PLYMOUTH CAVING GROUP JOURNAL AND NEWSLETTER

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Editor: Alasdair Neill
25 Lipson Road
Plymouth
Devon
PL4 8PL.
Tel Plymouth 262206.

Plymouth Caving Group can be found on Thursday nights at the Breton Arms, Bretonside, Plymouth, in the Smoke Room. Please come along!

EDITORIAL.

After something of a lull, things seem to be getting off the ground again. The few trips we have had away recently have been very (even excessively!) well supported. We have some keen new members, and an increasing interest in non 'tourist' trips. With some very promising sites for digging around, an interest in surveying (there being several unsurveyed sites around Plymouth), and a demand for training in SRT etc, amongst some of our younger members; I hope the more experienced among us will support them in this.

Evening trips are coming off again- please contact Martin Prince or Andy Bennett for imformation about these.

Hopefully all this will mean more material for the newsletter. Although various people have promised various articles, little has been given to me so far, thus explaining the long gap since the last issue.

Recently there has been much discussion about the state of some of the Devon caves. It only needs trips in Prid over a span of a few years to see the changes taking place. This is now mainly in the form of removal of mud, any formations on the trade routes having gone years ago. Maybe, if things go on at the present rate, there will be no mud left in 10 years time! Dog Hole has definitely suffered since the discovery of the extension- it is frequently used by centres, which unfortunately we can do little about. Bakers Pit has many formations left, but for how long? Here again, heavy erosion of mud floors has ocurred.

The main reason for the dterioration of these caves, as anyone visiting them will be aware, is overuse by novice groups. There however acts of pure vandalism- the removal of formaions in Dog Hole extension and in Bakers main chamber, and widespread dumping of carbide in Bakers and Radford. I believe that Kevin and some other PCG

members recently organised a clear out of rubbish etc. from Radford, for which they should recieve all our thanks. It is time that everyone carried this sort of activity out.

Having been involved in taking novice groups caving for some years, as has Pete Rustage who has contributed an article to this journal, I will take this opportunity to put forward my views on the subject.

Many of these groups are led by active cavers, but there are also evidently centres around employing inexperienced instructors. They may be perfectly safe and competent in leading their party, but probably do not have the comitment to the caves or realise the damage they are contributing to.

Our caves provide a unique, and probably un-excelled, setting for education in the skills which the outdoor education industry are aiming tutor people in; teamwork, initiative, overcoming the unknown, but usually not caves and caving. Unfortunately this rapidly increasing use means that the cave becomes a "classroom" to a rapid-throughput market of which only a tiny proportion will continue caving. If this is to continue then we must surely ensure that it is restricted to those caves which are not going to suffer unduly from this use.

Pridhamsleigh, Goatchurch, etc could (now) be used in this category (as they are to all intents and purposes destroyed anyway); and stream caves with no vulnerable deposits such as Porth yr Ogof, Long Churn, etc are even better - unfortunately we don't have any in Devon! But many people believe Bakers Pit, and perhaps Radford, should not. That is not to say that they should not be used by groups of novices, properly led, who have shown a definite desire to go caving.

But the leaders for these trips must be experienced cavers, (not those who have 'retired' but will still do it if they are paid). The leader must be aware of the motives of the party organising the group if they are not doing it themselves. For instance I have found that some schools, scout groups, etc. include caving in a list of activities which must be succesfully undertaken in order to recieve a certain 'award' or certificate. Any such award should be totally discouraged in caving, apart from any required for leaders.

Perhaps only those who, having gone down somewhere like Prid, express a definite desire to go caving again, should use Bakers etc.- this, with proper education in cave conservation, should ensure that the potential for damage is greatly reduced.

This dilema, regarding Bakers and Radford, has just been brought before the whole British caving comunity by an article in the December issue of Descent. It is now time to act.

A number of ways of carrying this out have been suggested. One can ban carbide and further restrict issue of keys. One which I favour, anf first suggested some years ago, is the removal of the rungs in the entrance shafts of Bakers, these being an unneccasary artificial aid. It would then be neccesary that some prior training in ladder work is done before hand. Thus a little more comitment is required of those taking part, and a little more experience of the leaders. Provided adequate belays and an easy take-off (perhaps by leaving the top few rungs in place) are provided, this would not be beyond most novices, and in addition they would get an added experience from the cave, and training towards harder things.

I brought this proposal up at the DCRO AGM; it was not then very well recieved, but I think many others are now in agreement with this proposal. I ask EVERY PCG member, and anyone else who reads this, to pass on their views to the PCG committee, or to the DCUC or DCRO, and hopefully something will be done before it is too late.

AN.

NEWS.

MENDIP.

WCC have found about 80m of new stuff, 'Dark Cars and Sunglasses', off First Rift Chamber in Eastwater.

WALES.

Some people believe that the link between Aggy and Daren is now very close. Concern has been expressed about the use of fixed tackle in Daren; people are climbing the pitches not lined, and the ladder on the 65' pitch recently failed.

The Llanelli Quarry Pot dig has broken through into over 1km of stream passage, the upstream continuation of Shakespear's, but the entance is very dodgy.

Croydon CC have discovered a new cave, Ogof Igam Ogam, 300m below Town Drain. 520m of passage including 3 sumps in the entrance series.

The Westminster have found Pwll Pindar on Pant Mawr; about 0.2 km of large passage, to the west of their dig at Blaen Nedd Isaf which some PCG members were involved in (I believe the latter has now been filled in).

DALES.

A new cave in Wharfedale has been found, with a large well decorated stream passage. It's location is not being revealed due to severe access problems.

A dig in the Temple of Doom in Rift Pot has reached a stream way dye traced to East inlet in Ireby and is very close to it, but has since collapsed.

SCOTLAND.

Uamh an Auchdar, Badernoch, has made the record as th e highest limestone cave in Britain, at 867m.

DIARY

Dec 27- Jan 4th. New Year trip to Yorkshire - staying at Bull Pot Farm.
Jan 15th. DCRO Raft Race, River Dart.
Jan 19th. AGM. 8pm, the Hut.
Jan 21st. NCA Meeting, Ingleton.
Jan 25th. Lecture, Deep Into the Blue Holes, Rob Palmer. National Museum of Wales.
Jan 26th. do do. Bristol University.
Jan 26th. Committee meeting, 8pm, the Hut.
Jan 28th. PCG Underground Dinner.
Jan 31st. DCRO Committee meeting. 8pm, the Hut.

Feb 1st. Lecture, Caving in China. UBSS, Students Union, Bristol, 8pm.
Feb 4th-5th. South Wales - WSG.
Feb 18th - 19th. Mendips - SMCC.
Feb 24-26. DCRO Training.

Mar 18. NCA AGM, Derbyshire, 10.30 am.
Mar 24-27 South Wales - WSG.

April 22-23. SMCC Mendip.
April 22. DCRO AGM, Crest Hill, Buckfastleigh.
May 3rd, UBSS Lecture - Bats by John Hooper. SU, Bristol, 8pm.
May 27-29. S. Wales - WSG.

June 10-11. SMCC Mendip.

Aug 12- 13. SMCC Mendip.

July-Aug. Spain.

NOTICE OF AGM.

Notice is hereby given that the Annual General Meeting of the Plymouth Caving Group will be held at the Hut, Martinsgate, Plymouth on Thursday January 19th at 8pm.

AGENDA.

Apologies for absence
Minutes of the last AGM.
Chairman's Address.
Officer's Report.
Buisnness arising from these reports.
Election of Committee ond Officers for 1989.
Review of Club Subscriptions.
Any Other Business.

ADDITIONS TO THE LIBRARY.

MAPS. Spanish 1:50 000 Maps of the Picos area:
15-5, 15-6, 16-5, 16-6.

OS 1:50 000:
187, 201, 202.

BOOKS. A Caver's View of the Clydach River, by Theo Shurmanns. 2nd edn. 1987.
Peakland Lead Mines and Miners- HM Parker and L. Willies, 1979.
Underground Britain by Bruce Bedford. 1985.

JOURNALS etc.

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Current Titles In Speleology 1986. BCRA, 1987.

Bristol Exploration Club. Belfry Bulletins 1988: 444 (Mexico, Cheddar River Cave); 445 (Eastwater, Aggy, W. Virginia, Lanzorote, Thailand). 446.
Caving Report 22- Index to BB 1947 - 1987.

Cerberus.
17.5 (1987), 17.6(1987)(Aggy, Larkshall Slocker), 18.1 (1988) (Tibet, Cheddar River Cave); 18.2 (Andros, India); 18.3 (Vercors, Thailand, N. Wales mines).

Devon Speleological Society.
Jnl. 139. Bulley Cleaves Quarry Caves, Recent Work at Chudleigh and Torbay and on Dartmoor; Andros; Lanzorote).

Pengelly.
Index to Newsletters 1963-1974.
Newsletters 9,11,12,13, 49-54.
Studies in Speleology IV (1983), V (1984).

PCG Jnl and Newsletter 103, April 1988.

Shepton Mallet Caving Club.
Journal Series 8. No 2 (Tanzania, Le Jargon Speleo Francais, Co. Clare), No. 3 (USA - Lechuguille Cave).

SWMHF News etc. Jan & Oct 1987, Jan 1988.

Trevithic Soc. N/L 61 (May 1988- S. Australian copper mines).

STALACTITE 1/87. Moonmilk, Das Salunhöhlensystem, Tunnel de la Atlamtida, Die Höhle in der Lufthütte.

Wessex. Journal Vol. 19 No. 216 Caving in Nullarbor. Grove Cliff Caves (Portland). 217. Perigord (France), MRO Report. 218. Perigord, Co. Waterford.

Westminster.
Newsletter 55- OFD Fault Aven Extensions, New Zealand, Pwll Pindar.

WHEAL JENKIN.

Wheal Jenkin is a tin mine on the north west slopes of Caradon Hill, immediately east of Minions. It is marked by two prominent engine houses on the south side of the Upton Cross- Minions road. Grid ref. SX 265 712.

'Old Men's' workings on the backs of the many tin lodes in the Bodmin Moor area are very extensive; many are believed to be Mediaeval or earlier in age. In places (e.g. Stow's) by the eighteenth century they had reached a depth where pumping machinery was necessary. These deep workings were evidently of very limited extent, probably being confined to very rich bunches of ore, as large bodies of rich tin were left to be discovered in the second half of the nineteenth century by the Phoenix Mines.

At Wheal Jenkin extensive ancient workings of unknown date proved to extend only to a shallow depth. An adit had been driven before the 1830's to drain the workings to a depth of about 100'.

The first recorded working of Wheal Jenkin dates from about 1836, by the Cornwall Great United Mining Association. This company had a large sett including Wheal Prosper (later South Phoenix), Wheal Jenkin, and Clannacombe and Stow's mine (or Wheal Julia), later Phoenix Mines; they also had mines at St Agnes and in West Cornwall.

The old men's workings were reopened, and large quantities of tin ground were found to have been left above adit by the old men. In addition a shaft, Bullock's engine shaft, was sunk in the north part of the sett to work the Greenhills and Grace Dieu lodes. This was drained by a 'large' waterwheel. This was connected to the Greenhills adit (the site of which has not yet been located), and in January 1837 was to be sunk to a 10 fathom level. A number of waterwheel stamps in Caradon Coombe (the stream running past Upton Cross) were used. In addition in the winter of 1836-1837 a steam engine and stamps (about 40 heads) and dressing floors were erected at the head of the Coombe. Tramroads were to be laid to Wheal Prosper and Wheal Jenkin workings, and likewise flat rods from the engine to bring in power to both mines for working below adit level. The flat-rods to Wheal Jenkin don't seem to have been erected, however. These stamps would give a total of 82 heads of stamps, capable of stamping 10,000 sacks (about 1,000 tons) of stuff a month.

In January 1837 the following were employed at Wheal Jenkin:

6 men driving the adit west at £2.2s per fathom;
22 men stoping;
20 persons spalling tinstuff.

In February 24 men stoping were raising 5,000 sacks a month. The agent was Captain James Clymo, famous as one of the discoverers of South Caradon and other rich mines in the area.

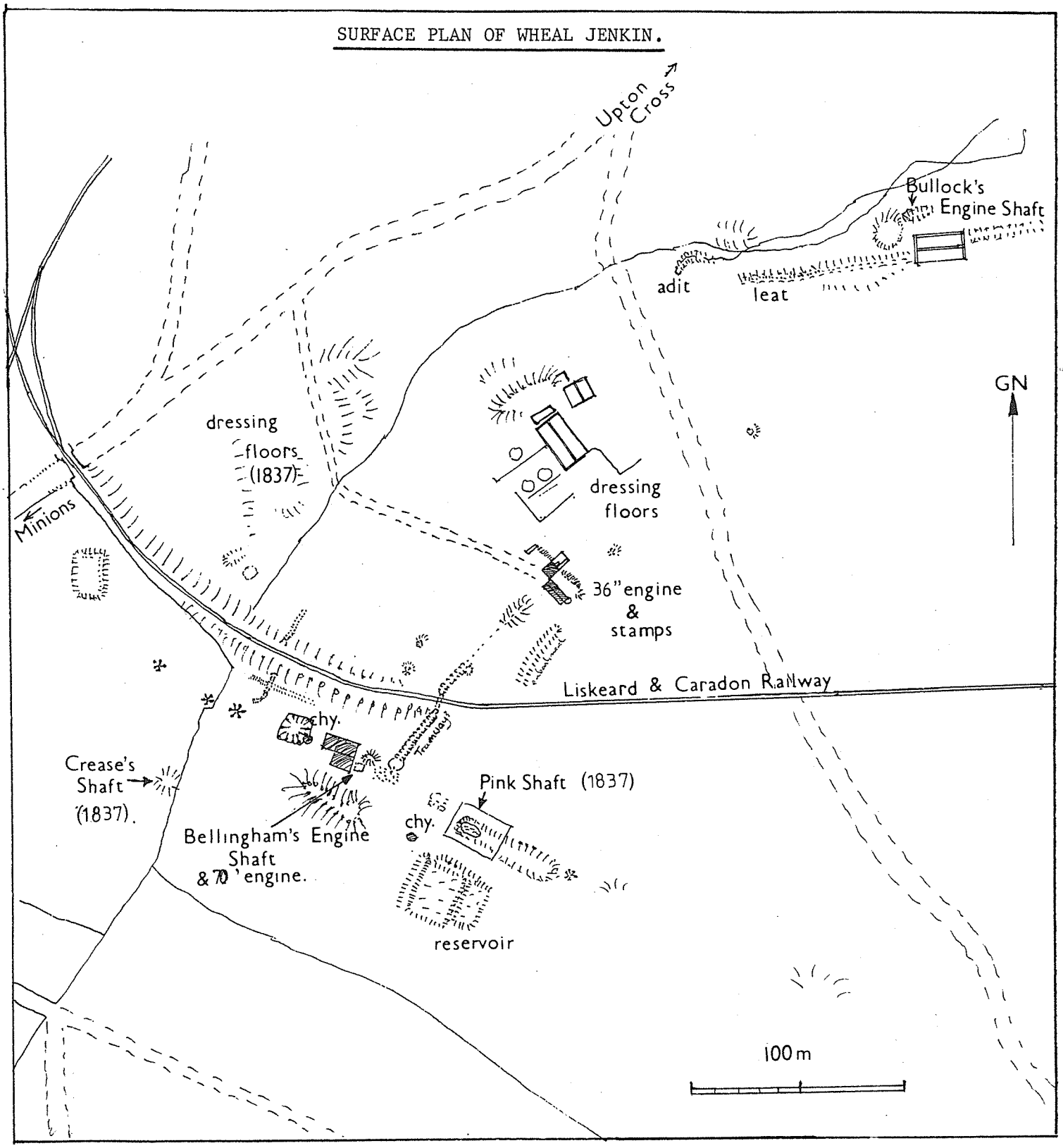
Production was not large however- 20 tons of black tin in 1837, probably largely from Jenkin- and consderable losses were made. Little more is known of the operations of the company, which by now was controlled by shareholders in Manchester. It was thought that the Wheal Jenkin lode in particular would turn to copper in depth- incorrect as it later proved- but the latter metal had by then been found at Clannacombe. In 1841 the company was advertising spare materials for sale, including 40 heads of stamps, tram waggons, smiths tools, whim kibbles etc, probably from Wheal Jenkin which had presumably been abandoned. The stamps engine had perhaps been moved to Clannacombe, where work continued. Soon after the company changed its name or was reformed as Phoenix Mines; the discovery of rich copper about 1848 led to a 50 year carrear as one of the largest copper and later tin mines in the country.

Meanwhile Jenkin was included in the property of a number of unsuccessful concerns. In the 1840's The Caradon company cleared out the adit (150 fathoms long) again, and in the 1850's to the 1870's it was part of the West Rosedown sett- but no work seems to have been done there.

The last and largest reworking of the mine was in the 1880's by the Marke Valley Mining Company, and this was responsible for the present surviving structures. They had been working rich copper lodes since the 1830's at Upton Cross, but with the lodes becoming poorer in depth and falling copper prices the company decided to turn it's attention to tin. In January 1880 they reported that they had obtained consent for an extension of their sett to the west, presumably taking in West Rose Down and Wheal Jenkin.

In March 1881 work on clearing the Wheal Jenkin adit had commenced. Two or three samples of capels (mineralised wall rock of the lode fissure) "taken from near the furnace on Wheal Jenkin lode" assayed over 1 qtr. tin per ton of stuff (1.25%); the main part of the lode had been taken away by former workers. By April 22nd the adit

had been cleared for 115 fathoms leaving 35 fathoms to reach the lode, this work being done by 8 men. Four days later a shaft had been reached, which was collared so the stuff could be raised to surface rather than having to be carried back out through the adit. For the following month a great deal of difficulty was had in this work, the rock being decomposed elvan. The large flow of water didn't help matters. This work of clearing the adit resulted in a falling in the water level in the old workings, which was presumably held back by chokes. This was accompanied by collapse of the old excavations. As the water dropped an old shaft was cleadred down to adit level, which was reached in this in late August. This was then cleared another 21 fathoms to another choked shaft. This was cleared through, and in early September parts of the lode left standing above water level were stoped, giving good tin values. By the 17th a very wide shaft filled to surface, 30 fathoms from the original shaft, was being cleared. Large quantities of tinstuff found in the old workings were dressed at the old waterwheel powered copper ore stamps and floors at Marke Valley.



By the beginning of November several stopes were being worked in the ground left standing, yielding very rich tinstuff. A horse whim was to be errected for hoisting.

At the start of 1882 a level was being driven parrallel to the lode at adit level; crosscuts were driven to the lode which was found here to be all worked out by the old men. No sign of any workings below adit in the east part of the mine were found. Later the adit was to be pushed east towards further runs of old surface workings.

By this time it was considered there was ample evidence that development below adit would give good chances of success. Work was therefore started enlarging the shaft from surface, putting in footway (ladderway), preparing to fix pumps etc., and stone was being obtained to build an engine house. At the end of May work was complete down to adit and a contract was set to sink the shaft 4 fathoms below adit, and prepare for pump bearers and cistern, for £45. Between June and September the shaft was collared, poppet heads (headgear) erected, pumps installed, the engine house was completed and a 36" engine and boiler installed. This was connected to the pumps in the shaft by a run of flat rods. This machinery was started in September and sinking was continued by 9 men who received £18 per fathom sunk. Over £1,300 had been spent in about 6 months.

By January 1883 the shaft had reached 15 fathoms below adit and a crosscut was driven north to cut the lode. The shaft was named Bellingham's after the company chairman. The lode proved to be 7 fathoms (42') wide, mostly low-grade capels with a rich section on the north side about 6'to 12' wide and worth 1/4 cwt to 1½ cwt of tin per ton (1.25 to 7.5%). Driving on the lode commenced. Work started clearing the ground for stamps, to be worked by the 36" engine, and dressing floors below.

In April 19 men were employed underground sinking and driving, increasing to 26 in May. The first 12 heads of stamps started work in June, whilst driving and sinking continued. The 15 fathom level east had passed through a crosscourse beyond which the lode was lower in value- about 30 lb per ton (1.3%).

At the October quarterly shareholder's meeting it was reported that Bellingham's engine shaft had reached 7½ fathoms below the 15. 5tons 15cwt of tin had been sold in the quarter for £297.3s.10d.

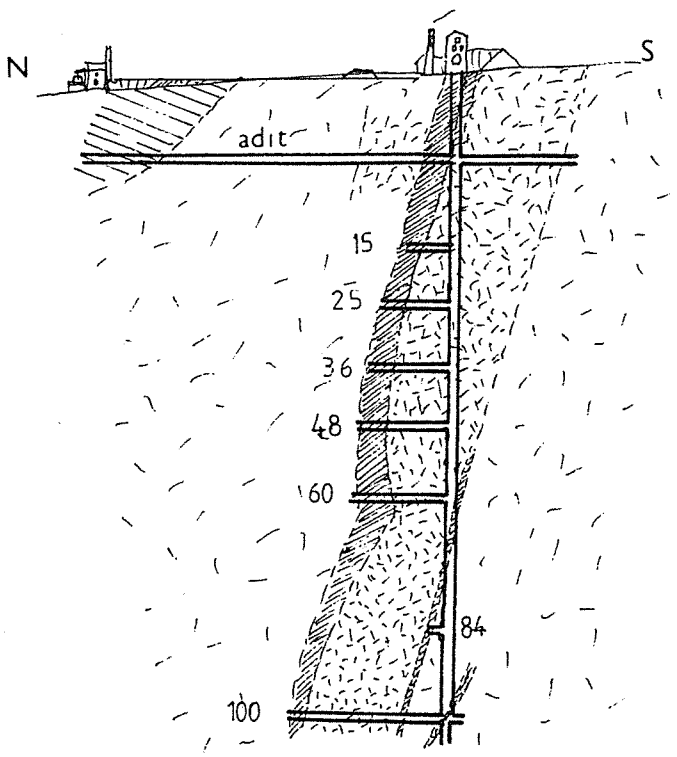
In January 1884 the shaft had reached the 25 fathom level and a crosscut to cut the lode had been started at that level. 12 men were stoping above the 15 fm level. At this time Marke Valley mine had closed down except for some work by tributers above water level.

In August and September an 18" horizontal engine for winding and a stone- breaker (for breaking up large rocks previous to feeding the stamps) were removed from Marke Valley and erected. The use of the 36" engine for pumping ment the stamps could only work at 2/3 the rate they would otherwise.do.

Further good ground was being opened at the 25 fm level, but problems were being experienced in some of the stopes with weak wall rock. The amount of tin being sold met less than half the cost of working.

In summer 1885 sinking was resumed, having been suspended during the winter due to the large influx of water. However work was retarded by breakages in the pitwork. Towards the end of the year the 36 fathom level was reached and the crosscut to the lode started. Work started erecting another 12 heads of stamps and putting in another boiler at the engine. Losses continued and

SKETCH CROSS - SECTION OF BELLINGHAM'S ENGINE SHAFT



repeated calls were made on the adventurers.

In 1886 sinking continued. In order to provide ample pumping power and relieve the existing overworked engine, a 70" pumping engine was removed from Marke Valley, with boilers, balance bob, etc, and installed in a new engine house (the larger one remaining, with a stone inscribed MV 1886). Stone for this came from the Cheeswring Granite Company. This engine was set to work in November, allowing another 12 heads of stamps to be erected in place of the pumping crank on the 36" engine. The dressing floors were extended and houses built to protect them from the weather. A new larger smith's shop was built.

Work was then resumed in the 36 and 48 fathom level crosscuts, neither of which had reached the lode, and the shaft was nearly down to the 60 fathom level.

In 1887 sinking continued for a while below the 60. Work in the summer included driving the 60, 48, 36, 25 and 15 fathom levels on the lode, while stopes, mainly at the 25 and 15 fathom levels were producing enough tin to cover about 2/3 of costs. The deeper levels were only opening low grade ore ground. A number of problems were experienced at this time in getting a renewal of the lease of the mine. It was said this was due to the solicitors rather than the lords themselves.

Sinking was again resumed in February 1888. The levels below the 36 were generally opening poor ground- a great disapointment. Some new rich ground was still being found in the shallower levels however. Below the 60 fm level the shaft had cut a south (No.2) lode; the main lode seemed to be turning towards this at the lowest point seen (the 60), so a junction of the two lodes and possible rich ore was expected at about 100 fathoms depth. Sinking was pushed on to reach this depth, which was reached in January 1890, and a crosscut started out to the lode.

The crosscut proved that the main lode had turned away again and although of great width carried only a little tin. The shallow levels were not producing enough tin to meet costs, so at a meeting in August it was decided to stop operations. The mine was offered for sale by auction on October 1st, offered as a good speculation for further enterprise. The plant consisted of the 70" pumping engine with two 10 ton boilers, 18" horizontal winding engine with 10 ton boiler, and 170 fms wire rope, 36" stamping engine with two 10 ton boilers and 48 heads of stamps, 26" and 33" engines (presumably at Marke Valley), a 4" horizontal engine, 10"x12" air compressor engine, steam hammer, Blake's stone-breaker, saw bench, dressing floors, a 20' diameter water wheel driving the buddles, tram waggons, etc.

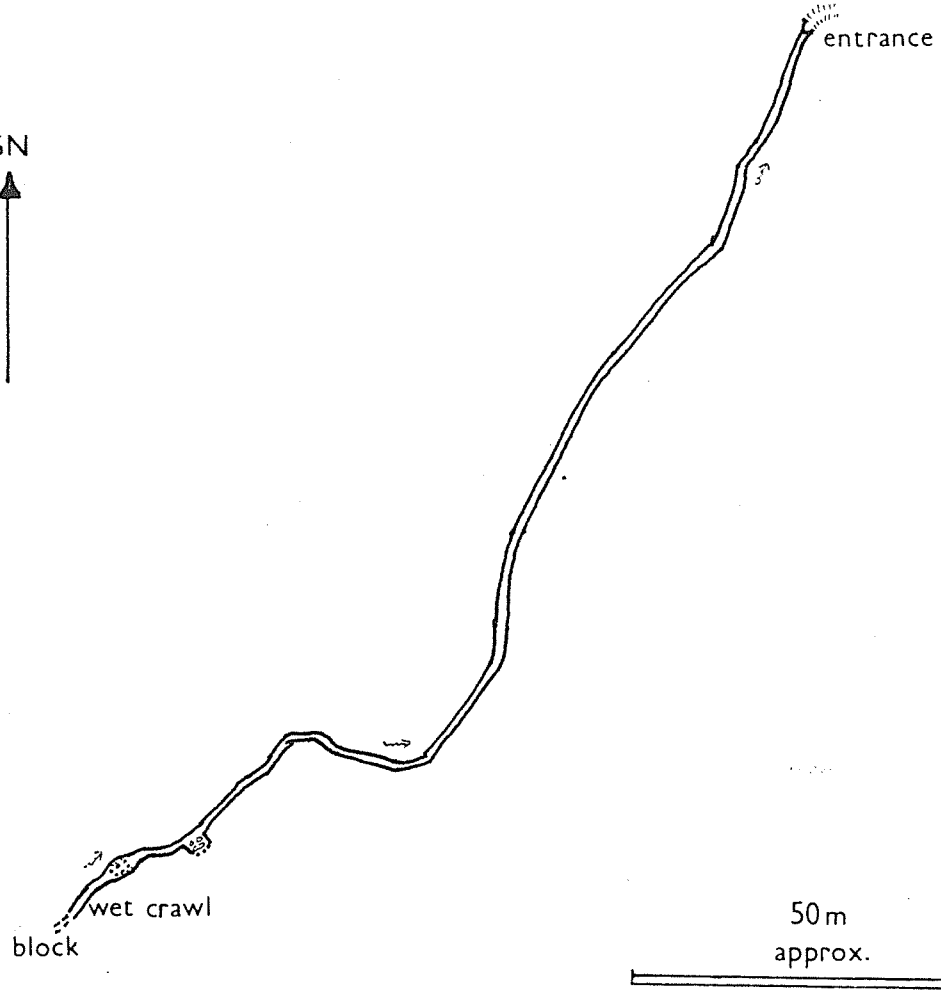
The Government statistics give the following returns (employment including that at Marke Valley untill about 1886):

Year	Black tin production tons.	Employment total.
1881	½	150
1882	1	158
1883	6	110
1884	42	65
1885	52	85
1886	12	65
1887	59	132
1888	83	133
1889	102	156
1890.	27	70.

Present Remains.

The easiest approach is to follow the old Liskeard and Caradon Railway from the demolished bridge across the Upton Cross to Minions road. On the left traces can be seen of the 1836 dressing floors, and to the right are a line of surface workings and collapsed shafts along the line of the lode. The pumping engine house and boiler house are well preserved, but their stack has fallen, apparently due to a collapse of old workings. Beyond this, by a dried out reservoir, is a large pit (Pink Shaft in the 1830's), in which workings can be seen going off below water level. A large pile of broken hornfels (suggesting that some of the shallow workings passed out of the granite) lies at the presumed position of the stone- breaker, This fed a tram-

way which passed through a culvert under the railway to the stamps. The remains of the stamping engine, boiler house and chimney are prominent; below them are the well preserved remains of the dressing floors with buddles, slime pits etc. Following the



PLAN OF ADIT LEVEL.

valley down, the adit level can be found at the end of a gulley. This can be followed for about 200m. south west, containing a fair flow of water, and lots of frogs when we visited it. It passes through the junction between the killas (hornfels) and the granite, and ends at a low crawl under a waterfall leading to a blockage. It can be seen continuing beyond; this would not take a lot of work to pass. From the adit a leat can be followed towards West Rosedown mine. Below a well built stone reservoir the site of Bullock's shaft can be seen as a hollow with the whim plat remaining alongside.

References.

Mining Journal.
Dines p.596.
Webb & Geach, History and Progress of Mining in the Liskeard and Caradon District, 1863.
See also P. Stanier, Trevithick Society Journal 1987 for more details of the 1830's working.

Alasdair Neill.

THE MENDIPS AUG 12th- 14th 1988.

If you were not there, why not?

This was the best trip in a long time (in Britain). Different groups did different caves, but all got back in time for the Hunter's

The two caves that I did on the Saturday were GB and Swildons. I was most impressed with GB and its Gorge. The formations are among the best I have seen. The members on this trip were Bob Jones, Mike Heard, Kevin Manktelow, Greame Hart and myself. Somehow during the course of the cave I ended up leading. I got lost while the others were resting, right by the passage that I was ment to go down.

Later that day I did Swildon's. The reason that we did Swildons was because Mark Elliot was not old enough to do GB and wanted to do some caving on the Saturday. Members present for that trip were Bob Jones, Mike Heard, Mark Elliot and myself.

I was horrified when I got there, to find there was a river running straight into the cave. This was my first wet cave. I discovered how wet it was, thirty seconds in, when the tackle bag that I was carrying got stuck under a waterfall. I was amazed at the amount of cavers there were in Swildons. We even bumped into Andy Bennett's group down there. By the time that we got down to Sump I, I had discovered that my new cell was waterproof (unlike my Wellies). Mark discovered that headbutting the wall with your cell headset doesn't do them a lot of good. That evening I discovered the Extension to the BRI (Bristol Royal Imfirmary), thanks to a dislocated knee. Not done while caving, though.

The formations there were very regular. The tights went up instead of down, and the curtains were a horrible orange colour.

The highlight of the weekend for everyone came on the Sunday afternoon in the Hunters when I fell flat on my face on a very slippery floor.

Darren Hitchcox.

T' COMMITTEEEEE.

THE time is fast approaching when we have to think about the new committee for 1989, which is elected at the AGM. For the past couple of years we have seen practically the same faces, with only a few changes. I am sure that several of them no longer carry on the tasks required of them with all the enthusiasm required, so would be very happy to see new faces taking over. None of the tasks are difficult or take a great deal of time.

With the numbers of new enthusiastic faces in the club, we would like you all to think about what you can do- particularly those among you who complain that nothing seems to happen apart from going to the pub. Maybe we would even see a contest for some of the posts- wouldn't that be fun!

In case you're not sure, here is alist of the posts, the tasks they should be carrying out, and the name of the person in that post at present.

Chairman.

Runs the meetings of the club and the committee, ensuring that members dom't knock each other off when things get hectic. Has the casting vote at meetings- i.e. he tells the rest of us what to do if we can't decide for ourselves. (P.Rustage).

President

The figurehead of the club; hopefully a well known figure both in the club and in other parts of the caving world. Probably has been caving for more years than the rest of us put together. (Bob Cawthorne).

Secretary.

Carries out any correspondence with other organisations, hopefully on our behalf and to their disadvantage. Ensures we all get all the imformation on everything that's happening in the caving world, finds out what's going on and tells us what the club has done during the year at the AGM. Writes and distributes the minutes of meetings.
(Lynne Beattie).

Treasurer.

Looks after our money, gets more if he can from wherever he can in large amounts, (hopefully leagally), and spends it for us (hopefully not on a new car).
(Paul NNNAsh).

Tackle Masters.

Looks after our ropes and things- ensure everything is in good order, people return tackle

in good time, replace equipment when needed, and decide what new gear we need to purchase. Doesn't have to be an expert on playing on strings $RT), but needs to find out how to care for the ropes etc. (Mark Vinall and Andy Bennett).

Also the lampman, who looks after the lights so we can see where we are going in the dark, and don't fall over and hurt ourselves (Martin Prince).

Editor.

Tries to persuade people to write lots of not-so-boring articles (very hard), and finds about news from other areas, information on access, etc, and lets us know through the newsletter so we all know how not to kill ourselves, what new caves there are to go to, and where we will get our hands smacked if we do go. Arranges publication and distribution.

Librarian.

Looks after the books and journals we have, arranges to get new ones, and arranges the exchange of publications with other organisations so we can find out all their secrets. (Alasdair Neill).

Membership Secretary.

Collects the money for membership and persuades new members to join, and lets the rest of us know who we've got. (Bob Cawthorne).

Rescue Wardens.

Hopefully trains and calls out the club's teams in event of rescue call out. Finds out about the latest techniques for removing unfortunates from the mess they've got themselves into. (P.Rustage and M. Prince).

Meet Secretary.

Arranges trips, social events etc, ie visits lots of pubs sampling the ales and, if he can remember, organises 'caving' trips to where the beer is good enough. Gets all the stick if the rest of us don't bother to turn up. (Andy Bennett).

Other Committee Members.

Makes sure the rest of the committee are good and don't run off with the money or whatever. Does anything else they can to help run the club.
(A. Phillips and M. Heard).

CAVE CONSERVATIONISTS OR VANDALS ? A PERSONAL VIEW.

Devon is nationally recognised (Caving Practice and Equipment p142) as the region with the best example of a cave destroyed by over use and abuse, Pridhamsleigh Cavern. It is so bad, even Prid II, only accessable to cave divers, is showing signs of unneccesary damage.

The show piece of Devon caving, Baker's Pit, is the most extensive cave in the county, has features and passages to interest the most ardent caver, but yet we are allowing it to be destroyed! Over the past two years there has been an increase in the muddy fingure prints on formations, even in the upper series- which was an area once only considered suitable for experienced cavers. A growing number of carbide marks, arrows and other marks are to be seen littering the cave passages. More and more formations have been broken, often in places where special effort is needed to cause wanton vandalism. Many moulds are appearing in some passages due to dropping of litter or deliberate abuse. What are people doing in these places if they do not know how to cave, for it is clear they do not!

With the new County Cave Leadership scheme we hoped to encourage sensible use of the underground enviroment in the expanding market of outdoor education. Somewhere we seem to have failed! Local caves are still under attack by groups using them as assault courses and centres continue to use unqualified leaders, many of them with no particular interest in caving.

What is the answer? This question I find going around in my head every time I go down Bakers. I am proposing that the known entrances other than the gated tp entrance be made impassable. Second that the rungs in the entrance pipe be removed, leaving access only to cavers with the knowledge, skill and motivation to overcombe this obstacle.
It's time Devon cavers started to protect these caves and their national reputation by not allowing this special enviroment to be destroyed for commercial gain. Let us work together to destroy this unwanted desease before it becomes contageous.

Pete Rustage.

OGOFAU GOLD MINES,

DOLAUCOTHI, SOUTH WALES.

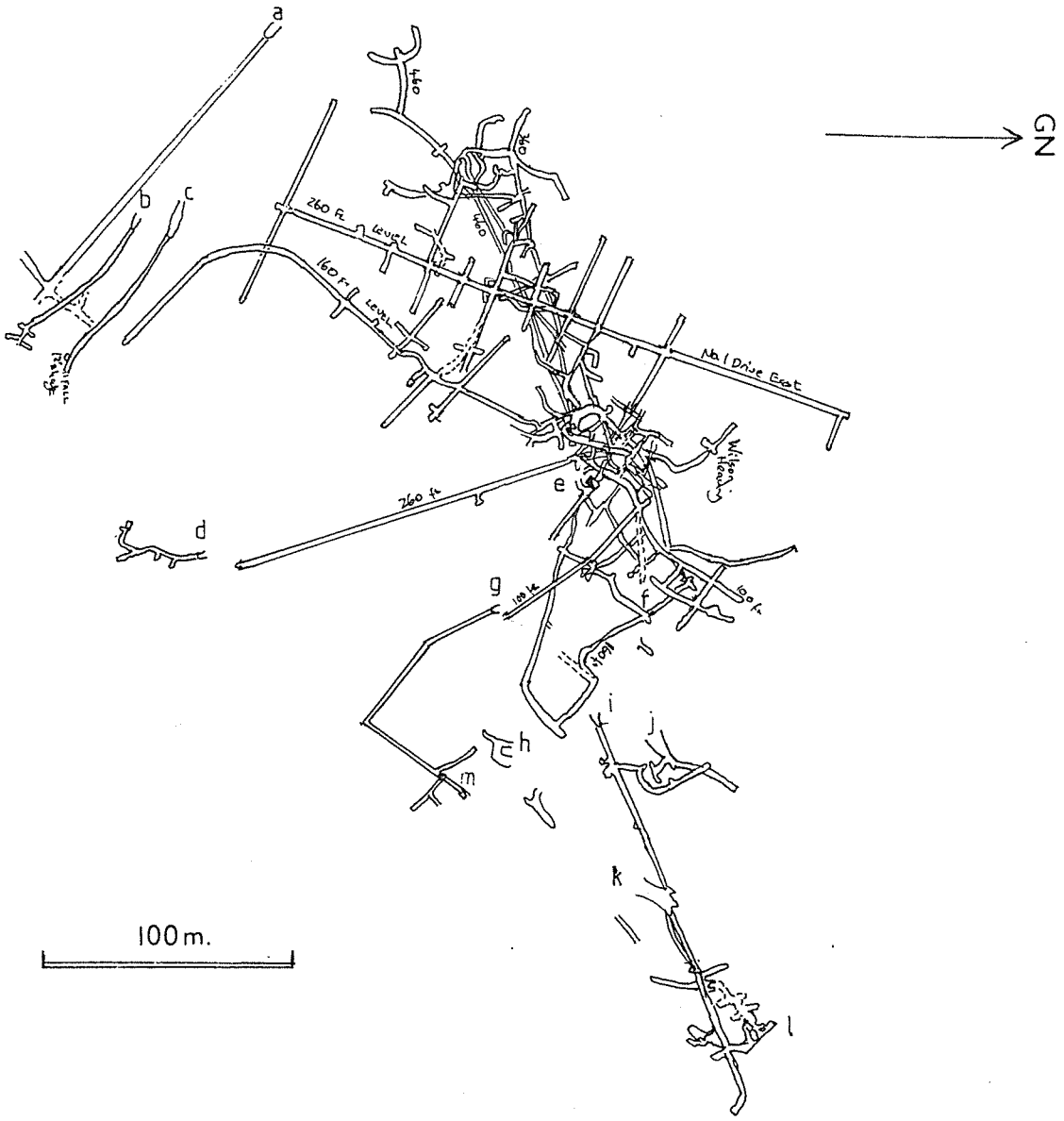
In the end of September I visited these mines with my father, as a wet weather alternative to climbing in Pembrokeshire. They lie near the village of Pumpsaint, about 40 km WNW of Brecon. They have been in the hands of the National Trust since 1943. Part of the mine is now used as a field station by Cardiff University, students acting as guides to the underground workings during the summer season. Unfortunately when we were there these had ceased, but we got a free trip around the surface trail which includes a short underground section.

Several types of mineralisation have been mined, related to a complex isoclinal anticline striking NW-SE, with associated faulting and thrusting, in black shales and siltstones of Ordovician - Silurian age. Mineralisation occurs as a strong quartz structure following the bedding associated with an Anticline- the Roman Lode, which is similar to a "saddle-reef". Small arsenical quartz leaders occur in the footwall of the Roman lode, containing much sulphide. Irregular arsenopyrite - gold - quartz - calcite veins occur associated with strike faults and thrusts. The area of gold mineralisation appears to be restricted to a zone with a strike length of about 1200m, although the structures extend a long way beyond. This mineralised zone appears to be related to a localised occurrence of thick black shales.

The most striking features of the mine are the huge opencasts, now tree grown, with cave like openings and adits developed at intervals along the mineralised zone. These ancient workings are mentioned in writings going back to at least the 18th century; nobody then seemed to know what had been mined. It has been estimated that something like 4,000,000 tons of rock were removed from these workings. They were obviously worked by a well organised system, and are usually atributed to the Romans. This is supported by the presence nearby of a Roman fort, and also be a limited amount of C- dating of artifacts. It has been conjectured that the work was carried out by a slave workforce over a long period. A well organised system of leats totalling at least 18 km in length taking water from several sources, presumably for dressing purposes, and also for hushing (hydraulic scouring of overburden and loose rock). Similar Roman works can be seen on an even larger scale in NW Spain. Undeground mining by the Romans extended to at least 30m below the main opencast floor, and in the 1930's what is assumed to be part of a wooden drainage wheel was found in these workings. A stone on the site known traditionally as the Carreg Pumpsaint (the Five Saint's Stone) carries 4 impressions which indicate it was a stamp mortar stone, similar to those to be found on Dartmoor. This feature is probably of much more recent date, suggesting a working perhaps as late as the 17th century.

The first recorded discovery of gold was not untill about 1845, by the Geological Survey. Small scale working, by adits driven from the main opencast, was made between 1888 and 1897, and in 1905 to 1911 under a Cornishman, James Mitchrll. A number of veins were worked from the adits, but much of the gold proved to be locked up in arsenopyrite and could not be easily recovered. The gold obtained was mainly from shallow workings and old dumps, where the gold had been liberated from the sulphide minerals by weathering. A 5-stamp mill was erected in 1905, which could produce a sulphide concentrate containing the gold. No smelter could be found however who would buy this concentrare to recover the gold. Mitchell also sank a shaft to 100ft level to test the ground under the old opencast. This unexpectedly cut an unknown flat- dipping reef, the Roman lode. A crosscut was driven south proving many veins in the footwall of the reef, the whole length being in apparently payable gold values, but then old workings were cut. The water inflow proved too much for the pumps, and with the exhaustion of capital work ceased. Production had amounted to 134 oz. gold from 1043 tons of ore milled.

The most substantial attempt to revive the mine was made in 1933-1939, successively by Roman Deep Ltd, Roman Deep Holdings Ltd, and British Goldfields (No. 1) Ltd. Mitchell's Shaft was reopened and sunk eventually to the 460 ft level, 27.8 ft above sea level. Extensive development was carried out at the 100ft, 160ft, 260ft, 360ft and 460ft levels, largely on Roman lode although some work was also done in the adits and opencasts. In 1937 a mill was constructed on the hilltop, connected to the shaft by an incline tramway. In 1938 16 862 tons of ore were crushed yielding 1 851 oz gold. Many features of the operaton were apparently badly planned, and the only possible buyer for the sulphide concentrates was in the USA, so the venture had little chance of success. Up to 200 men were employed, many from the South Wales coalfields, housed in barracks near the mine. Most were laid off at the end of 1938, but some underground exploration continued. This had ceased by 1940 when the plant was sold off. Soon after the National Trust acquired the



PLAN OF UNDERGROUND WORKINGS AT OGOFAU MINE.

Based om Abandonment plans and other sources.

Key.

a Field Adit	d Niagara adit.	h Ogof Gwenno
b Ogof y Cawgiau	e New or Mitchell's shaft.	i Long Adit
c Roman adit	f Manway.	j Ogof Carthouse (Middle adit)
	g Mill adit	k Ogof Fawr (Mitchell Adit).

l Mitchell Quarry m Davies Shaft.



area.

In 1973 a Canadian company took a prospecting licence for the surrounding area. Much work, including geological and geochemical investigations, was carried out, much of it in conjunction with University College, Cardiff. This was followed by drilling, which proved a considerable extension of mineralisation beyond the old workings, but results were not good enough to resume mining and work has now ceased.

Part of the mine is now leased to Cardiff University, Department of Mineral Exploitation, who have rehabilitated the old adit workings, laid tramways, etc. They are planning new development, with th possibility of limited gold production in the future. Archaeological work has continued over a long period, but so far has literally only scratched the surface of the mine.

The National Trust have established a visitor centre and underground visits are run during the summer. Last year the headgear and surface buildings from the Olwyn Goch Shaft, Hendre lead mine, part of the Halkyn District United Mines (NE Wales), dating from the 1930's, were re-erected on Mitchell's Shaft. Altogether the site has been treated in a much better way than most "touristy" show- mine and cave developments.

References:

GW Hall, 1971. The Metal Mines of Southern Wales.

Annels and Burnham (eds), 1986. The Dolaucothi Gold Mines (2nd edn.). University of Wales.

BW Holman, 1911. Gold Deposits of Cothy, South Wales. Mining Magazine VI.

Steed et al, 1976. Prospecting in the area of the Ogofau Gold Mines. Trans. Inst. Min and Met. 85.

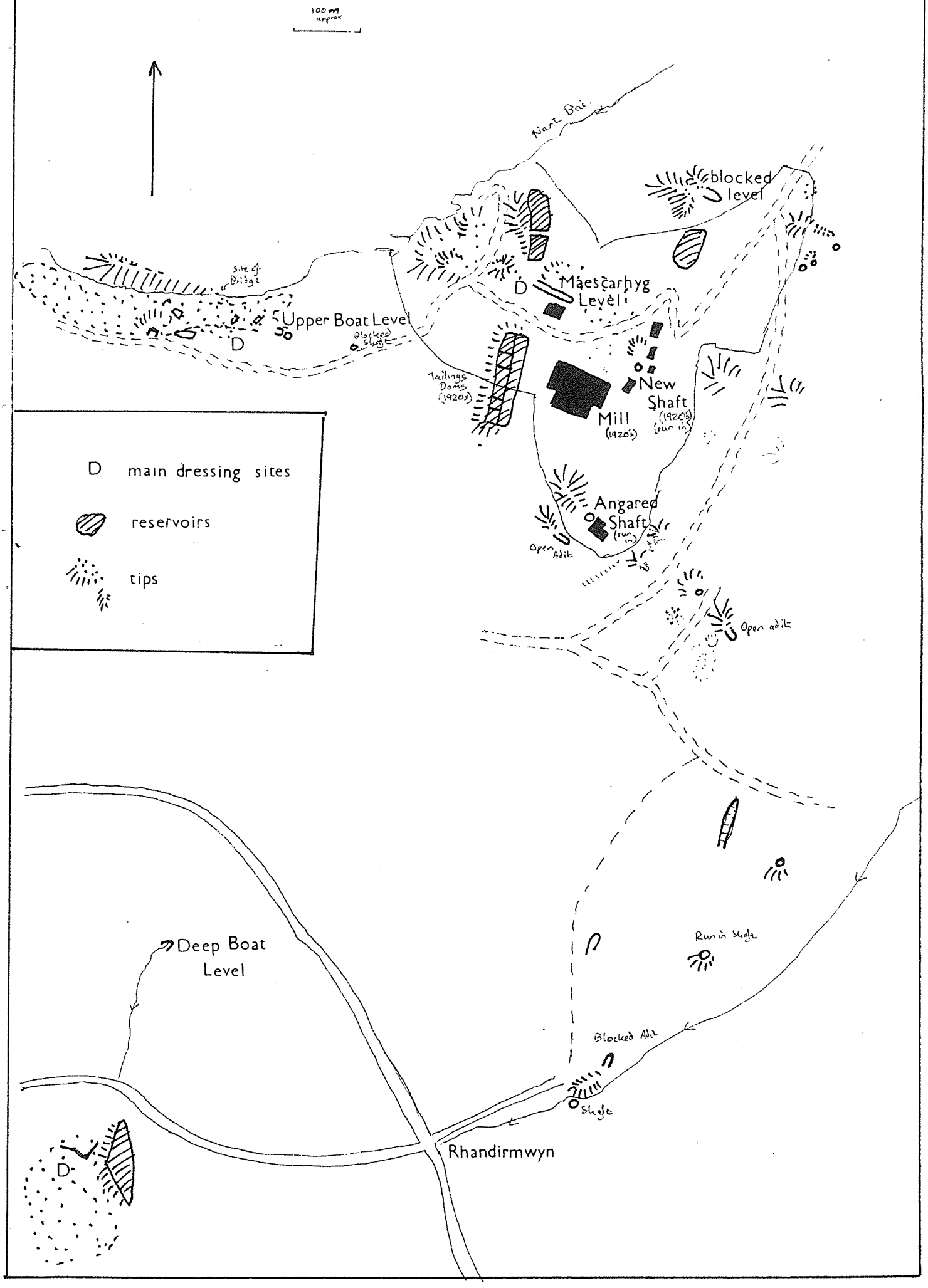
Various plans of Ogofau Mine (1930's). Mining Record Office, HSE, ref. 12 560.

Alasdair Neill.

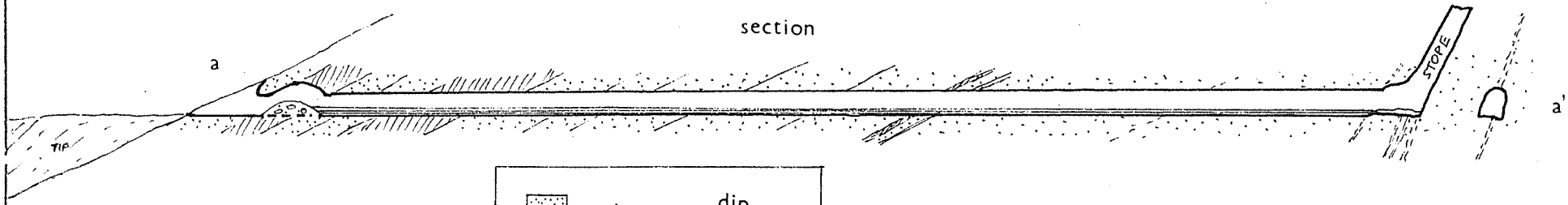
NANTYMWYN MINE, SOUTH WALES.

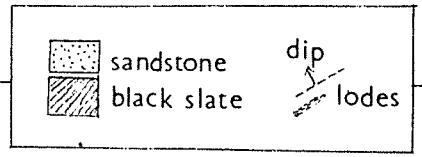
Following are visit to Ogofau, we carried on to Nantymwyn Mine. This was once also called Rhandirmwyn, the name of the adjoining village, and Cerrigmwyn. It lies to the east of the River Tywi a few miles below the Llyn Brianne dam, 16km east of Ogofau and 10km north of Llandovery.

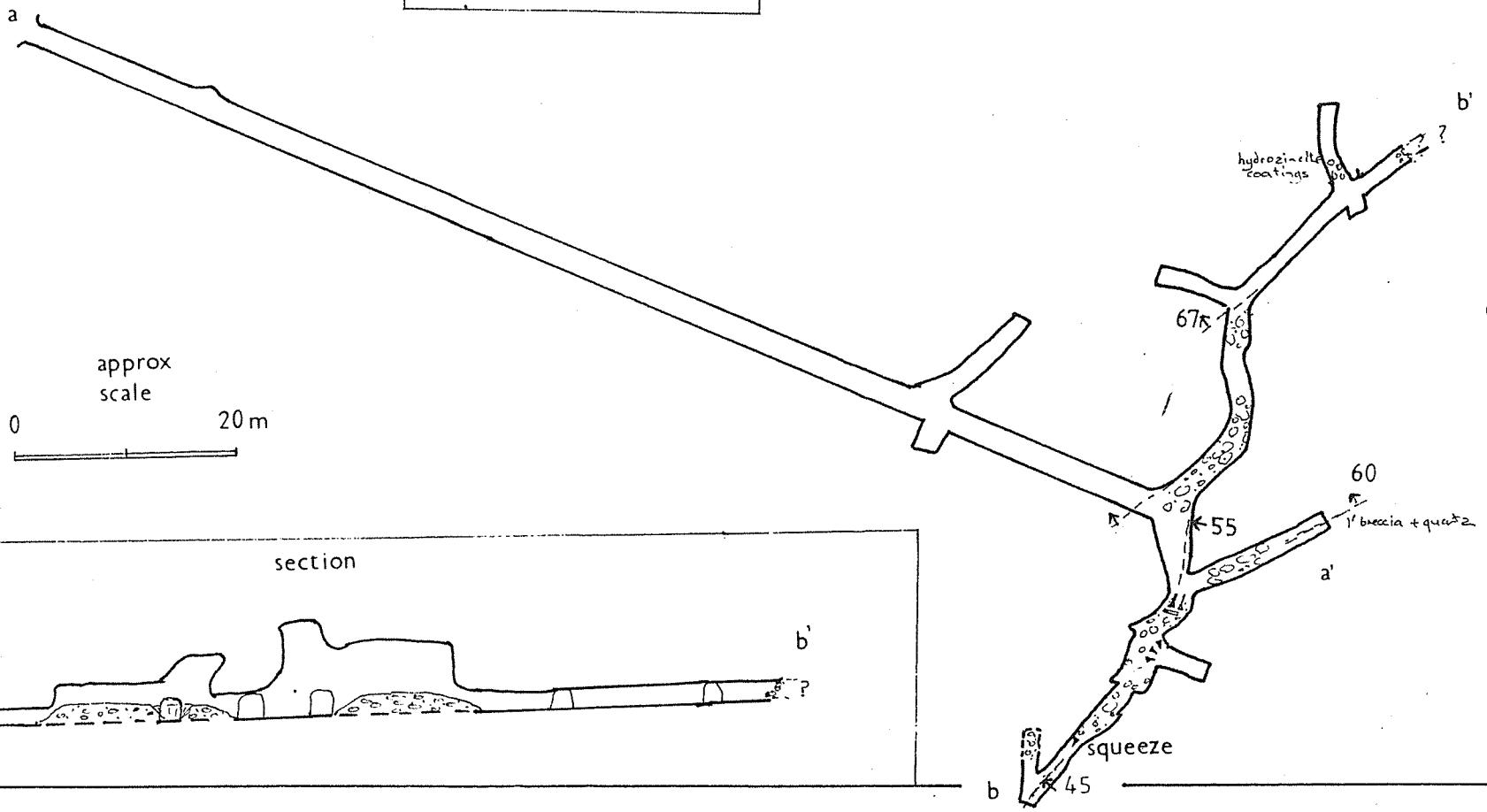
SKETCH MAP OF NANTYMWYN MINE.



NANTYWYN MINE. ADIT AT GRID REF. SN 7889 4436.







16.

An intersecting series of lodes occur in sandstones and shales of Ordovician age. These largely strike NNE-SSW (parallel to the strike of the country rock but with steeper dip). North- South lodes also occur. Orebodies occur over a length of about 800m and vertical range of about 260m. They were worked by a number of shafts and adits in the area between Rhandirmwyn and Nant-y-bai, centred on grid ref SN 647 446. A deep adit, the Deep Boat Level, was driven from below the village (SN 782 438) for 1km NE to the workings. An underground shaft eventually reached a 30 fathom level below this adit.

The earliest record of the mine goes back to the 1740's, although much work had probably been done before then. By that time a "canal- level" had been driven, probably the Upper Boat Level. The mine became very rich, raising over 1000 tons of lead ore a year between the 1770s and about 1793, with a maximum of 2500 tons in 1779. Substantial profits for the time were made- £87,000 from 30,000 tons of ore raised in 1775 to 1797. The mine was worked by John Campbell, later Lord Cawdor. In the 1780's the Deep Boat level was started to drain the workings another 50m. This took about 15 years to reach the mine, during which time production fell off and many workers were discharged. Both Boat Levels owe their name to the fact that at this time they were flooded and boats used for transport, a method not without incident.

In the following 30 years a number of parties worked the mine, but with nothing like the success of the 18th century. In 1836 it was obtained by Messrs. Williams of Scorrier, who were probably one of the richest families in Britain from their Cornish mining interests, particularly from the Gwennap copper mines. At this time they were looking further afield, taking a number of Welsh lead mines, but Nantymwyn was their only success in that country. Production on a fair scale continued for many years, but it was never as rich as in the 18th century again. They finally gave up in 1900.

Recorded production (figures are not complete) up to that date, since 1775, amount to 78,300 tons of lead ore. The total production probably amounted to 100,000 tons or more, making it one of the largest lead mines in Britain.

In the following years small scale work continued intermittently, and in 1915 Nantymwyn Mine Ltd was formed. During the war 98t lead ore was sold, but after that work was mainly confined to development- although 5,300 tons of sandstone and some lead ore were produced in 1923-1925. At this time the Sulphide Corporation, a major internatinal lead-zinc mining and smelting company, took an interst in the company. They provided capital to allow development with a view to zinc production, which had been ignored by the 'old men'.

A new shaft was sunk and a flotation mill erected, and initial development of the shallower old workings located substantial reserves. Production started in 1930, but at this time the world depression produced a slump in metal prices. Milling therefore continued for only a few months. Also results in the deeper workings were very disapointing. Production amounted to 529t zinc and 165t lead concentrates. Emplyment had reached 80 (in 1929). Underground development ceased in 1932.

The main area of the mine consists of a large area of partly levelled dumps, with the remains of the 1920's mill and other buildings. At the south edge of this area is an engine house and stack at Angred Shaft- this housed a horizontal engine believed to have been erected in the 1880's. Most of the shafts and adits in this area are run in, and are obscured. In the forestry beyond however there are other adits. We found two open, one by the engine house (flooded with little air space), and one to the south east with waist deep water (see survey). Upper Boat Level is blocked, discharging much water. An open shaft drops into it immediately behind the portal, but we didn't have tackle to descend this and it is doubtful if there would be much air space anyway. There are believed to be extensive workings accessable from other sites in the forestry. Some of these are described in old South Wales Caving Club newsletters. The entrances are difficult to find now (imformation from SWCC members). In view of the huge extent of workings above the Deep Boat Level, there is probably much scope for further underground exploration in Nantymwyn. Over the hill towards Rhandirmwyn there are other workings- mostly relatively minor. We found nothing open. Pannau Level just behind the village is blocked. Deep Boat Level is behind some houses and we didn't look at it. There are extensive levelled tips from dressing floors, with only a few remaining strutures, below both Deep and Upper Boat Levels. Much material was removed from the tips for the construction of the Llyn Brianne dam.

References: GW Hall, 1971. Metal Mines of Southern Wales.

Alasdair Neill.

MATIENZO '88.

Saturday 23rd July saw Bob and Julie crossing to Roscoff preparing for a non stop overnight drive to MIDDLE EARTH - the magic valley which some call Matienzo, home of the Manchester University Speleological Society, and in recent years many other clubs. We arrived at a little after 1pm, found cousin-in-law Carmen, and fell into the bar for some San Miguel. The following day was spent collapsed on the beach, and generally recuperating from work, the drive, the French...

Cousin Peter (who many call Pedro) was looking for a caving trip on the Tuesday. There was a bank holiday in Santander, so he did not have to go back to work. We elected to go to Cueva del Agua. He wished to review the area around the Prehistoric site. This seemed an excellant idea so off we went. The water level was - interesting - not at its usual placidity. The cascade was certainly tested for ease of return before both of us were on the downstream side! It is an impressive passage, and even after four or five visits I am still quite happy to go back again. Eventually we were in the deep water. Peter was not happy, and spent a lot of time going from hand to hand along the wall.

At the end we inspected all around the prehistoric 'altar'. Peter has found etchings in other caves and was wondering if there was any fresh evidence here. There wasn't. We had a good inspect of all the nooks and crannies, found some nice pretties, lots of snail shells and small rodent bones, but no other traces of human activity. A pity. Then came the return. Not as difficult as we had feared, suitably sporting on the sploshy bits. We returned - as one must - to the bar.

On Wednsday Julie and Bob again went to the beach - laziness will win! On Thursday July 28th Ali arrived in Santander having taken the Plymouth - Santander ferry. Bob picked him up (thanks!) at the port to save confusion, and having set up on the campsite (rather damp at the time, and containing several pools and streams of cowsh!). We then went to the beach for a few hours.

Ali Bob and Julie then decided to go down Cueva del Agua (59) for a few hours. This was a photo trip in the first section of this huge river passage- it even contained cloud layers in the entrance chamber. We met a party from the Haymarket Caving Club (Newcastle) who had found a high level extension (just before the 1m cascade). We photographed away merrily for a pleasant hour. Ali being clever and technical, and Bob being wildly optimistic with a tiny camera with a built in flash.

On Friday some Derbyshire had arrived, one or two known for many moons. A mixed party of Bob, Ali, Toby, Juan Corrin and Baz Davies went to visit Cueva de los Emboscados (87). The entrance is kept blocked with small stones and plastic sheeting to keep goats out. Once this is removed a 2m crawl pops out into a big passage behind a line of stals. A slope of soft gour pools leads down into the huge main passage, sandy floored, 12m wide and up to 30m high. After a short distance it ends at a strongly draughting choke.

Bob and Baz dug the right hand side, and Toby and Ali a passage which crossed over the other and into the choke. Toby pushed through a squeeze and passed a boulder behind which no easy way on could be made. Ali dug a passage behind this which may lead to a void visable above, but the mud walls began to trundle so we left it to settle. I then had a look at a number of side passages on the west wall further back, extending 30m or so to sand chokes. These have not been surveyed. They contain bones of a small rodent and many other bones were found including in the end choke. A number of ancient etchings of deer can be seen (now very faint) on the left hand wall. Toby and Baz attempted a number of other side passages and climbs.

Saturday 30th saw a visit to Toad in the Hole (258). You may notice that this is not a Spanish name, so it does not need translation. A party of Bob, Baz, Ali, Arthur and Pedro set off to investigate another draughting choke. This cave is on the northern slopes of the head of the Vega valley. A trudge up the hill in very hot brilliant sunshine with excellant scenery led us to the entrance, a sizable shakehole with attached oak trees. A handline descent of the entrance shakehole leads to a short pitch, the top being tight and awkward. Bob's ribs protested bitterly at this treatment, and to get through the pullover had to come off, the carbide lamp igniting this in the process. Ever had protesting ribs and a burning pullover in a tight squeeze? You don't chuckle. Once in this leads into the side of a big passage. A low section leads into more big stomping stuff with fine formations. Soon we came to a 10m bolt climb with a double rope fixed. We hoisted up a ladder andBaz placed a new bolt, as the existing one was somewhat dodgy. Beyond, the well decorated passage crosses several sandy bridges and passes a small side passage (which leads to a pitch and chamber etc.). Soon a 15m pitch is reached. As only the bottom 5m is vertical we used a handline with a ladder tied on the bottom. The head of the pitch had amazing twisty helictites all over the place.

From the bottom of the pitch more big passage leads to a flat out uphill squeeze into a chamber. Both ends of this are choked. The left end draughts strongly and had previously been pushed down into a chamber. However, the draught seems to come mainly from above so Baz and Toby pushed up here. The boulders are large and well jammed, and are either calcited in or leave the digger right in the target area. I had a dig at the other end- well calcited up with only a trace of a draught. I then had a look at the passage behind the pitch- superb helictites, but eventually choked, some big avens above, which presumably connect to the passages between the pitches.

I then went up a flat out crawl to an aven climbed for about 10m- it seemed to pinch out above, but draughted. The crawl continues to the main extensions made in 1987- extending under the valley towards Arenal and Renada. Over the next few days these passages were succesfully located by Molephone. We came out without problems, looking at one or two of the avens in the high level connecting passage on the way. The trip lasted about 4 hours.

Sunday July 31st saw Terry Whitaker, Mike (Wing-nut), Rob, Nick and Ali setting off to Cueva de Carcavueso (81) (which no-one can actually spell). The entrance is a flood sink for the main river in the Matienzo depression. A series of passages, crawls and climbs largely in boulder choke reaches the stream which soon sumps. After many attempts it was not untill 1986 that major extensions were made, connecting the cave to Cueva Llueva (El Biggo) and Cueva da la Uzueka, linking three valleys of the four valleys system and making the 4th longest system in Spain. The route lies through some squeezes and climbs through loose boulders, eventually popping out in the Afternoon Stroll, a fine long straight tube, fine stomping stuff, with odd traverses and climbs. From here we passed through the Maze, Red Column Chamber, and then a boulder choke- the start of the Sewers of Doom. This is a 3-D maze, in which the previous explorers had only got out again by surveying a route through. They had found there were 3 levels to the Sewers, our aim was to survey the middle level and put a line along the easiest route through. However we in stead found a way into the main river and into a maze series of small passages running up-dip, leading to the river at several points. Mostly this was deep water, neccesitating a return with wet suits for exploration. Returning to a side passage the river was followed upstream to an awkward cascade and a climb up into big high level chambers. From here we found a route through to the Candy Shop in Llueva II a large boulder chamber containing some fine deep red gour pools perched up in the boulders. In subsequent trips the route from the old cave was by-passed by a 15m pitch, and much new passage was found.

Juan and Bob were out in the sunshine as Salford Phil, Dave and a couple of others were going down Toad in the Hole with the Molephones. We were to be at various points on the surface between 4pm and 5pm. We left them as they disappeared and now had several hours to kill. Firstly we stared to make our way diagonally towards the valley- tree line up- valley from Toad. As we came to the tree line we came across a small hole in a limestone cliff.

Juan consulted his map. It was not new. This was Cueva de Calleja Rebollo, a civil war refuge. The entrance which required stooping and a 1m drop led into a large chamber, wide with a flattish roof. Light came in from a shaft which was lucky really as the sole equipment we had was a tiny hand torch.

It took perhaps an hour to circle the chamber, and generally inspect what there was to be seen. There were various relics. An obvious cooking area had many rusted out tins, broken wine bottles and a huge pile of lamb bones. We even found remains of leather boots and a gas mask! There were a few pretties, a few pools, but no obvious way on. Eventually we made our way out, and on to the surface rendevous point.

Here we found a hole with an enormous fresh breeze coming out of it. Juan announced that we must number and mark the spot. This was due to the fact that often entrances were in such close proximity that confusions arose.

"Why, sometimes there are entrances only metres apart, and here's the next one". With this he moved two metres up, and two sideways, and there was an open shaft. A stone showed that this was not very deep. The entrance was designated number 685- yes theere were now 685 entrances in the Matienzo caving area. We set the Molephones up but to no avail. Not a sqeak. We tried various positions, moved around and tested various intervals- nothing. Eventually we packed up and left. It turned out that the under-ground party had missed their way, turned up late, and their Molephone had not worked...

Monday 1st. Cueva del Agua (again), Arthur and Ali. A trip to the 2m cascade and to look at a dig in the Haymarket extension. We looked at some other possible climbs- bolts needed. A furry suit is perhaps not to be recommended for Agua- particularly when carrying digging gear!

In the evening we went to Bar Thomas for a meal. It was Bob and Julie's 7th Wedding anniversary. Ali and Arthur won the eating competition, by a substantial margin.

Tuesday 2nd. A party of Nick, Lenny, Howard, Bob, Ali and Rob went to the area around 685. On the Monday Juan had put a ladder down the shaft at 685, but it was blocked. They had also found a shaft opposite (690). Lenny and Howard dug at the bottom of 690, and Bob attacked the rock blocking 685. After nearly an hour the rock had a very severe headache and fell to pieces. The hole led to a loose 4m pitch to a choke- still draughting mightily.

Ali and Rob found a number of small holes, including:
691- a small draughting hole, some digging done.
692- a n shaft in a scar, about 30cm wide. Not descended.
693- a 10m shaft, undescended, draughting, opens out below.

After finishing digging at 685 and 690 we went on down the valley to Arenal. We had a good look at the side entrances. The right hand side closes down almost immediately. The left hand side goes in a fair way, and draughts but also ends in a choke. It might prove easy digging.

That night we were entertained by an excellent electrical storm, which was followed by 12 hours of heavy rain, flooding many people out. Others saw the same storm in the Pico:

Wednsday Aug 3rd. Not much was done - most people were drying out as best they could. Bob, Ali, Lenny, Colin, Baz, Jill and Arthur returned to Cueva de los Emboscados. More time was spent digging, but the choke was still mobile. A little time was spent unsuccess -fully looking at side passages again, and taking photographs. Bob then departed as he and Julie were leaving that evening.

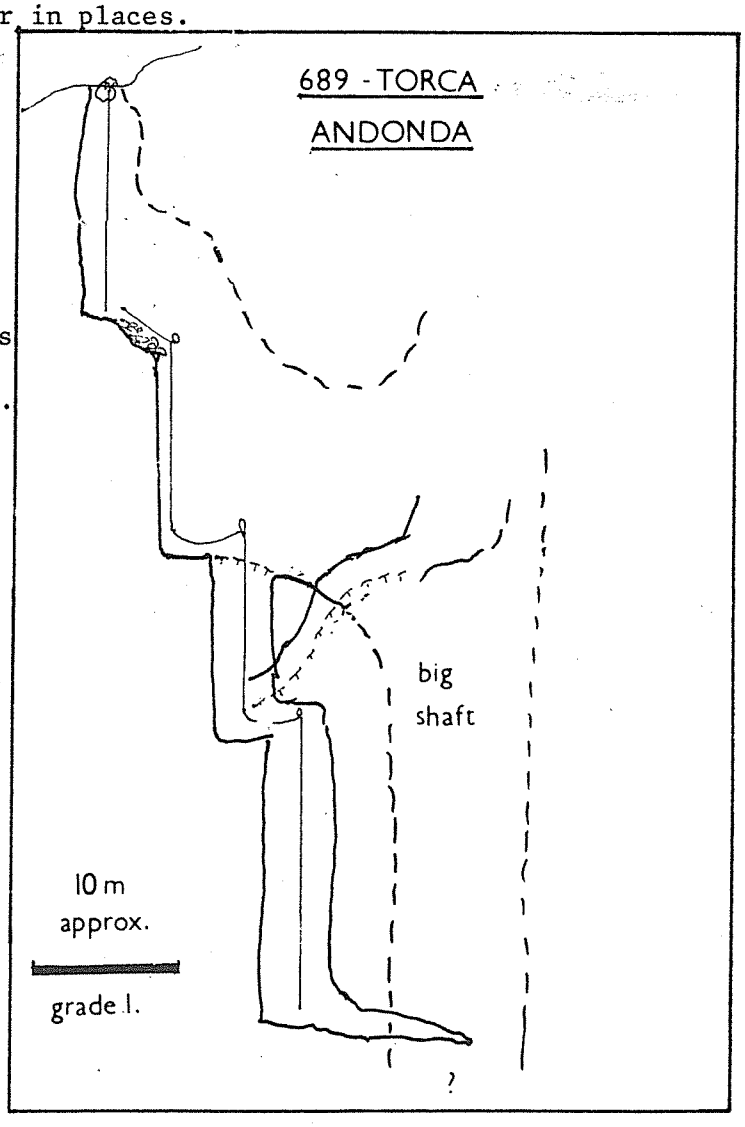
Baz, Ali, Colin and Arthur then moved on to Cueva Vecina (96). This is a little right of the entrance to Emboscados. A short crawl leads to the foot of a shaft leading to surface. A fair flow of water down this- did some digging in the floor, the water just seems to sink into a gravel choke. There was a short passage beyond, with a tight 20m shaft below- no sound of water in it.

We then carried on to look at the entrance to Cueva de Carcavueso. Water was backed up behind the entrance in a lake about 200m long and 50m wide. The track leading back to German's Bar was up to 1m deep in water in places.

Thursday 4th. A party consisting of Paul, Charlie and Fran (Red Rose CPC) and Toby and Graham (NCC) and Ali went to 689- Torca Andonda. This had been found a few days before in a prime site, right over the line between Cueva Llueva and the resurgence of the Matienzo river at Los Boyonnes. Three successive pitches of about 20m each had been descended. A ledge between the second and third pitches led into a big shaft down which boulders would trundle for a considerable distance.

The next pitch was descended, from which the small stream led on to sink in fissures- worth digging. An inlet passage above this pitch led awkwardly to a chamber and a shaft.

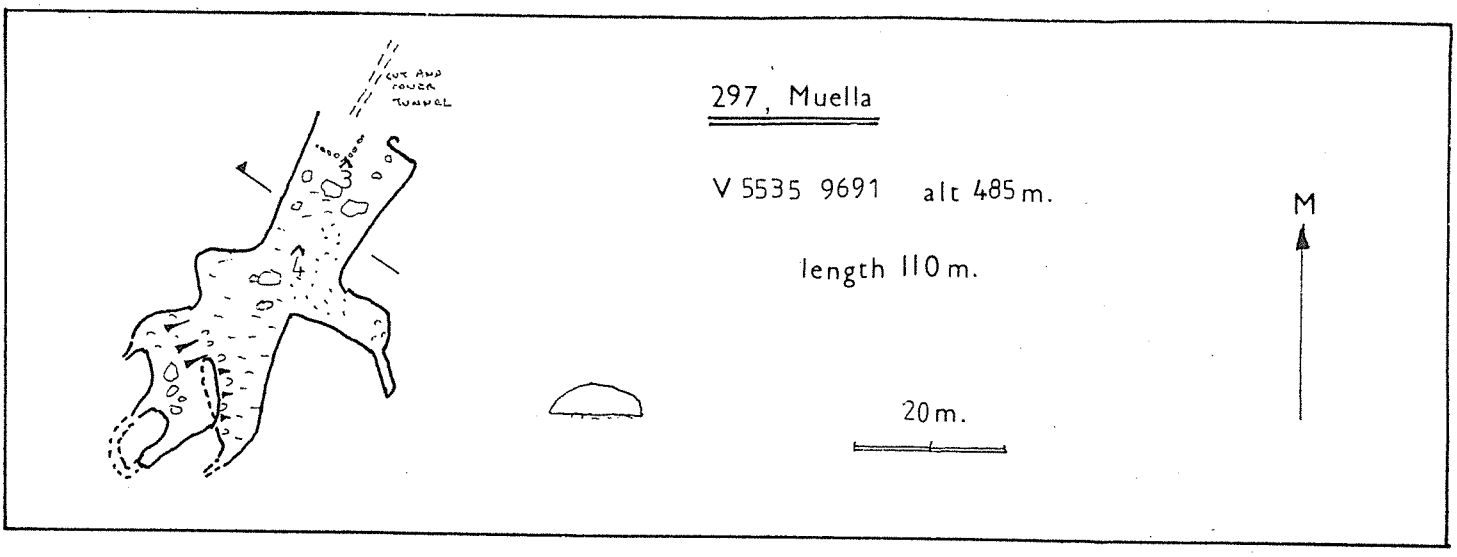
The top of the second pitch is overhung by a very loose boulder slope. Toby and Paul had returned to the camp-site to get a bolting kit so a traverse well clear of this could be rigged, but meanwhile the rest of us decided to let them carry on with this and to survey the cave. Charlie and Fran exited safely, followed by Graham. As he was traversing off the top of the second pitch a large quantity of boulders decided they were bored and went for a trundle, leaving him suspended from the belay. The boulders crashed down the next two pitches, fortunately missing Ali who was hiding up the inlet. Graham exited,



followed (nervously) by Ali once he had emptied his trousers out, without further incident. Toby and Paul descended a few hours later, but found that rocks were again falling, and also rocks were falling from the head of the entrance pitch, so they left the cave to settle down a bit. It is uncertain if the big shaft extends any further down, so prospects are uncertain.

Friday 5th. Caves on the east side of Muella. Rob, Ali, Terry Whitaker, and two HCC. We split into two groups, hoping to keep in contact by radio- but the batteries on my radio hadn't been charged! .

Ali and Rob surveyed 297, a large entrance at the bottom of the open hillside.



The entrance contained a walled enclosure in which it seems drips from the cave roof were once collected and conveyed by a man - made tunnel to a nearby barn for water supply. The impressive passage is evidently used as a shelter by cows- it is full of Cowsh! One side passage contains broken pottery, and we found an impressive chamber, over the end of it, and some climbs and small passages worth investigating. We then unsuccesfully tried to locate 321, a cave recorded as being just above 297- we later found it to be 100m to the south east. It is a roomy chamber 10m long. We then joined the others on the hillside- hot sun, but fortunately enough wind to keep cool. We explored a number of undescended caves.

653 is a 5m pitch leading to a 20m crawl.

Another shaft recorded to be "about 100m deep, undescended" proved to be 30m deep, choked- typical of the many shafts in the area. This was on the side of a huge shake-hole on the saddle between Muella and Mullir, being 500m in diameter and 100m deep, with a very impressive echo!

The high ground is largely Lapiaz, razor- sharp limestone flakes, making progress very difficult, and good for destroying wellies!

Saturday 6th. Muella again, covering an area south of that on the 5th. Pedro, Salford Phil, Patrick, Terry, Graham, Ali. Checking out various shaft locations. A number of holes were descended which were shallow and didn't go. A new shaft was descended which was about 50m deep. The radios which worked today proved very useful for contact between different groups, checking out cave descriptions, ordering beers at the bar ready for our return, etc.

Today it was much hotter with no wind, resulting in a lack of enthusiasm, mild heat stroke, and millions of horse flies. One shaft, reported as being undescended , proved to be the top entrance to Cave of the Wild Horses. This consists of some very impressive, large and well decorated chambers, leading to a crawl leading to a second entrance on the lower slopes. This had been found some years ago by the DCC and was subsequently "lost". Not surprising, as it's reputed position was half a mile wrong! Pedro was given some quick lessons in SRT to do this cave. We surveyed this cave, and looked at some other shafts in the area, one 110m deep.

On Sunday 7th Andy Hall, Fran, John and Ali went over to Cueva de Covalanas, a show cave south of Ramales, but this was shut. It was situated beside a huge limestone cliff containing fragments of huge fossil passages. We then drove across to the Ason Gorge, very impressive with some large resurgence caves. We then drove back via the bars in Arredondo and Matienzo.

Meanwhile, 250 miles or so to the west, Bob and Julie had resumed the search for the painted caves of Mondonedo. This time we found Mondonedo - but it was shut! We could not even buy a sandwich! What was worse their Spanish was incomprehensible! Even the phrase book did not help, they did not even refer to Galicia (the provence) but called

it Gallego. On the final night in the camp site bar we were assured by the locals that the painted cave of Mondonedo exists.....

Bob, Julie and Ali all having left Matienzo, Carl, a member of the Croydon CC and a newly joined member of the PCG followed to Matienzo from August 8th to 28th. Caving was limited to days without hangovers. But CCC managed to survey 0.7 km of new passage in Toad in the Hole, found by the MUSS, and went on to find another 0.75 km of new passage from these extensions, including some superb formations called Cloud Nine.

Apart from numerous reccies and shaft bashing, which produced minimal results, the other major push was in a horrendous cave (can't remember the name) with a horrendous walk to it, opposite Toad in the Hole. After 2 trips it was rigged to an undescended 3 second drop which remained so due to there being no where to rig gear in the mud covered walls.

The whole month was generally most succesful, but next time we'll remember the cookers!

Bob Cawthorne, Alasdair Neill, Carl Gibbs.

A BAD TIME TO GO CAVING IN THE ALPS....

It was, on the face of it, not a good time to go caving in the Alps. It said so in all the guide books; the snow would be melting and there would be floods. But it was the only time we could go.

We debated wether to take a tent; would it rain or snow? People just said the weather would be 'changeable'. In the end the truth was the tent wouldn't fit in the car, so the problem was solved; much like any other caving trip we would go and find a hut somewhere.

Our first objective was the Dent de Crolles, near Grenoble on the edge of the French Alps. This limestone range contains the famous systems of the Trou de Glaz, explored in the '30's and '40's by Pierre Chevalier. Here the prospects of a 24 hour through trip lured us...

The second objective was the Vercors, a few miles to the south. We crammed our trusty Metro with enough ropes and ladders to take on all the deep systems described in the new guide book to the area, and lurched off on a Thursday night to Portsmouth. 24 hours later....

In second, we ground our way up the steep, winding road beneath cliffs which seemed to meet overhead in the dark night. The drizzle turned to snow, and it was with relief that we finally arrived at St Pierre, beneath the western flank of the Dent de Crolles. Nearby there was supposed to be a refuge; we drove up and down several times before stopping to enquire at a large, new, fully occupied school holiday centre. This, it turned out, was the refuge and we were not welcome there.

Lee and Charlie started looking for a bus shelter or ledge to kip in, but I persuaded them to lower their sights a bit when I dug up a Hotel room for only £10 a night all in. We would need a more permenant base however, so next morning we decided to drive around to the eastern side of the mountain, where there was another refuge we had heard about by post.

We first had to drive up over the 1300m high Col de Porte, which was well covered by snow, and involved the Metro in some graceful pirouettes until we dropped down into the green and wet Isere valley by Grenoble. From here we soon began to climb again, up endless hairpin bends. Again the rain turned to snow, the trees and then the road becoming heavily laden. At 1430m we reached the Col du Coq, with the dramatic shear cliff of the Dent de Crolles rising up to over 2000m.

At the alpine, wooden refuge, we were warmly welcomed by the owners who were well accustomed to cavers, though usually at other times of the year. Right now, their few visitors were all there for the skiing! We were given a large dormitory all to ourselves, and permission to use the restaurant kitchen for cooking our own food. We felt we had arrived.

After lunch we set off to make a recce trip to locate the Trou de Glaz entrance, so that we could start the trip early the next morning. Upon leaving the road, we soon found ourselves in deep snow which made for hard going on the steep slopes. Lee (he's hard) made tracks, and in less than an hour we reached the Col des Ayes. Ahead was a steep drop to the head of a heavily wooded valley. Up to our right, overlooking the valley, rose steep snow covered slopes, and several hundred feet higher began the

vertical cliffs leading to the summit plateau of the Dent de Crolles.

The Trou de Glaz was supposed to lie at the foot of these cliffs, a mile further on, overlooking the valley. In summer the path climbs diagonally, directly towards the entrance. But now, this route was scoured by deep avalanche tracks. We decided to climb straight up towards the cliffs. This was easy at first, but soon the snow became steeper and deeper. The prospect of being caught in an avalanche began to look daedly. It was a long way down, with few trees about. Reaching the foot of the cliff, we began to traverse across, above the slopes which dropped to the wooded valley. We soon began to encounter steep treeless snow gullies, which were obviously established avalanche tracks, their feet already littered with debris. Crossing the top of these, one at a time, was a hair raising experience, but nobody wanted to come back the way they had come. It was getting late, and we would have to look for a way back. We came to another gulley, more suicidal than all the rest, and still no sign of the cave. Though we thought it might be just across the gulley, we couldn't be sure that we hadn't already passed it, covered by snow, so we decided to turn back.

Ploughing down from tree to tree, we began to encounter vertical bluffs of rock, but the trees and deep snow enabled us to climb down, and eventually we reached the valley floor. From here we traversed along the foot of all the avalanche debris until we reached the final short climb onto the Col des Ayes. Soon we were back down onto the road.

The last of the skiers were heading home as we talked over plans for an assault the next day. We knew that the Grotte Annette entrance lay on the far side of the mountain overlooking even steeper, more desperate slopes than those to the Trou de Glaz. Therefore a through trip was out, as it would take at least 8 hours, and then leave us trapped on the mountain! But if we set off early and could manage to scale the final slopes up to where we hoped the Trou de Glaz was, we might still have a good trip. Maybe it was worth a try.

In the car park, we met some skiers who appeared to be talking about us: Spéleo ?" enquired the tall, 'hard as nails' looking Frenchman.

"Yes" we replied.

"You go to the Trou de Glaz?"

"Oui", we said.

'Hard Man's' face took on an expression reserved only for foolish people. "It is a bad time to go caving in the Alps" he said in sombre tones.

"We know", we agreed most heartily.

"You must beware", he continued, "there will be avalanche, ice, and then floods".

"Yep", we grinned.

"There is only one way you might even reach the Trou de Glaz...."

The route he described was the one we had just attempted. We preferred the one we had returned by, and said so. He said this route was "pas possible! The snow, it will be waist deep".

"We just came back that way", we said.

"You cannot go this way", he assured us.

"But - " we gave up. Thanking him for his concern. We would be most careful. He went off shaking his head about the crazy English speleos.

That night it snowed continuously, and high winds made it drift. In the morning the snow was waist deep in the car park. We gave up the idea of reaching the Trou de Glaz today!

Charlie festered in his pit.

Lee made the tea.

Geoff decided to go skiing!

I had never been skiing before, but surrounded by snow, and unable to go caving, what better way to pass the time! Five quid saw me kitted out with boots, skis and poles, and my caving suit doubled as a very smart ski suit.

Not one to miss a spectacle, Charlie jumped out of his pit and the chalet owners peered out of their windows. I felt like Compo about to try out Seymour's latest invention, but after falling down a few times, I began to get the hang of it. Lee and Charlie could resist spending money no longer, and got themselves kitted up too. With the help of Charlie's lessons, we were soon falling down the black runs (the steepest ones), and having a great time. We three red suited speleos soon became the terrors of the slopes, owing to the mud coloured snow we left behind after falling over, but I think we provided the locals with an afternoons amusement.

About 4pm, a painful decision had to be made. To stay another night and see whether sufficient snow might clear to make the Trou de Glaz accessable (this

seemed unlikely, as more snow looked imminent), or get out now while the road was at its best, and try our luck with the Vercors plateau. We had already sussed out that the other entrances to the Trou de Glaz system looked even less accesable, and the Guires Mort would be dangerously flood prone. So we decided to go.

An hours frantic packing, and another half hour straining to get the car up the snowed under track, saw us on our way. We drove down through Grenoble, and followed the main road which bordered the western side of the Vercors massif, whose immense limestone cliffs rise high above the Isere valley.

Situated at the edge of the Vercors, at the point where the immense Bourne gorge opens out onto the lowland rolling hills, is the village of Pont-en-Royans. Many of the oldest buildings here cling spectacularly to the cliff edge, with ancient wooden extensions (and out houses!) propped at crazy angles, hanging directly above the river. At the lower end of town, where the streets run down beside the river, there is a refuge. No mere hut, this however, having a large dining room, fully equipped kitchen, showers and 3 or 4 dormitories. At only £1.50 a night each, a bargain and only 30 seconds walk from the shops and bars. The unofficial warden is the lady wot lives next door; she seems well used to cavers and never complained about the wet and dirty gear which was soon strewn about the place. At last, with room to ourselves we had room to spread out.

A Brief Diversion.

The Vercors consists of (in simple terms) a broad plateau at a height of about 1000 metres, dominated by great ridges rising in places to over 2000m. Where these ridges form the edges of the Vercors massif, they overlook the surrounding lowlands by near vertical 1800m drops providing some amazing scenery and in summer enjoying some amazing ridge walks.

In places the edge of the plateau has been dissected by rivers which have formed gorges, in much the same way as our beloved Cheddar. The scale is somewhat different, however, Cheddar being 200 feet deep to the Bourne Gorge's 2000 feet! The latter is also 10 times longer. The river still occupies the bed of the gorge, tumbling down a series of dramatic falls. The road clings to the walls, sometimes being carried along narrow shelves and sometimes through tunnels bored through the limestone.

The road was built in the late 1800's and it can sometimes be a hair raising experience trying to squeeze past coaches on the bends, hundreds of metres above the gorge floor. Road workers around these parts wear sit harnesses!

There was no snow at Pont-en-Royans, but as we climbed the Bourne Gorge in the morning, we entered a different world of dazzling ski resorts and snow covered mountains. Our first cave of the holiday (sorry; "trip"), was to be the Trou qui Souffle, again a deep, multi- level system, but with just one entrance. This was situated only half a mile's walk up a forest track, close to the village and ski resort of Meaudre, at just over 1000m. By now we appreciated the impossibility of floundering in waist deep snow high in the mountains where most of the Vercors caves lie.

We parked and changed in warm sunshine (too good to go caving) and trudged off up the track, laden with gear. This track was part of a cross country ski route (we were destined to come whizzing down it next day!), and ocasionaly passed skiers who obviously wondered why we were walking in all this snow. Crazy!

Arriving at the sharp bend shown on the map, we did some floundering about in the snow before finding the entrance right on the track, with an obvious orange nylon fence around it to stop skiers falling down the open 25' entrance shaft.

We changed, posed for photos, then kicked steps down the snow which funnelled down to the small hole. Several bolts were positioned in the small cliff which overhung the entrance, and we soon had the first rope rigged. Squeezing down through the hole, you could see how the cave got it's name; 'the cave that blows', was presently sucking quite violently, dislodging snow and creating a blizzard until the space belled out below. The floor was of hard snow with ice pillars all around.

The obvious way on was a narrow meander which soon began to widen, in pleasant pale limestone. We sqeezed past some more ice columns and soon came to a sizable chamber. A small stream grew rapidly as it picked up inlets from fissures.

The stream soon began to cut down, and a fixed rope led up over large jammed boulders and over ledges, untill we were looking down on a pitch of 100ft. Continuing to the end of the easy traverse, we found several bolt belays again, but no good natural backup belay, so we used more bolts.

Descending first, I found the initial slot broadened out into a wider meander.

20' down at a sloping ledge, a sling provided a deviation to pull the rope clear. Below, the passage widened dramatically, giving a magnificent 80' free hang, well clear of the water which cascaded down in two drops.

Lee appeared next, and stopped to play his tin whistle halfway down, until I swung him under the waterfall. Charlie joined us and we set off in the superb canyon to tackle the small climbs which followed. Though free climable, we were wary of the possibility of afternoon melt water causing a flood pulse, and left a rope on one small, wet freeclimb and a ladder on another of 30'. Beyond this, the stream ran down a smooth ramp, with a drop at the end. Above the drop, a traverse line led around a corner onto a broad, dry shelf in an immense chamber; the Salle de Vire. The shelf sloped down to another traverse line onto the top of a 12' iron ladder; this line looked a little bit tatty, but there were good holds. From the foot of the ladder, a steep slope rejoined the stream which exited into a narrow meander.

A few yards more brought us to the next pitch of 40', where a traverse line again led out to a superb, dry free hang. Across the floor of the big chamber below was the next 40' pitch. This one was more constricted and hanging uncomfartably close to the water.

Below, the meander continued, getting much narrower. Now, according to the guide book, we were at -155m, and there were two ways on; a series of fairly small passages and crawls leading eventually to a syphon at -220m; or a passage to the right (Galerie des Condensations) which connects with the rest of the extensive system. We searched for some time befind finding the small entry to the rather obvious passage at the foot of the last pitch! By now though, it was uncomfartably close to the predicted late afternoon flood prone time, and we kept eying the stream suspiciously; was it rising? We decided to head out and come back another day. We stashed some gear on a ledge in the side passage, and left the big pitch rigged too. We were out by 5pm, after an excellant 4 hour trip. Outside, it had clouded over, and there wasn't much snow melting after all today.

Next day we paid another fleeting visit to the Souffle - as we cross country skied past the entrance. The weather was far too good to go caving!

On Wednsday we fully intended to go back to the Souffle. But we awoke early to heavy rain, and were beaten back just halfway up the Bourne Gorge, as the altitude turned the rain to snow, laying thickly on the road. We retreated down to Pont-en-Royans and instead paid a visit to M. Marbach of TSA which, roughly, translates to something like 'Bat Products'. But what a high-tec Bat Products! Situated in a huge new plastic box just outside Pont-en-Royans. Most of the place is a factory and wharehouse, where climbing and caving gear is manufactured. Then a large computer room, and then the shop; like a posh office foyer with a small selection of gear on display. Here you can peruse M. Marbach's impressive catalogue, and when you order, he will disappear into the depths of the brightly lit plastic box and return with your orders. M. Marbach seems only to like big orders. He wasn't all that impressed when we ordered one Petzl jammer between the three of us, after looking around for half an hour, Petzl jammers are, however, about £3 cheaper than in most places in England, and it's well worth buying gear there if you're going over.

After lunch we drove over to the Cirque de Coranche; a huge rock ampitheatre formed by the cliffs of the Bourne Gorge, high above the village of Choranche. Here, two very large streams emerge from two cave systems, each within a couple of hundred yards of each other, but entirely unconnected. The Coufin is over 16km long, and is itself composed of two long river systems which unite just inside the entrance; this chamber has long been part of a spectacular show cave.

A short walk along the cliffs leads to another, bigger, stream, emerging from a broad cavern. Within the portal, bathed in daylight, lies the broad, deep green entrance lake of the Gournier; a 15km long system. The sheer walls of the lake mean that the usual way in is by boat, or an ice cold swim. 50m in a 20' climb leads to a traverse and the way on.

We had no boat, and no intention of swimming. We had been lured by rumours of a dry traverse across the lake chamber, and sure enough, high above the water, a wire traverse could be seen disappearing into the gloom. The way up to this wire was by way of a bolt climb and a difficult traverse, which took over an hour to achieve. From there, the wire (a hundred foot length of coat hanger wire!) led to another ledge and a ladder pitch down to water level, then a further traverse to the final climb up into the aforementioned dry passage.

The entire traverse took 2½ hours! Finally dropping our harnesses and bolts, we plunged off into the darkness of this immense passage which stretches unbroken for over a mile into the hillside. Beyond the first few hundred yards, we began to

encounter huge white stalagmites, some being 15 or 20 feet high. It was just superb to walk amongst them, and as we clambered on over huge boulders there were more excellent displays of columns and tiers of calcite. The Salle de Fontaines was a huge chamber with a beautiful level floor bordered by gours. Along one wall, water cascaded over an immense calcite barrier to feed the big shallow pool which covered the floor.

We did not go to the end of this passage today. About halfway along, we came to the First River Access, where a short climb down between boulders joins the main streamway. One summer, Charlie and I had followed the passage for over a mile up cascades and pitches surmounted by more 'coat hanger' wire traverses to the huge Salle Gathier. A superb trip, but we were not tempted, at this time of year people had died in the Gornier streamway. Even M.Marbach had told us in grave tones, "It is not a good time of year to go caving in the Alps!"

We took the trip out at a more restful pace, though the traverse took much less time to derig, and we exited into sunshine after a fine 5 hour trip.

Back to the hut for wine and food - but what was this? Wet tents and caving gear were strewn all over the place; we clearly had company. It was to be another 24 hours before we met our mysterious companions as they were clearly on a different clock, they would come in waking us up at night and we would get our own back in the morning.

The next day we went back to the Souffle. Again, we trudged up to the entrance through deep snow and again we were concerned that it all might melt in the late afternoon. Therefore we were determined to be out by mid afternoon.

With most of the pitches already rigged, we had an easy, exhilarating trip down to our previous turning point. From here we turned into the Galerie de Condensations; a small, dry, muddy passage with a strong draught. This passage is the key to the major part of the system. Coming to a junction we had a quick look to the right which led to the edge of a big pitch. The sound of falling water was much louderhere than in the entrance streamway. The larger tributary entered about 40' below the top of the pitch from another passage, and then thundered to the floor. By penduluming into this tributary passage, and following it for some distance upstream, a huge, old fossil network may be entered; again unfortunately the threatening floods made us forego the trip.

Back at the junction we followed the other passage to where it became a flat- out crawl. This is apparently 100m long, and leads to further pitches and the master cave at the bottom of the system, requiring quite a bit more tackle. We had only seen a little more of the cave; enough to wet our appertite for a summer return one year. Now it was time to go, and for the hardest part of the trip; detackling.

Springing back to the entrance streamway, we found that the water hadn't risen, and once back above the two bottom pitches, we felt confident enough to stop for a picnic in the Salle de Vire. Pushing on, the bags got heavier, but Lee insisted on doing the 100' pitch with the heaviest sack, so it turned out to be a very enjoyable ascent. One final look around at the ice formations, and we were back at the entrance pitch. Being first out has certain privalidges, like being able to dislodge large amounts of snow onto Lee's head as he came up - that put paid to his tin whistle for a while.

That evening, back at the hut, we met our mysterious guests with smelly gear, who turned out to be three Lancaster University cavers. They had come in to dry out after a wet night in their tents, and had decided to stay. We were also relieved to find out that they too had had epics trying to get to the Dent de Crolles at the same time as us. They had succeeded in reaching the Guiers Mort entrance, but had spent so much time and energy doing so that it had been time to go back again when they got there. This removed any lingering doubts that maybe we just hadn't tried hard enough.

We had only one full day in the Vercors left, and it was clearly important that we use it wisely. So far we had been on three caving trips and two skiing days, so there was no doubt in any of our minds - it was back up to Meaudre for downhill skiing....

The day was well spent hurtling down a variety of very long, steep courses in great weather, and some enjoyable off piste skiing amongst the trees. Cavers never had it so good - can't wait to go back again!

Eventually the ski lifts stopped and regretfully we enjoyed our final long descent to the valley where we drove back down to a warm, sunny Pont-en-Royans. We really enjoyed our final meal out in the refuge garden by the river, and rounded things off with a trip to the bar with the Lancaster lads.

Next day we had just 2 important tasks to complete before we set off towards England. Around mid morning we pulled up outside M. Marbach's yellow plastic box, and walked in. There was enacted, a scene like a Western movie showdown. We cooly wished

M. Marbach good morning - he nodded, casting furtive glances at our fists, looking for the colour of our money; "Oh no, are they back for another jammer?" we could see him thinking. Casually Lee and I lent on the counter, flicking slowly through the catalogue, lingering over the pages of expensive equipment, while Charlie perused the hi-tech rucksacs on the wall.

We thumbed through the collection of expensive books, peered into the glass display case, discussed the finer points of the ice axes and crampons within, and handled the wide range of descending devices.

Finally, we came together and confronted M. Marbach, who was by this time licking his lips - "What would the English speleos buy?". Lee took a step forward, placed his fingure on the relevant spot on page 30 of the catalogue and said "I'd like one maillon, please".

There was a tense silence during which M. Marbach stared at us, we stared back. Then our strength in numbers and English resolve won through. "Just one?", said Monsieur in a small voice. "Yes", said Lee. Unable to accept the evidence of his ears, Monsieur turns to the rack of Karabiners behind him before trying once more; "That is all you want?". "Yes", says Lee, and resignedly the proprietor stumbles off into the depths of the yellow plastic box to find a maillon.

He returns, starts to fill out an invoice, thinks better of it, and says "Nine Francs , please", (about 80p). Lee hands over the last of his French currency, and we depart, mission accomplished!

Our last few hours were spent visiting the 260' entrance arch of the Bournillon cave in the Bourne Gorge. The path winds along the side of the boulders which slope down to the river bed, and it's hard to tell when you actually become underground. Whereas on a summer visit, the river bed had been dry, today there was a sizable flow, ponded back to form a deep green lake just under the porch. Just inside the entrance arch, part of the flow is sluiced off to feed a huge HEP network. A little further in, the passage briefly constricts and the river thunders through the gap with a frightening noise. The water in the big sumps at the end of the Bournillon can change from zero flow to a deadly flood of up to 80 cubic metres per second within minutes. Today's moderate flow was enough to make the cave impassable.

The weather outside was hot and sunny. Soon the snows would begin to melt, and maybe the French would put away their skis to go caving or climbing. Makes you feel like going native! But we would be back - maybe in the summer, maybe in winter, who knows?

Geoff Lloyd.