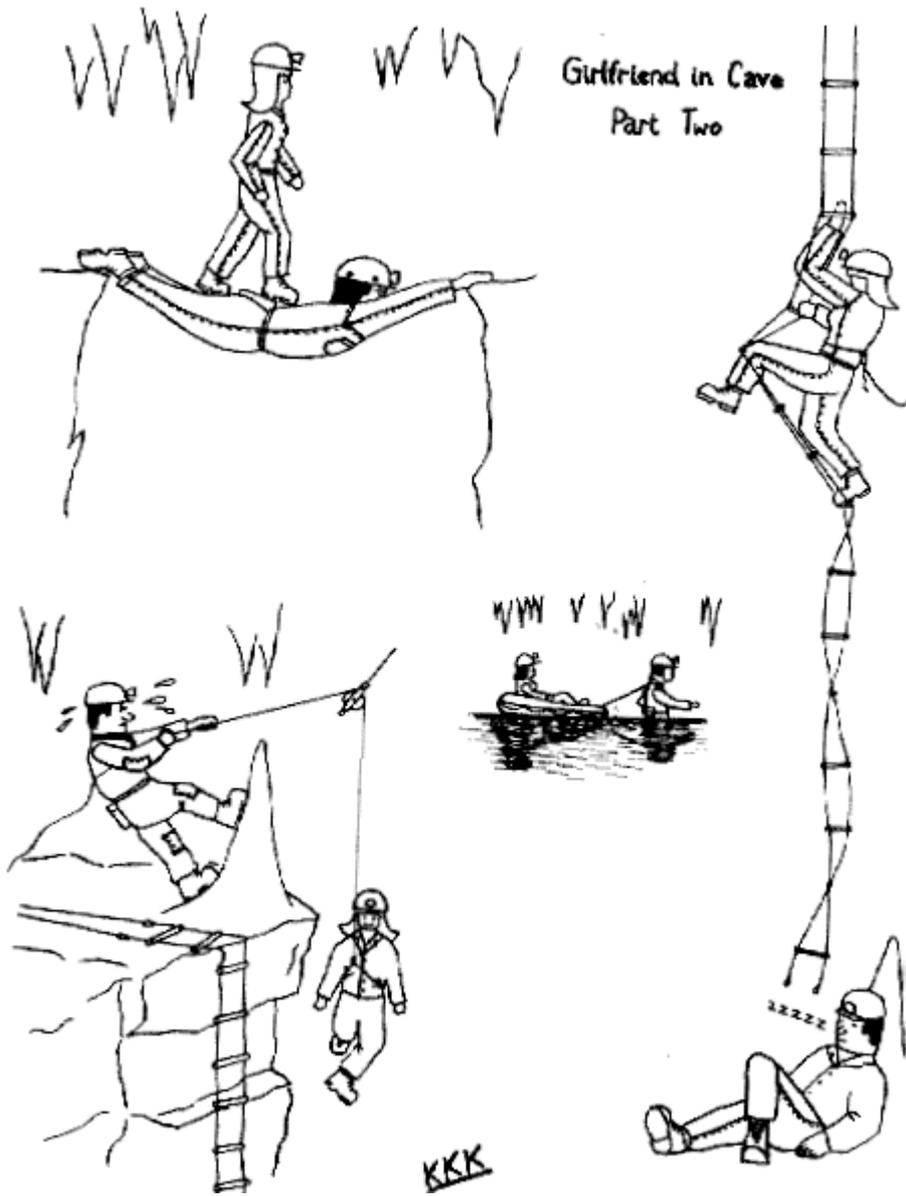
## Discoveries at Foxup

formations are present. The passage gets lower again, and a tight squeeze, followed by a further hundred feet of dry passage leads to a small chamber where the water sinks, presumably to connect with the stream lower down.

Continuing from the chamber up a slope, there is a twelve-foot pitch, whence a short, tight and wet passage leads to a large chamber, where the water spurts out of one wall. Up a slope, a dry passage leads to a low crawl from which comes a draught. The cave divides where the water is met again, into a small inlet and two dry passages (both draughting), which are blocked by boulders at present. Most of the water emerges from a tight sump, which must be very close to the sinks in Foxup Beck, so that continued digging may pen another entrance.

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Girlfriend in Cave  
Part Two



KKK

## Potholing Types - The Lady Caver

Unhappily in this day of female emancipation, the female half of our population regards speleology as a suitable field for their participation. Their mode of infiltration is straightforward. One disadvantage of a University club is that by constitution it must extend membership to both sexes. This state of affairs allows any female to pay her six bob and receive a membership card along with the right to attend all meets. Their basic (or base) motive may be to "get a man", or simply to see what a cave is like.

In the latter case, the antipathy between female standards of comfort, cleanliness, etc., and those standards offered by caves and potholes, dissuades the would-be "speleologistes" from continuing their new "interest". In the former case everybody is very pleased to have them around (the blokes, that is), provided they satisfy certain basic standards of attractiveness and on them not being too keen to actually go underground.

Of the females who join, a rather high proportion - about 10% - actually maintain their interest in speleology. Within a fortnight of joining these females have been acquired, and the indulgence of their whims rests with one bloke. Thus commences the second stage of the female trog's education, the first one having commenced with their joining and subsequently leading to their disillusionment or addiction.

The poor bloke must now guide his charge down all the accepted "tourist" pots. She must be helped up every climb and lowered down every drop greater than six feet. Holes in the floor and other pitfalls must be carefully pointed out - funny, but the most incompetent women seem to be the keenest. Coupled with this every pitch requires a beefy party of athletes to haul the little darlings, who of course cannot be expected to make any of the physical effort themselves. At the end of these episodes it is quite touching that the female in question is quite cool, unperturbed, and cannot see what all the fuss is about as she observes a steaming, prostrated heap of clapped-out manhood gasping at the head of the pitch she has just "climbed".

The third stage of the education of the female trog begins with the disillusionment of the bloke who originally "acquired" the lady in question. There are only two alternatives for this poor wretch. Either he gives up the young lady and goes caving with all-male parties, or drags himself off, a grey, bent, broken figure, forced to forsake speleology and devote his considerably depleted energies to less taxing pursuits.

The cause of his misfortunes extracts from this tragic ruination new energies and enthusiasm, and now being established in pot-holing circles, finds it all too easy to get included on other trips with other blokes - poor devils. She now considers it the duty of every single able-bodied male to render the above-mentioned small courtesies automatically, with no attempt at comment (it has been my unpleasant experience to actually hear a perspiring male potholer utter an oath as a young lady was screaming hysterically half-way up a pitch for slack to be taken in).

The list of atrocities wrought on the poor, unsuspecting males is almost endless. So too would be those wrought upon my own fragile frame by my now enraged and teeth-grinding female readers were I to continue this expose.

## Tatham Wife Hole

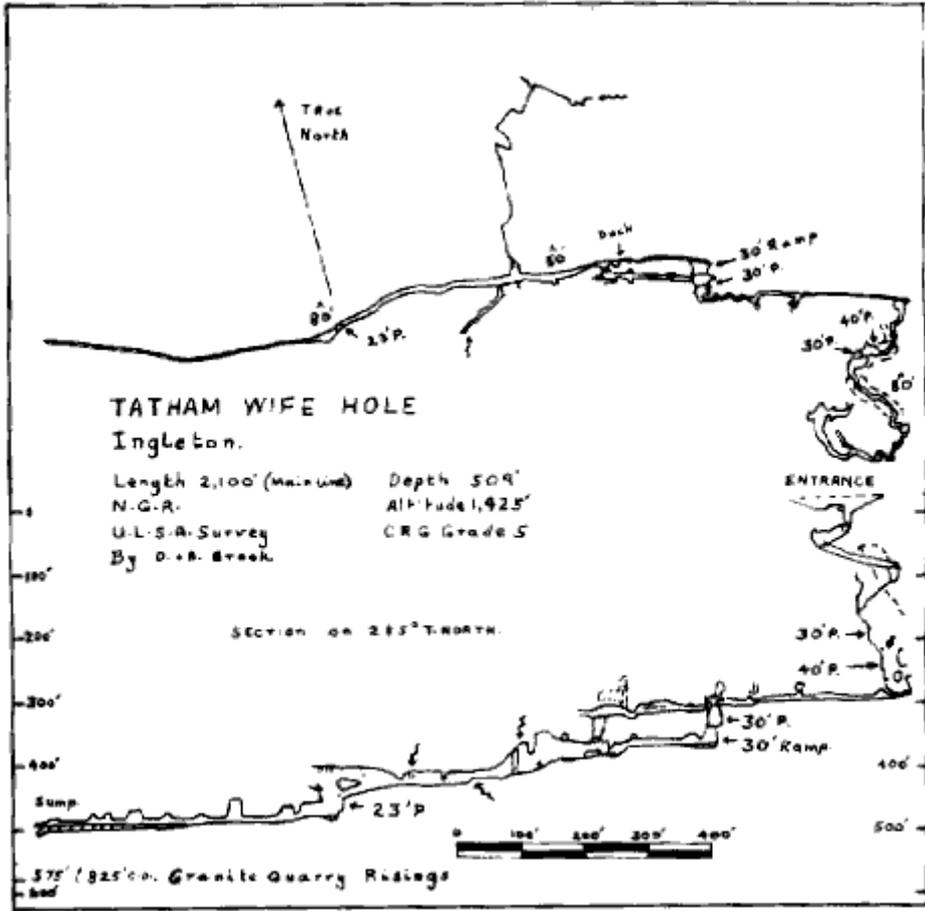
At the end of April of this year the Earby Pothole Club began to dig Tatham Wife Hole high on the western flank of Ingleborough. Many people have had minor digs on this site in the past but soon abandoned it, discouraged no doubt by the fault which passes through the shakehole. This fault throws forty feet down to the north, and the stream rises from the Hardraw Scar limestone, crosses the shakehole and sinks in the Great Scar limestone to form the cave.

After digging down six feet at the sinks a large boulder was encountered, but Derek Brandon's chemical persuasion soon removed this to reveal the cave entrance. Since then the E.P.C. have explored three thousand feet of passage and reached a depth of five hundred and nine feet.

### Brief Description

A short climb down rubble and a large descending passage leads to an impressive chamber with an active aven. Continuing on down is a lower tunnel which soon develops into a rift with jammed blocks in the roof. By the time the first pitch of thirty feet is reached this rift is eighty feet high and the survey shows that here the roof must be formed by the fault plane. The next pitch, forty feet deep, follows at once, succeeded by a descending rift passage. Just before the stream meets the fault a roof passage can be seen. From this point the stream follows the fault to the final sump. This passage begins as a low crawl in a rift hading at forty degrees to the vertical (the fault plane) with thick calcite vein in the floor. After two hundred feet of higher passage followed by a short wet crawl the passage leaves the fault plane, and a meandering rift with boulders in the roof ends at the third pitch (thirty feet) which is back in the fault again. The thirty foot ramp (hading at thirty six degrees to the vertical) which succeeds this does not require tackle, and here again calcite veins are very noticeable.

More hading rift passage leads to a duck, after which the stream runs into a narrow fissure. On climbing up for six feet a large ledge at the base of a sixty foot aven is gained, and a narrow traverse and drop re-find the stream. The fault plane is now almost vertical, and a long chamber fifty feet high and fifteen feet wide is entered. At the far end a barytes vein cuts the fault at right angles and a seven hundred foot long inlet enters on the right. This is a fine rift passage running against the dip of the beds. At the end it splits into two, draining the North Branch Fault. Along one way it is



possible to ascend the stream trench on the fault plane for sixty feet. This fault gain heds at forty degrees to the vertical, but in the opposite direction to the main fault.

Farther along the main streamway a low inlet carrying a large stream enters on the left is still continuing as a low crawl. Some fine formations are passed and pools and cascades lead to the last pitch of twenty-two feet. At the bottom a very high aven is encountered, the top of which can be reached via a roof traverse before the pitch.

The passage below soon develops into a waterlogged crawl through formations with occasional higher rifts. Here the fault is beginning to hade again, but in the opposite direction. After a final long duck and eight feet of swimming, the roof dips four feet under the water.

This point is still seventy feet above the Granite Quarry risings (tested successfully by the E.P.C.) and there is obviously much more of Tatham Wife Hole.

The Earby invited us to survey the system, and a Grade five survey was started at the end of May. As the E.P.C. finished exploring the side passages so they were surveyed and by late August only "oddments" remained. While these were being attended to, Ian Gasson "walked into" two hundred feet of high level passages, ten feet down the third pitch. It was very well decorated with straws, and many had to be sacrificed to progress. Once more these passages follow the fault plane at various levels, and after passing a choked inlet they end at the top of the sixty foot high aven after the duck.

There are three more places where high level passages in the fault could be expected. Two are where the fault is first intersected and the most interesting is at the top of the last high aven, since this passage would pass over the present sump.

*D. Brook*

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## **Turkey Expedition 1967**

The area we visited was the Ala Dag Taurus, which are situated near the town of Nigde in S.E. Turkey, about 50 miles north of Adana. Several climbing expeditions had visited the area previously and the town near where we set up base camp, Camardi, is rapidly becoming the Turkish Chamonix. There were 30 Turkish climbers as well as an expedition from Ulster consisting solely of climbers there, as well as our expedition.

The mountains rise to around 14000 feet and are composed of limestone which appears to be dolomitic in character. There is much loose rock and the valley floors are just piles of scree. Large cave entrances can be seen almost everywhere, but all the ones we visited led only for short distances.

The main finds in an area of cliffs about 2 miles from the village of Hakamuk. Here the entrances were so large that they could be seen from the base camp about 4 miles away.

Richard Reeves, Mike Nieman, Andy Parsons and Al Milner set off at 6 o'clock one morning to look at one enormous entrance at the top of the cliffs. We followed the large river which flowed past the camp upstream until it split. We waded across one branch almost turned into a swim as the water was about 3 feet deep and swift flowing. We followed the right branch and on rounding a corner were amazed to see the stream emerging from boulders. The river resurging was about the size of the Wharfe at Ilkley. We searched the shallow valley behind the rising but did not find anything.

About 1/4 mile up the valley, at the foot of the cliff, was a large rift which led back for 90 feet to a blank wall with an alcove up on the right. Mike Niewman limbed up into it but it led nowhere.

About 1/4 mile along the cliff to the south a large circular entrance could be seen. Andy and Al ran off to this whilst the other two came at a rather more leisurely pace. A large railway tunnel led for 70 feet to a crawl into a low chamber with rabbit holes in the floor! A flat out crawl led into a similar chamber with a small rift in one wall. This rift emitted a powerful draught, and whilst A and Richard surveyed, Andy and Mike did some sporadic digging without much success.

It was now 12 o'clock and we still had not reached the large cave. One or two stomachs could be heard complaining as we had only expected to be a couple of hours. One hour later we arrived at the entrance, which was about 80 feet high and 100 feet wide. Unfortunately we could see the back of the chamber, about 100 feet away. The next hour was spent searching the walls but only a few short passages were found. A climb at the back of the chamber could lead to a high level passage but the climb was not tried as it looked very unprotected.

About a week later Andy, Al, Richard, Kathy Collis and Ian Nuttal went to look at a steep sided gorge in the same area. We found four small caves in the 500 feet high walls of this. The first was about 100 feet long, with a climbable rift at the end. Unfortunately the roof calcified up. The next cave upstream had a circular entrance at stream level, and another entrance about 60 feet up the cliff above. The two were connected by a short climb and a 35 foot ladder pitch. An attempt was made to climb a sloping aven above part of the leader. Two small caves were found about 1000 feet upstream, and shortly upstream progress in the gorge was halted by a large boulder choke.

All the caves we found appeared to be old resurgences, the water now resurging at the large resurgences from 500 to 1000 feet below. We found no large stream sinks, and none are marked on the map. Large systems undoubtedly exist in the area but cavers appear to be a rarity and the local guides are of no help.

*Alistair J. Milner*

## High Grassington Moor Lead Mines

Most caving and potholing clubs manage to produce a few speleologists whose interest and activities extend to the exploration of abandoned mine workings. In the case of this club the interest in mining was largely generated by the fact that quite close to Mossdale, where work has been in progress by club members for several years, there lies the mining field of Grassington Moor. During this period, by way of diversion, descents of quite a number of shafts have been made.

In 1965 Dave Brook, by devious means, obtained access to the large-scale plans of the mine-workings on the Duke of Devonshire's land i.e. High Grassington Moor. Having complete details of the workings as existing ca. 1860 excited interest in the mines - at least in the case of three of us - Rod Chilton, Arthur Francis and myself. This resulted in the formation of the as yet unrecognised U.L.S.A. Mine Research Group. Before going into detail of the activities a brief description and history of the mines follows.

The High Grassington Moor Mines cover an area nearly a square mile in extent about 2½ miles north-east of the Wharfedale village of Grassington. The area is generally flat at an elevation of 1250 feet, with gentle slope to the south, where there is a steep descent to the Wharfe. The area is crossed by a dozen or so veins which run approximately east-west. The rocks outcropping here are the top beds of the Great Scar Limestone, the Yoredale Beds and the lower horizons of the Millstone Grit. One of the features of this field is that unlike other mining areas in North Yorkshire, all the major workings are reached by shafts as the distance from the veins to the Wharfe valley is too great to allow level-driving to be economical.

The earliest reference to the working of the lead mines is 1456 but the area was not worked seriously until after 1603 when the land and rights passed from Bolton Prioory to the Earl of Cumberland, who introduced miners from Derbyshire to work the lead ore. For the next 150 years the mining was carried out by sinking shallow shafts along the outcrop of the veins and working the ore for a short distance either side of the shaft. In general these were shallow workings...around 100 feet deep. By 1750, however, deeper shafts had been sunk and were accompanied by their usual difficulties - winding and dewatering. Shortly after this time the first pumping engines were installed.

In 1796 the Duke of Devonshire, who had by then gained ownership of the area, commenced vast development works. Coal power in the area was expensive, and water power not plentiful making pumping undesirable to dewater the mines. To effect the drainage and removal of ore from the mines, the Duke's Drainage Level was driven from Hebden Beck. This labour took 28 years to complete. The result of the level was that on the High Moor the workings could be taken down to 72 fathoms without recourse to expensive pumping, although the level itself cost an estimated £33,000.

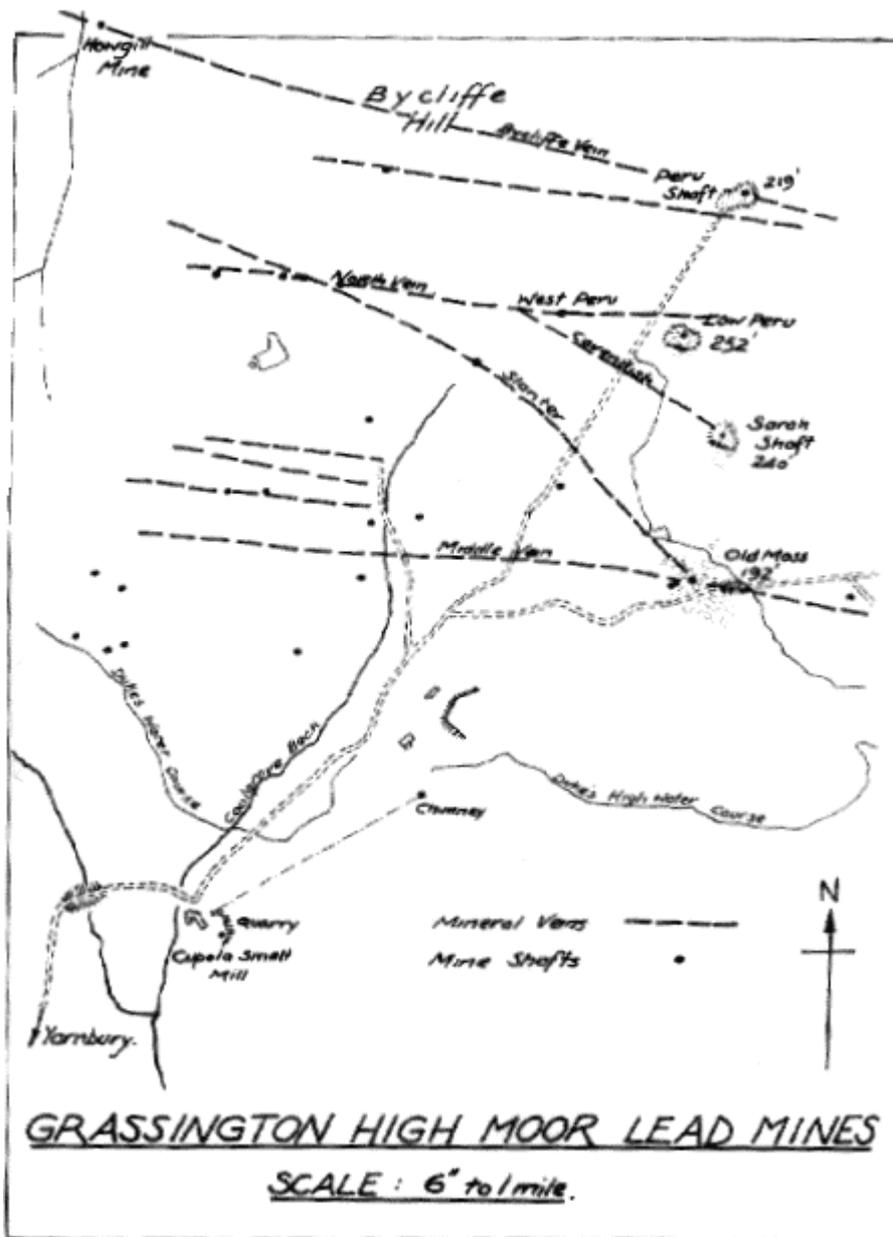
From this time no great works were undertaken and the eventual decline of the industry took place from about 1850 - 1890.

At the time of the formation of the U.L.S.A.M.R.G. it was decided to investigate the workings, leaving the shafts in the western and central areas alone and concentrating on the eastern shafts, as these were known to be some of the deepest and as yet, undescended. To facilitate the descents, 500 feet of ¼" diameter galvanised wire rope was bought at vast expense and a small cage was constructed. The technique of descent was to erect a scaffold headframe equipped with a pulley over the shaft, one end of the 500 foot wire rope was made fast to the cage and the other to the bumper of a land-rover. The victim, suitably manacled to the chair (for reasons of safety), and equipped with a telephone, was then lowered by driving the land-rover shaftwards, American-style. Communication was somewhat primitive, instructions as when to stop and start being passed by the quaking occupant of the chair by telephone to the banksman, at the top of the shaft. The latter, by frantic waving of his arms, sometimes managed to induce the land-rover driver to stop and start in accordance with the victims wishes. One can imagine that getting the chair in position in the shaft, opposite a level so that the occupant could get off, was a somewhat hit and miss affair.

Unfortunately all four of the shafts that were descended by winch, Sarah, Old Moss, Peru and Low Peru, did not achieve their full depth as indicated by the mine plans, the deepest being Low Peru (250'), only three fathoms short of its theoretical depth. In all cases the shafts were filled to a greater or lesser degree by fallen debris, including rocks, domestic refuse and large numbers of dead sheep. At Old Moss Shaft the smell of decayinf flesh was apparent well over 100 feet from the shaft bottom and the chair eventually alighted on a pile of no less than a dozen sheep and lambs.

It must be admitted that very little was found down the shafts - the occasional level which usually was very soon terminated by a roof fall, and in a few places the remains of old stopes. A few lessons were learned however, the principal one being that the shafts were in a very dangerous state, as in some cases shaft linings and "deads" were supported by very rotten and decayed timbers. It was essential in any descent, whether by winch or ladders, to avoid contact with the walls. The winch technique was found to be rather slow and cumbersome in operation, and somewhat dangerous as one occasion the author was all but lowered, firmly shackled to the chair, into twelve feet of water. It was found on subsequent occasions far more simple to ladder the shaft and rely on assistance from the lifeline which was hauled in by a land-rover capstan winch. One final word of warning - all mine workings are more dangerous than the average cave or pothole and when entering them all possible safety precautions should be taken, excluding all novices, for example.

*D.J. Weston*



## The Cascade Inlet - West Kingsdale

After the scaling of the first pitch in this large inlet, and the discovery of Toyland (see Review No. 1), Alan Brook, Martin Rogers, Morag Forbes and Dave Adamson began to attack the bedding plane choked with soft flowstone which was the obvious way on. Where this becomes too low for progress the stream emerges from an impassable passage on the right, and the way forward was obstructed by a gour pool. Dave removed the first gour barrier, only to be confronted by more solid floor just beyond.

On August 10, Sue Salmon, demanding a scientific meet in the Master Cave, to collect cave fauna, presented the club with an ideal opportunity for visiting Toyland. Due to the wet conditions the Milky Way was a series of wet crawls and ducks, but finally Tony and Sue Salmon, Iain Gasson, Alan and Dave Brook reached the Cascade Inlet. The first pitch was found to be climbable (just!) and the digging was fairly easy, so fifteen minutes' work produced a squeeze through a pool into a rift passage containing large gour pools and cascades. One of these was so big that it all but blocked the Passage but a thrutch over it led on into more 25' high passage. Just beyond a massive gour the stream fell 15' from a hole in the boulders in the roof - a scaling job! The extension was surveyed on the way out, and on reaching Toyland we were perturbed to hear somebody coming up the first pitch. Fortunately it was Alan Fincham and Malc Budd paying the first Old Trogs' visit visit to the roof series.

The next weekend the flooding was even worse and most of Kingsdale had been a lake on the Friday night. Hardness, temperature and pH. measurements were taken in the Master Cave before Tony Salmon, Malc Budd, Iain Gasson, Alan and Dave Brook dragged the scaling poles along to the end of the extension. The stream had invaded the excavated section and both this and the short constriction were quite damp.

The hole discharging the water seemed small so the pole was leaned against two chockstones while the lightest member present ascended. As the next man was nearing the top, these chockstones dropped three feet before rejamming. The pole was hurriedly removed and the offending boulders precipitated by a gentle boot before belaying the ladder. Above, a scramble over enormous blocks led to the floor of a high chamber with the water emerging from a choke. 35' up in the roof was a shale band which was pierced by three avens of indeterminate height. By combined scaling and climbing, Iain reached a passage in the shale bed but after 100' it ended in a choke of small boulders. This is the highest point reached to date and is 200 feet above the Master Cave. Down below Tony removed a few boulders from the main inlet choke and entered a roomy chamber with an ascending boulder floor to yet another choke. As the roof of the chamber is unstable, "digging at a distance" will be required to progress further.

## **Kingsdale Contd. The Valley Entrance**

When the Main Tunnel of the Master Cave was explored, many flies, alive and dead, were noted near the final choke which consisted of dry, loamy mud. The survey also showed that this large passage (10' wide, 5' high) was within 30' of the surface, so it was decided to pinpoint the passage by means of a resistivity survey.

Chris Gilboy and Andy Chater set out a grid of 40' squares, with two more widely spaced electrodes with tapping-off potentials, which resulted in a plot of lines tracing out the drift benches on the hillside.

(N.B. At this time diving, scaling and digging were going on in the Master Cave, and a Valley entrance would greatly facilitate matters. It also would give a back door for use in times of flood).

Nod Rowan and the Wanderers started the digging, but the breakthrough was made by Bernie Reaveley, Pete Freeman, Martin Rogers and Mike Sutton and Alan Brook. The party went down Simpson's via the slit, and once at the terminal choke of the Main Tunnel began to dig horizontally. When they came to the grass roots they dug upwards until a hole 10" by 18" was made. There was no draught for at least half an hour, but by the following day a chilly gale was blowing out.

Saturday evening was Mike Boon's farewell party at the Hill Inn, so by Sunday the news was all over the Dales.

Though intended to help the serious caver, the entrance appears to be attracting the lazy and cowboy element. Access problems will certainly arise because of thoughtless people who churn up good grazing land in their vehicles rather than walk a hundred feet across the field from the gate.

*Alan Brook*

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## **Chapel-le-Dale Mere Gill - Aven Entrance**

After ULSA members had surveyed Mere Gill and Little Mere Gill in 1965-66, it was found that the first 45' aven lay under the far side of Little Mere Gill shakehole.

On 28th August 1966 a fissure was found in bedrock, and those above could hear people digging in the Mere Gill passage below, where they were trying to lower the level of the Mere. The fissure was seen to open out 2½' in at a cross joint. The top of the aven was thought to be about ten feet away.

In summer 1967 further work was carried out by Martin Rogers, Paul Everett, D. & A.B., who got as far as the cross fissure. On the weekend of 16th-17th September the Mere was up and work was continued on the Aven Entrance by A.B., Iain Gasson and Morag Forbes. They enlarged the entrance, dug out the fill at the cross rift and attacked the next squeeze to make it passable. A narrow rift went on for a further five feet to a rock bulge, and white flowstone could be seen ahead. Iain dived the Mere sump and shone his light up the aven, and lo and behold, it could be seen reflected on the white flowstone!

The following Sunday A.B., Tony Salmon and Iain enlarged the fissure sufficiently to reach the head of the pitch. Several loose flakes and fretted projections were felled and hurled down the pitch... belay point two small stals of 1" diameter! Iain descended the pitch, paid a quick visit to the top of Mere Gill's first underground pitch, and dived out through the sump to make the connection. The first and tightest squeeze in the new entrance was then enlarged sufficiently for the "average slim" caver.

Mere Gill can now be descended in almost any weather, although in full flood there is a distinct possibility of accidents on the pitches because of the volume of beck water. In such conditions it should be safe to wait between any of the pitches since all of the main passage is large.

The depth of the system from the Aven entrance to the Mere Gill sump is 567'.

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## **Report on a visit to the Southern Velebit Mountains, Yugoslavia**

Last summer Malcolm Budd and his wife went on holiday to Yugoslavia and managed to resist sea and sunshine long enough to go underground. The report which follows deals with an interesting area in which there has been comparatively little extensive exploration.

### **Location**

The caves are situated in the Pakenlica National Park in the Southern Velebit Mountains, about 40 miles east of Zadar. These mountains form part of the coastal limestone range, which rises to a height of 1758 metres.

It is best to start out from Pakenlica Dom, a mountain chalet built at the head of a polje and only accessible by mule track. The hut is very cheap and comfortable (night in bed 700 dinar).

### **Caves known**

#### **1.**

Follow the signs up gorge to 'Pakenlica Dom'; after 100 feet climb up 100 feet on left wall. Large entrance but short (approx. 100') end is choked with calcite covered mud. Phreatic.

## 2.

Similar to above on East side of polje at head of gorge. Walled. Used as cattle byre.

## 3.

Where track forks in polje bear left and follow signs to "Manica Pec". This cave contains fine formations and is high up on west side of polje. (Not visited).

(Near the junction of the track there is a small rising).

## 4.

"Jama Vodarica". 1½ hours hard work (through rocks and shrubs for last two miles) with local guide (essential) to entrance high in hillside. Very difficult to find - much shrub covering.

Very large sloping entrance shaft leads to high chamber. Cave consists of several huge chambers left of entrance, on right leads to pool (not a sump?)

Route finding fairly complicated - rope (20') needed to climb into far reaches. Complex maze of passages. Many large formations damaged by earth tremors. Calcite mostly dry with little shite. Little water in cave, no active streamway, but where water present rapidly builds up calcite. Interesting shells in far reaches in gour pools, in all stages of calcification, mixed together. Length approx. 240 metres, depth 50 metres. No obvious possibilities of extension.

## 5.

"Jama Jatare". See "Nos Montagnes" nos. 1-2, 1965 P.21

## 6.

"Jama Punaljke". Length 500 metres.

## General Comments

The limestone of the area is very weathered, with marked solution features. There seems to be great potential in the region - besides, the hut and wardens are very hospitable!

## References

"Our Mountains" - (Review of the Alpine Association of Croatia.)

"Nase Planine" - (Casopis Planinarska Saveza Hrvatske).

"Planinarski Vodici pa Velebitu" (guide book - very useful if translated.)

# **The Carlsbad Caverns, New Mexico, U.S.A.**

## **The National Park**

We crossed the Mexico - U.S.A. border from Ciudad Juarez over the Rio Grande and found ourselves back in the U.S. after wonderful months in Mexico. The American border town was El Paso, and here we stayed the night.

Early next morning we boarded the Greyhound coach and cruised at 70 m.p.h. across the 160 miles of desert which separated El Paso, Texas from the Carlsbad Caverns of New Mexico. We sped across a large salt flat to the southern edge of the Guadalupe Mountains, golden brown against a clear blue sky. Signal Hill and El Capitan (9,000'+, and the highest point in Texas), marked the start of the Guadalupe Ridge, and 40 miles along its length lie the Carlsbad Caverns.

Soon our coach pulled up through a deep canyon and into a special car park. Outside the coach the sun burned down and the temperature was 97 degrees F. in the shade. A short walk took us to the air-conditioned visitors centre.

Rangers, employed by the Department of the Interior, were dressed in green with large boy scout hats, and were ready to answer questions on anything connected with the caverns or the Park.

After paying our entrance fee (10/6) we joined 286 other people for the start of our complete tour. This took four hours and covered three miles of cave. The entrance was an impressive cavern descending steeply to the first level. There by the trail were built rows of stone seats so that the whole group was accommodated in a small area to hear the guide relate an excellent history of the cave.

## **History of discovery**

Over one thousand years ago a tribe of Indians used the entrance (where cooking pits and wall pictures can still be seen) as a refuge. Five hundred years later the Apaches, fierce and nomadic, also used the entrance. It is doubtful if they entered further, because of superstition (and lack of tackle). In the 1880's a cloud of smoke rose from beyond the hills and investigations were made. The smoke turned out to be a column of bats emerging at dusk.

It was the millions of bats which first aroused interest in the caves. In the 1890's fertiliser was required for the new citrus groves of California, and huge deposits of guano discovered at the Bat Cave made mining feasible. Shafts were sunk to the upper level and over the years 100,000 tons of guano were removed from deposits 50 feet in thickness. While working in these deposits, Jim White went exploring in the lower depths of the cave and came back with stories of their fantastic

beauty. In 1929 the site became a National Monument, and in 1930 a National Park.

## Formation of the Caverns

In the Permian era, 250 million years ago, the whole area was covered by an inland sea. Along the edges algae skeletons slowly formed a limestone reef. After many years the reef extended 350/400 miles, with a width of 3/5 miles and a thickness of 2,000 feet. The reef became covered in sediment, and solutional processes took place. Between one and three million years ago, the reef was gradually uplifted until it rose above the water table. As the water receded weaker ceilings and walls collapsed, leaving roomy chambers.

Erosion of the overlying sedimentary deposits once more exposed the reef. A small stream of rain and melted snow made the present entrance, and the percolation of water through the Dolomite made the present entrance a profusion of stalactites.

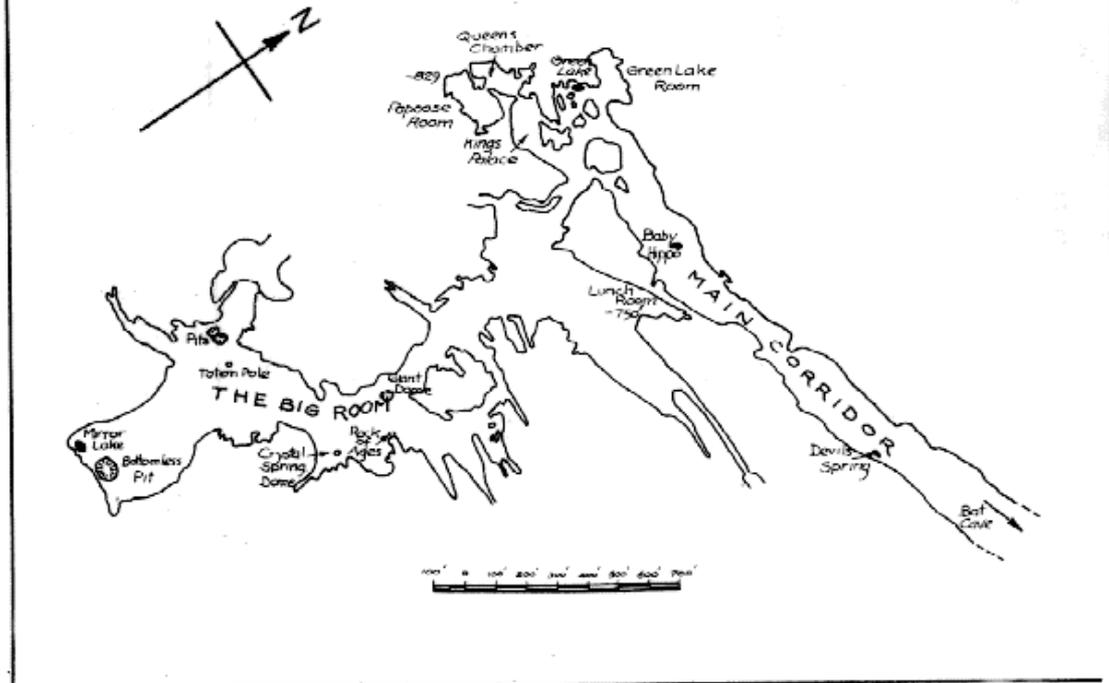
Now only 5% of the formations are active and it is estimated that the last collapse took place 10,000 years ago.

## The Tour

On leaving the Bat Level, the trail descended sharply down a huge chamber for a mile and three-quarters. On the way down we passed many large but inactive formations until we reached the "pretty" section at a depth of 829 feet. This consisted of four chambers, the largest being King's Chamber. This was beautifully decorated with well preserved stalactites. A distinct level existed below which all the formations were covered with a flowery crystalline deposit. This may have been caused by reflooding and underwater deposition. From here we passed into the Queen's Chamber containing myriads of helictites growing in rootlike clumps. The central feature of the room was a calcite curtain 42 feet high and ten feet wide. The "Pamoose" and "Green Lake" rooms were also heavily decorated, and the phreatic origin of this section was very apparent.

We then climbed 80 feet to the Lunch Room! Here all-American food was for sale, with hamburgers and hot-dogs strangely scenting the musty atmosphere. Marbled flushing toilets were at our convenience and a tannoy system announced the end of lunch. The second part of the tour took us round the Big Room. The trail round its perimeter was 1¼ miles long, encompassing a floor space of 14 acres, at a depth of 750 feet. Here again the flood level was evident on many formations. Dominant amongst the stalagmites were three giant bosses 70 feet high, pointing up to an almost pure white roof. A feature of Carlsbad was the lack of staining on the Calcite, apart from traces of orange iron. Also unusual were "Totem Pole" stalagmites, 35' high, with a diameter of 15" at the top and 30" at the bottom. Here and there were avens in the roof but these were solution pockets rather than surface inlets. The Big Room soon changed direction 90° to the right and a lower section was visible down a 90' shaft. This contains a phreatic gallery one mile long. It was noticeable that at this side of the Big Room there were very few formations. Apparently this is because of the situation of the

# CARLSBAD CAVERNS



cave under the sloping side of the ridge. The water here runs off the surface ridge rather than percolating into the ground.

The Big Room is the largest underground chamber known to man. Decomposed bat guano found within indicates an older entrance, but a thorough exploration has so far failed to reveal it.

The next point of interest was the "Bottomless Pit", explored by the National Geographic Society during the 1924 survey. This proved to be a dry hole 138 feet deep with no outlets. Although this was disappointing, 17 dollars in small change was found at the bottom, evidently thrown down by passing tourists.

Finally we passed extensive deposits of gypsum, 12 feet thick. This supports the theory of reflooding with calcium sulphate rich water. The deposits were originally 100 feet thick, but calcium sulphate is highly soluble.

By now we had returned to the Lunch Room, where two lifts were waiting to take us back to the surface. We considered these essential as neither of us fancied climbing 750 feet up the two mile trail!

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## **Facts and figures**

Altitude at entrance - 4,406 ft.

Show Cave depth - 830 ft.

Greatest known depth - 1,100 ft

Temperature - 56°F.

Relative humidity - 90%

Big Room - 1,800 ft. E.-W., 1,100ft. N.-S., height 285 ft.

Perimeter walk - 1½ mls., encompassing 14 acres floor space.

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*G.B. Siddall.*

## Ireland - Summer 1967

After the club's abortive meet to Ireland at Christmas, when very little caving and a lot of drinking was done, it was decided that our honour should be vindicated, and a fortnight's "holiday" was arranged for the summer with the intention of finishing the work already started in the Marble Arch area. Time and weather permitting a trip down Reypad was also planned.

With this end in view a grossly overladen Morris Estate set off from Leeds in the pouring rain, packed with the Brook Bros., the Salmons, Mary Bates, John Mendum and Ron Nettleton.

A day and a half later found the party camped at Mr. Govern's farm, and shortly afterwards a visit was paid to the downstream choke in Pollnagollum to see if a way through could be negotiated. Screen Hill 3 had been found a few months earlier by diving the sump of Screen Hill 2 (discovered by Boon and Cobley the previous Christmas), and was reputed to consist of 2 - 3,000 feet of large, beautifully decorated streamway. This streamway ended in a boulder choke which was presumed to be the downstream choke in Pollnagollum.

The following day Screen Hill 2 was visited via the Boon and Cobley by-pass as far as the sump of Screen Hill 1 sump. The by-pass is on the left at the beginning of the deep water before Screen Hill sump 1, and quickly leads to the main streamway again. Unfortunately there is only about 500 feet of streamway before sump 2 to which there is as yet no by-pass. However, close to the downstream sump in Screen Hill 2 there is a large inlet which in places reaches a height of 100 feet and contains a variety of fine formations. The party followed this to the end, and investigated a complex boulder choke off to the right.

The next two days were spent in surface surveying and in visiting Pollnasumere to locate the pitch John had found the year before. This was soon rediscovered, and Dave Brook found an alternative route to the bottom, plus another pitch of twenty feet there. Unfortunately no ladders had been brought so a return trip was planned.

D.B. was not happy at this stage of the holiday as no surveying had been done. This was soon remedied as the following day the Brooks went on a mammoth surveying trip, while the others took photos in the Upper Cradle Hole, Lower Cradle Hole and Marble Arch.

The next day heralded the arrival of Jimmy Cunningham and Frank Barnes of the H.W.C.P.C. and Phil Wilson and the "Prof" of the N.E.G., and a photoprattling trip was undertaken. On coming out of Pollnagollum D.B. investigated the canal in Cat's Hole and found a couple of hundred feet of new passage.

Some time later, the Brooks surveyed the new section of Cat's Hole and pushed the boulder choke. On the afternoon of the same day, Tony Salmon dived the sump through to Screen Hill 3 with Darril of the I.C.C. to do a rough survey. Meanwhile Ron and A.B. had

gone to the boulder choke in PNG, and at a prearranged time both parties shouted at the tops of their voices to see if contact could be established but to no avail. While this was going on the others went to finish off the survey of Pollnasumera.

The next day A.B. was persuaded to dive Screen Hill sump 3 with Tony to survey it to Grade 5, while the others surveyed the inlet to S.H. 2. Eight hours later everyone was ready to go out, so the diving gear was left to be brought out later.

The pace slowed over the next couple of days, and only surface surveying was done. The holiday was drawing to a close, with some surveying and photography still to be done in Marble Arch, so the trip to Reyfad was postponed to a later date, much to A.B.'s disappointment.

The next two days were taken up with photography down S.H. inlet and Pollnagollum and the retrieval of the diving gear from S.H. 2 sump. On this trip Tony free dived the sump (60' long, 10' deep) wearing weights and a mask. A greasy black flowstone cascade was also climbed in a side passage off the inlet. On climbing down, however, John Mendum slipped and skidded down the 25' cascade into Mary's arms. As they were shortly to be married, it may be assumed she was only protecting her own interests.

The following afternoon two Irish students and their mother were seen emerging from John Thomas's Hole, or Polpluda as it is affectionately called (Pluda being Gaelic for mud). We soon learned that they had been putting wedges up a crack in a draughting aven we had noticed the year before. Needless to say, a short time later A.B. and D.B. were seen sneaking off in that direction, with the intention of climbing the aven. Just as D.B. reached the top of the aven, a wedge came out, and he did a superb back somersault, landing on his head. The brothers then made a hurried exit to continue the Marble Arch survey.

The last days were spent in a frantic effort to finish all the surveying in the area, and various parties went down Legnabrocky, Polbui, Bruce's and Compass Pots. On the last day they made another trip down John Thomas's Hole, and surveyed the 200 feet of new passage discovered by the Irish students. On the way down, the ladder, jammed in a crack, came out, and yet again D.B. fell several feet, this time landing on his backside, and in such a manner as to leave the rest of the party in fits of uncontrollable laughter.

All too soon the holiday was ended, and they found themselves back in Leeds, where the serious work of plotting up the surveys was begun. It is hoped to bring out a comprehensive report of the caves of Marble Arch area within the next eighteen months. This should be an invaluable guide to what is surely one of Britain's most impressive caving areas.

*A.J. Salmon*