

South Wales Caving Club

Clwb Ogofeydd Deheudir Cymru



70th Anniversary Edition

Newsletter 132
April 2016

Front cover:

"Martin Hoff at the Nave, Ogof Ffynnon Ddu 2"

Photo by Jem Rowland

Back cover:

"Lewis Railton in Dan yr Ogof around 1950"

Photo by Dai Hunt (SWCC Archive)

Editorial by Chloe Francis

Penblwydd Hapus SWCC!

This past fortnight has been a happy blur of cramming articles onto a Publisher document to meet my incredibly ambitious and self imposed deadline

Hopefully many of you will be clutching your newsletters at the AGM, and I would have been successful. It has been immense fun putting this newsletter together; I really think it is something to be proud of. Thank you to everybody who responded to my enthusiastic nagging by writing. This edition of the newsletter really does reflect the huge range of activity which happens in the club.

Some highlights of this edition include: the recent discovery of Ogof Marros which is practically on our doorstep; a round up of the club's summer trip to the Dent De Crolles; some reflections on the club's past some ponderings about the future; an exploration of the geology of the Gower Bone Caves and (a very sexy) article on the OFD1 depth gauge.

Here's to the next 70 years!

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Presidential Ponderings: Past, Present... and Future?

Jem Rowland

At 70 years of SWCC there's a lot to look back on and much to celebrate. However, despite its 70 years, SWCC cannot claim to be an old established club. Some clubs in Yorkshire and Mendip, for example, are much older and cavers from those areas were instrumental in revealing the caving potential in the Swansea Valley area. These origins of SWCC have influenced the way it has developed, with members from far and wide. In some ways the club has not kept pace with change, which may be part of the reason so many of us treasure SWCC, not just as a base for excellent caving but also for a weekend lifestyle different from day-to-day life. Can SWCC continue in the same way or have we diverged from the sort of club that appeals to many keen young cavers? A look over the past 70 years may help us consider, if not answer, that question. There follows a somewhat approximate summary of how SWCC has become what it is.

Probably the first real caving in the Swansea Valley area was the exploration by the local Morgan brothers, in 1912, of the Dan yr Ogof river cave and what is now the show cave. Beyond that, things were fairly quiet until the 1930s when the Dragon Group, largely from Yorkshire and Mendip, began to study the area.

Serious activity began in 1937, with exploration of much of what is now Dan yr Ogof 1. This was followed in 1938, with the first trip into Pant Mawr Pot and the first major dig which was at the Waun Fignen Felen sink in an attempt to find missing miles beyond Dan yr Ogof. In 1939 the potential importance of the area was recognised when the British Speleological Association held its annual conference in Swansea, attracting delegates from the UK and beyond. Then war intervened and activity largely ceased until 1946.

After the war, for cavers who were now mainly from Mendip, the area was still relatively remote. Few people had their own transport and anyway petrol was rationed. There was no Severn Bridge so it was the long way around through Gloucester, a small ferry where the M48 bridge now stands, or putting the vehicle on the train through the Severn Tunnel. There were passenger trains from Bristol to Neath and Swansea, with buses up the valley or slow trains from Neath to Brecon via Penwyllt. Consequently, weekend caving was barely viable and most activity took place at Bank Holiday weekends or longer breaks. Most cavers camped at the Gwyn Arms while some booked B&B at the Ancient Briton.

By Easter 1946 there was a clear case for forming a club; a nucleus of 21 people met at the Gwyn and SWCC was born. Its first success was the discovery of Ogof Ffynnon Ddu 1 on the August Bank Holiday weekend. With a major new cave on the doorstep, word spread, and new members arrived, many of them local. Soon after, SWCC acquired its first HQ, Penbont, a small cottage to the east of the main road on the bank of the Llynfell, the river emerging from Dan yr Ogof.

The discovery of OFD led to a buzz of other activity, with the exploration of Pwll Dwfñ and access to some passage at Sinc y Giedd. Dye tests from there and from Pwll Byfre indicated large sections of cave beyond the known extent of Dan yr Ogof and OFD.

Exploration of OFD proceeded and other clubs were keen to sample the new cave. Bill Little and Lewis Railton commenced a high grade survey and, in 1951, hit the headlines when, while surveying, they became trapped for two days in the RAWL series by high water in Upper Flood Passage. This further raised awareness of SWCC and led to

creation of the Escape Route in OFD.

Throughout the 1950s the focus was on pushing and digging for new cave and soon Pant Mawr Pot was extended. In 1953 Tunnel Cave was entered from the bottom and explored. By the end of the decade the club was thriving, with around 120 members, and was attracting significant numbers of visitors. In 1958 Powell Street became available for purchase and the ten cottages were bought for the princely sum of £20 each. After some modifications to the cottages, SWCC moved to Penwyllt in 1959.

1957-67 was a 'golden decade' for SWCC. In Gower, the finely decorated Llethrid Swallet was opened, followed in 1962 by Tooth Cave. Also in 1962 Tunnel Cave top entrance was sunk through solid rock to provide a fine through trip. Cwm Dwr, after three years of digging, broke through into a large passage, only to be blocked by boulder chokes after a relatively short distance, but it gave a clue as to the whereabouts of the undiscovered miles of OFD.

1964 and 1966 saw the 'clockwork caving club' expeditions to the then Yugoslavia, aimed at recovering the remains of partisans thrown down the 950ft Balinka Pit by fascists in WW2. With SRT, this would have been relatively straightforward but, without, it necessitated construction of a specialised hydraulic winch and cage, generators, booms etc. and was a major feat for which the club, and several individual members, were awarded the prestigious 'Yugoslav Star' medal by the Yugoslav Government.

In 1964, through the good offices of Dr. Ashford Price (senior), Dan yr Ogof was once again open, having been closed since the outbreak of World War 2, apart from limited caving access just after the war. At Easter 1966 the Long Crawl was passed for the first time and the impressive DYO 2 was explored and featured in the Observer colour supplement. Shortly afterwards, DYO 3 was found, followed in 1967 by the Far North.

Meanwhile, there were digs attempting to find OFD 2, including in the highly unstable 'Coronation Aven' in OFD 1. From 1958, divers were hard at work pushing the sumps beyond Boulder Chamber and it was the dedication of the divers that succeeded: they reached OFD 2 in 1966 and explored the stream passage up to Top Waterfall, on one occasion surviving a very nearly lethal boulder collapse on the far side of the sump. The Cwm Dwr choke eventually succumbed to attention from both sides and the new dry route quickly facilitated exploration of the various upper series of OFD 2, the discovery of OFD 3 and the opening of Top Entrance. Relatively soon, the 'self digging' dry connection from 1 to 2 opened, after initial provocation!

Hitherto, SWCC had focused on finding new cave. Now it had thirty miles or so. Admittedly there were some un-entered passages to explore and digs to pursue but it became clear that further large discoveries would be elusive. Most activity, inevitably, shifted to learning the new systems and then, equally inevitably, morphed into 'tourist caving'. The thirst for new discovery was eroded although, over subsequent years, occasional additions have been made to OFD.

In the 1970s there was an unwelcome and time-consuming diversion when the quarry sought to extend into the area occupied by OFD 2. The then UK-wide Nature Conservancy Council responded to the club's approaches by buying the land above the cave and establishing the UK's first underground National Nature Reserve, protection which remains today, now under the auspices of Natural Resources Wales.

There have, of course, been other significant achievements such as the new survey of OFD, an immense achievement by a small team who took 20 years and 500 trips, and involving expert cartography. The recent discovery of Ogof Marros by another highly motivated team is of major importance, demonstrating significant further potential in a new area. Also notable are the regular overseas trips, an important facet of club activity, along with the successful meets programme.

Nevertheless, much of the drive that characterised SWCC in the glory days of discovery has gone. There are still those who dig, but not many. There are still miles of cave to be found, and not far away. There may be a system to the north of OFD. There is clearly a significant amount of passage between Dan yr Ogof and its sinks although, because of the heavily faulted nature of the Black Mountain, the prospect of connecting Sinc y Giedd to Dan yr Ogof may be unachievable.

For many years the social side centred on lively Saturday evenings in the Gwyn Arms, where the club was founded and where SWCC had its own room. Singing was a major feature – from Welsh hymns to the other end of the spectrum. Following a change of hands at the Gwyn in the 1970s the club moved to an upstairs room at the Ancient Briton and later to the Copper Beech. Subsequently the Long Common Room at Penwyllt became the social focus, where evenings were initially quite lively, but now are rather staid, with the occasional ribald exception, earnest discussion or quality repartee. It's always good to see a group having some fun but often the atmosphere in the LCR is fairly sombre and, maybe, off-putting to new or younger members or visitors.

The average age of the membership is increasing, with many younger cavers instead joining clubs based within an easy day trip of Penwyllt, or perhaps remaining with university clubs after graduating. SWCC has an excellent and successful programme of events for prospective members, resulting in keen newcomers of all ages. It would be interesting to know how many provisionals have become members, how many are regulars at Penwyllt and how many are or are becoming sufficiently immersed in caving and club life to be the motivators, to push for new discoveries and to run the club in the future. Certainly there are several in those categories but are there enough? If not, how do we attract more? What do our younger members feel would improve the club for them and their contemporaries? History seems to indicate that activity breeds activity - would another major discovery stimulate new interest and attract yet more keen young members?

What will SWCC look like in 5, 10, 20 years' time? We have no way of knowing but we should give the question serious thought.

Another 70? Well that's up to the members!

Fred Levett

When the 21 founding members came together at Easter 1946 to form the South Wales Caving Club I wonder what they had in mind for the future? Less than a year after the end of the Second World War an optimistic view of the embryonic Club's future must have prevailed, a sense of getting back to normal, a wish for adventure and comradeship. Perhaps a chance to escape the daily grind of work? Who knows now, but some of those qualities from the early years must have surely filtered down the seven decades; some of that initial DNA. The sharing of experience, adventure, like minded friends, a sense of purpose and achievement when a job gets done.

Are the members of today so different to those early pioneers? Certainly the life we lead is very different. We are, relative to that time affluent and well-educated, can communicate with each other across the world by a few button presses, have personal transport, rely on motorways, the internet, the NHS. We never expect to die from polio, diphtheria, TB or typhoid. At the very core though I doubt if we are so different. We look out for each other, can be a touch eccentric and definitely see the State as something to be kept at arm's length. Above all else we have the enthusiasm for and understanding of the often fragile and beautiful world beneath our feet. We can indulge our passion in every corner of the globe if we wish, and at the heart remains a strong desire to explore, to reach places no one (or at least very few) have ever seen.

Does this leave us fit for the future or last in a long line of dinosaurs?

The Club has adapted with each passing decade, not least in accommodating a much bigger age range. When I first started caving anyone nearing 40 was expected to hand-on their NIFE cell and Texolex helmet to the next generation. Now 70 and very occasionally 80 brings no concession to the underground environment!

Whatever the Club has achieved, whether that be the impressive list of expeditions, discoveries, property, conservation record, publications or reputation it has all been through the work of its members. And so it's easy really: our future and our past are the members. Finding the right members is central to our continuing success. I'll return to this theme but let's see what history can teach us through a conversation with Edward Aslett, a highly respected Chairman from the early days. By all accounts he was just an ordinary bloke really, a touch eccentric judged by the standards of the outside world. As a medical doctor, his research with Dr Philip D'Arcy Hart led to the 1943 legislation that extended the definition of lung disease in miners allowing for compensation payments that benefitted hundreds of South Wales miners. He rode a bicycle and in later years lived at the Castle Hotel in Brecon. I imagine the train made it easy to get to Penwyllt and Swansea. "Blokes" was his nickname. When he died Roger Smith (a former trustee) acted as his executor and went to extraordinary lengths to recover his bicycle from a municipal car park. He had left it chained to some railings. The State would not triumph. Then Roger kept it until his death and left it to the Club.....you begin to get the picture. As a former Chairman myself, although we never met, I have a great deal of respect for 'Blokes' as he tried to marshal the members to achieve great things.

"The AGM's approaching Edward, how's your first year as Chairman been?"

"Hello Fred, pretty good. We've got digs going on all over the place. I've no idea why the local are so easy going about it. Especially after the scaffolding disappeared from Patti Row and also three railway sleepers from the sidings. I'm sure more cave will be found soon though, one or two members have a talent for dowsing as well. The Committee meetings have been a nightmare. Some of them just disagree for the sake of it as a

matter of principle or don't come for a couple of meetings then expect to revisit decisions we've taken. I'm determined to get the meetings to below 3 hours."

"How do you expect the AGM to go?"

"It's got too much controversial stuff. There are proposals to have a telephone, and make a cottage over for married couples to bring their children. Peter Harvey is dead set against it. Worse still I can't keep track of who's married to whom, or swapped."

"Are you saying members are rather conservative then?"

"Don't even hint at politics – there'll be fight between the valley boys and the ex-forces officers. We've got quite a few of both. They're not so much conservative as that they don't like change. We wanted an indoor toilet and a bit of heat in one room. Quite a few of the men see that as going soft, not in the spirit of a caving club. I think though that by one means or another the women might get their way. My main worry is to get the right candidates to stand for Committee posts. There's no shortage of willing people but some just do what they want ignoring Committee decisions."

"How are the membership numbers?"

"Pretty good, we are rigorous as to who gets in. We don't like some of those types from Mendip and prefer people with experience. We want people who want to cave and be part of the Club, not just those wanting access to our caves, hostel and equipment. They all moan it is expensive, but the hut fee is only the price of a pint of Felin Foel and the sub a meal for two in Cardiff."

"Do you want to offer any advice to those who might run the Club in the future?"

"I think it's important to always have some projects on for members to get their teeth into, they like that, it gives them a sense of purpose. A chance to get together, 'borrow' or beg what's needed and a chance to do some engineering. They don't call us the 'clockwork cavers' for nothing!"

"Thanks Edward, good luck with the AGM. Cheers!"

One thing that is different is the difficulty recruiting members. I'm not sure we've ever got over the attitude reflected by Edward. But the basic point must be right we need members interested in the Club. Age, sex or any other factor is irrelevant. It used to be easy for us when members from university clubs finished they had to leave and find a new club, often in groups. This made it so much easier to get established and then integrate. Now they stay on with that club. Here lies the single biggest challenge that will make or break us in the future – finding new members. Everything else will fall into place.

Edward is of course absolutely right: give the members a project and just stand back and be amazed at the result! You can see his memorial – it's down the bottom of the gardens. Just a simple stone and plaque. Thanks Edward!

Ogof Marros

Phil Knight

For many years we enjoyed the sea caves of Pendine along with Greenbridge cave. Little did we know of the potential in the area. Years passed and I joined the caving club and began to learn more about the geology of caves: what followed was a serious look at the Pendine area.

One late October day in 2014, I was on my way to the beach to go surfing and beforehand I popped in to this yet unexplored part of the valley. Up the road, across the fields and in to the wooded area, I fought my way through the brambles and came across a stream fed lake surrounded by a high rock face. I worked my way around the edge and through a load of fallen trees over what sounded like a small waterfall. It was at this point I realised that my wetsuit was not in my car. The joy of actually finding something after months of searching was now tainted with what to do next: rush home to get my suit; buy a new one or not go surfing. I came to the conclusion that I would buy a new one and crack on exploring before high tide. I continued and found an actual whirlpool that would accommodate a hand and fossil passages in the cliff face. I left elated and went in search of a new wetsuit, a good surf session ensued where the significance of the find sank in.

It was November before I returned with Andy and Antonia Freem along with Tony Oldham. They had all come along primarily to see some possible prehistoric markings I had found in Pendine Bone cave. We visited the Bone Cave and with time to spare visited my new find. Tony remarked upon seeing the lake and sinks that if it was anywhere else in the country it would have been dug a hundred years ago. Andy pointed out the tiny remnant above the now named Whirlpool sink as a good place to dig while Antonia and I stuck our heads in the Western most passage that was half filled with mud and already a few metres long.

As the months past I concentrated my efforts on the Western most passage, digging out dirt, holding it against my chest and wiggling backwards to throw it out the entrance as the passage was so tight that a drag tray was impractical. Progress was slow as we only visited the site before or after surf sessions. The passage was excavated to a length of around 5 metres to a potential junction that turned out to not be a junction, just a widening of the passage with more digging to be done. Full attention was then paid to the partially dug passage above the whirlpool that Emily, Fred and Storm had been working on. The whirlpool dig was at the stage where your helmet had to be removed to get in half a body length. At that point a further passage at the rear of the mud filled chamber could be seen so digging commenced with gusto!

In the early days we parked at Greenbridge and made our way to the dig. Eventually we needed a shovel instead of a trowel and, not wanting to draw attention to ourselves, Storm slid the shovel down his trousers and we made our way to the dig. A bus passed and we came to the hilarious realisation of an imaginary attempt at trying to explain to the doctors why a man who was hit by a bus had a shovel down his trousers!

Weeks past and we dropped the floor of Whirlpool dig a couple of feet, mainly to find the size of the passage to see what we were dealing with. Storm, Morris and I were digging in March 2015 and we uncovered a slot at the base of the entrance portal. This turned out to be about six foot deep. I held Storm by his feet at one point as he investigated the 1.5ft wide chasm before we resorted to taping my phone to a stick along with a light and shoving that down the hole to see what was what. We could see some water worn rock in the right direction, but that was that; we decided to crack on with the main dig and head for the hole at the rear of the rapidly expanding chamber.

David Kelvey joined our intrepid team in April and we made some good ground in the dig. It was that very day that we first encountered rocks in the dirt.

Photos were taken of the dig's progress, followed by a visit to SWCC a few weeks later. Incidentally, the main reason for the visit was to meet with Tony Oldham to pick up some books and then go and visit some ancient monuments in the vicinity. By chance, Andy Freem was at the club, and we had a good chat regarding my progress down

Pendine way. Arrangements were made and filming began on the 6th of May 2015. My once a month dig suddenly became a weekly and sometimes bi-weekly mission for the next 5 months.

The rest in a nutshell

The first breakthrough was the draft, which directed us down. A tiny chamber was found where, upon exploration, a large stone nearly fell from the small ceiling with my hand in its way. Quick reactions likely saved my digits. 5m down and a thin calcite slot was the beginning of the crawl now known as Fred's Despair.

Michael Perryman joined our team in 30th of May. This particular trip followed the one where Fred's Despair was found. Probing with a shovel had resulted in rocks trapping the shovel. I tried to tell everyone that there was indeed a void beyond, but all they could see was rock and everyone's enthusiasm was miles short of where I decided it should be. I returned to the base of the pit on my own, and worked the shovel free to reveal the darkness. I returned to the surface and almost threw the unbelievers in the pit. Everyone was now very excited. A lot of drilling was required to get access to the dark void. Weeks later, Ash Pursglove and Claire Vivian joined the team and we posted Antonia and Claire through Fred's Despair. This led to the splendid Antonia's grotto and Fred's Despair was made bigger.

A draft was found at the end of the grotto through some boulders. These were moved and we found a fairly clear 5m deep shaft. Claire clambered down Claire's Clamber to a small grotto with water worn pebbles on the floor. Over the months we cleared the way on, always having a breakthrough by the time we were running out of space to stash rocks. A large void was found, Pit One, where Ash became pinned by a loose rock and where I nearly got squished by dislodged rocks. A dry stream was found at its base, but the walls were too unstable.

On the 18th of July, Duncan Hornby joined our team and we began to sink Pit Two. Voids everywhere. Three man chamber was found but we bottomed out with no real clear way to go. An attack focused on a rift revealed a way on. A new chamber was found with a gravel blockage and a potential passage to the right. We focused our attention there until we had eyes on the whopping passage beyond along with the stream way. However, it was not to be: there were three massive boulders hanging in mid air. Andy tested their stability with his trusty metal bar and the whole lot shifted. We needed another plan.

I then decided to excavate the gravel, and before long we had access to the stream again, beyond the now named "Chamber of Terrors". The gravel passage gave us a nice present in our absence, a large boulder that had fallen out of the ceiling overnight. We were now in the stream and the constriction. We worked under those boulders for what seemed like forever, working the constriction and removing the endless mass of rocks that kept raining down beyond. We eventually secured our way on and through we went.

October 23rd. A finely decorated rectangular passage was our reward. Antonia and Claire tentatively moved in; Duncan Hornby sat with me in Three Man Chamber with Andy at the head of the gravel passage where we all listened in on proceedings via the old walkie talkie. I joined Claire and Antonia at Andy's insistence. I went through the boulders, down the passage, rambling inanely over the air waves. Our trio went round the first corner to a chamber with no clear way on. We went back to inform Andy and Duncan of our find and I acted as tour guide. Back in the chamber we pushed through a small opening to a low crawl and popped out in the main river passage. Duncan, Andy and I returned and Duncan showed Antonia and Claire the newfound extension. Up stream were two additional inlets, down stream a collapse and a pitch from a fallen section of roof.

Day two of the discovery: Ash and I wormed our way through the boulders adjacent to the pitch in high anticipation of walking many kilometres and alas, 20m later the gravel floor joined the ceiling. Day three: Parallel to the final twenty metres of passage we found a superb grotto and pushed the end of the main stream way to the new dig face in another roof collapse.

With a clear way on, nature decided we had had our fill and rained daily from late October to what is currently mid-February.

The Description, Geology and Geomorphology of Ogof Marros - A Preliminary Report

Andy Freem

Introductory Caveat

Ogof Marros is a newly discovered cave that has proved to be somewhat reclusive since its discovery. The 'window' of dry weather in October 2015 allowed the original breakthrough to take place, but since then it has not been possible to re-enter the majority of the cave passages because of the excessively high water levels in the crucial choke constriction. In hindsight, the digging team was very fortunate with the weather during the summer and autumn of 2015 and it is unclear how limited the access will be when 'normal' weather patterns re-establish themselves.

The information in this report was gathered during many digging trips in the entrance passages and three brief trips to the current end of the cave in the days following the breakthrough, just before the onset of the heavy rains of late October. This limitation means an accurate survey of the whole cave has yet to be completed, so the sketch and partial survey below (figs. 8 and 10) must suffice until this can be achieved.

The Topography, Geology and Surface Karst Characteristics of the Marros Area

The Carboniferous Limestone outcrop of Pendine and Marros may seem isolated from the better known karst areas of the Brecon Beacons, but it is still structurally part of the same northern limb of the South Wales syncline. North of the Carmarthenshire limestone is the Devonian Old Red Sandstone, though much lower in altitude (180 m above sea level) than that of the Beacons and covered with fertile red soil. The limestone exposure containing Ogof Marros is on average 300 m wide and typically forms north-east facing slopes at altitudes of 75-100 m. Above it is a cap of the fracture permeable Marros Grit supporting an acid moorland and conifer plantation environment at a maximum altitude of 140-160 m.

Only at Pendine does the limestone intersect with the coastline making sea cliffs (fig. 1) and the significant 'dry valley' that leads to the first beach west of Pendine, Morfa Bychan (fig. 2). Further west along the coast, the south-dipping younger Marros Grit and recent periglacial deposits outcrop at sea level.



(fig. 1) The lime-stone headland of Gilman point with Morfa Bychan beach at the base of the image.



(fig. 2) Morfa Bychan dry valley to the right, Marros mountain top left and the valley containing Green Bridge and Ogof Marros just visible running top left to centre. The distant ridge marks the Devonian Old Red Sandstone.

The dry valley has lost its karst appearance with the construction, in the late 20th century, of a control pollution stream diversion down part of its length. The area would be unknown to most cavers except for the existence of Green Bridge Cave and Ogof Garreg Wen. These have stimulated interest from discerning speleologists for decades.

A karst landform of exceptional character is a rising, with a large and consistent discharge, just above sea level at Morfa Bychan (fig. 3).

(fig. 3) Morfa Bychan rising is tapped to supply water to Carmarthenshire. The surplus water flows from under Marros grit screes into the foreshore boulders along a 50m width.



It is important to note that, unlike the glaciated Swansea Valley, the area lies south of the area of the most recent (Devensian) glaciation (110,000-12,000 bp). This results in the retention of more of its surface weathered material, and it is more like Mendip in landscape character. Periglacial and Fluvial landforms dominate. It was however glaciated prior to the Minchin Interglacial (circa 130,000 bp). This much older Irish Sea glacial ice deposited moraine and just a few remnants of these deposits survive in coastal cliffs and also in the sides of the valley upstream of the main sink to Ogof Marros. This indicates the Ogof Marros valley may predate that glaciation though the sink may not. This aspect and the dating of cave deserve much more detailed study and discussion in the future.

The Hydrology of the cave

The stream within the known parts of the Marros cave system drain the Old Red Sandstone slopes to the north and west of the cave entrance. Prior to sinking it flows in a slightly entrenched valley somewhat under-fitting the much larger west-east strike

oriented valley that is aligned with the Devonian–Carboniferous boundary. The catchment area is approximately 4 sq.km. There is the possibility that further percolation water sources (through the Marros Mountain grit) could add a further 4 sq.km. A consequence is that the Ogof Marros stream is similar in size to OFD's stream at the Byfre. The Morfa Bychan rising discharge compares favourably with the discharge at Dan Yr Ogof. It is just possible that the limestone outcrop further west could also supply water the geological strike.

(fig. 4) The Ogof Marros stream in an slightly incised valley within old Irish Sea ice till, 100m upstream of the Coggans Cliff sink and the cave entrance. The glacial till masks the limestone/ORS boundary beneath; except at Rabbit Sink a further 100 m upstream.



The first sink, Rabbit Sink, occurs 200 m upstream of the cave entrance and is only evident in low summer flows. It has sculptured limestone blocks in the stream bed. In most flow conditions the stream continues to flow for another 150 m, initially in a larger entrenched channel with ingrown meanders, but when closer to the final 'Whirlpool' sink the channel gradient reduces, a consequence of and further cause of fluvial sediment deposition; first of gravel but eventually of silt and mud in the bowl of the large Coggan's cliff depression.



(fig. 5) Coggan's Cliff in dry summer conditions. Whirlpool Sink is left of centre and the cave entrance is on the left. 2.5 m above the floor of the doline. In any higher rainfall conditions this becomes a lake and is marked as such on OS maps. The muddy

The main sink is quarry-like and about the size of OFD's Byfre. It has some vertical and indeed overhanging cliffs up to 15 m high and there has been discussion about a possible quarrying history at the site (given its shape and that quarries of different sizes are to be found both down and up-valley of the sink). It would however have been a very boggy, often completely flooded site and there is no convincing evidence of an

access track of the type common in quarries. As a natural sink it is impressive in both landform size and large water volume.

The stream splits into sinking distributaries upon entering the Coggans Cliff area. The first is called Gravel Sink. Following this in an anticlockwise direction are Pipe Sink, Whirlpool Sink (fig. 6) and Boat Sink; each of which would be an impressive feature were it to be on its own.



(fig. 6) Winter conditions at Coggans Cliff sink with a choked Whirlpool Sink in the foreground.

The quantity of sediment entering the sink has aggravated the Coggan's Cliff sink bed by many metres, flattening it and creating a limit on the ability of the combined sinks to absorb the discharge even during typical depression rainfall. It is evident that exceptional events can flood the entire sink system to a depth of over 1 metre (fig. 7).



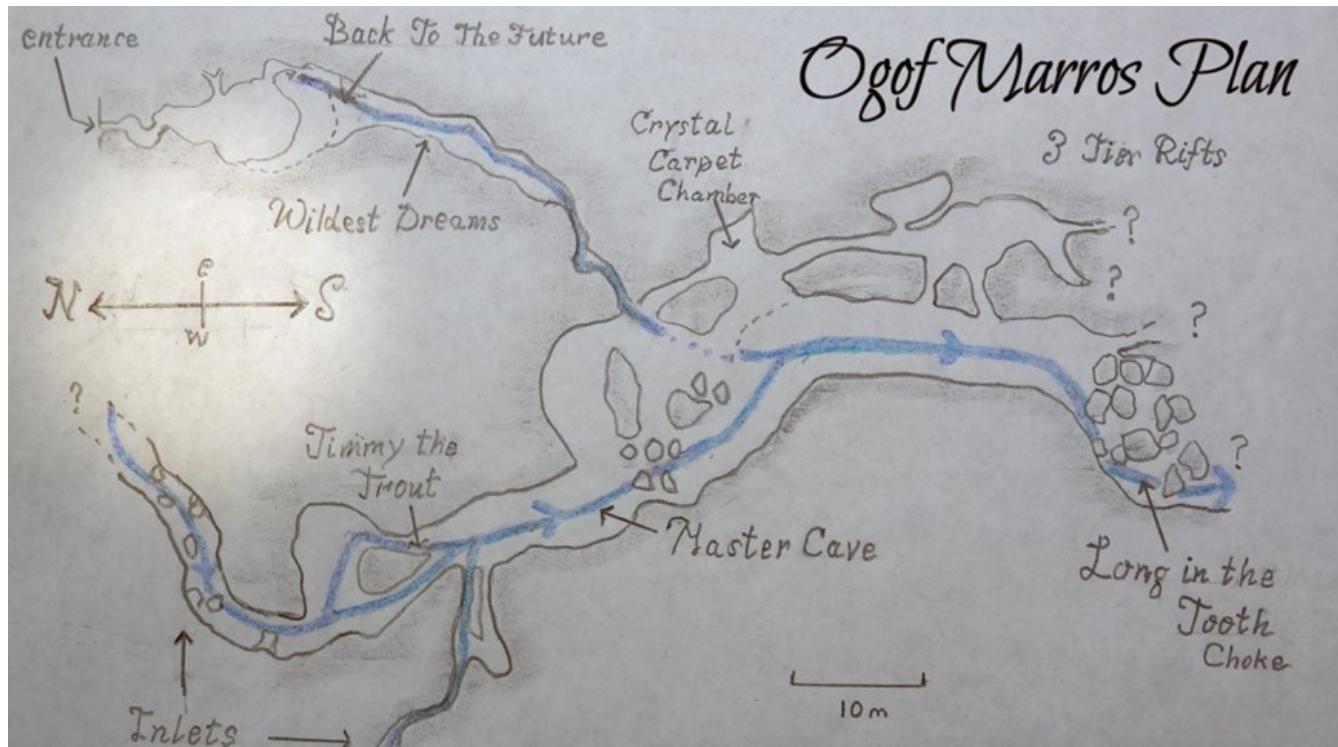
(fig. 7) One of several sinks this is known as Gravel Sink; the most frequently active, but easily swamped, of the sinks.

Current observation seems to indicate the water from all these sinks makes its way under the sediment to the base of the Antonia's Grotto choke and there combine to flow through the 'Constriction' that gives access to the main cave. This clearly has a significant impact on accessibility for cavers. In recognition of this a small entrapment survival container was placed just beyond the choke on the second trip through; as were digging tools so that, when all else fails, one can try to find a way out through the choke over the top of the constriction!

The sources of the inlets at the head of the main 'river' passage have yet to be confirmed. A separate stream descends from the cattle farms on the Old Red Sandstone

slopes to the north east of the cave, and until the 1980s, flowed along the valley eastward into Green Bridge cave. The water supply company then diverted this through buried and surface culverts and onward down the originally dry valley of Morfa Bychan to flow into the sea through a pipe under the storm beach. The Green Bridge stream almost certainly joins the Ogof Marros stream underground to resurge at the Morfa Bychan rising.

A Description of Ogof Marros



(fig. 8) interim sketch survey of discovered passages as of February 2016. The total of discovered passages are between 350 to 400 metres in length and depth of the cave is estimated as approx. 20 metres

The straight-line distance from the cave entrance to the resurgence of the stream is 2.5 km and the altitude drop is 85 m.



(fig. 9) The entrance to Ogof Marros before excavation.
(photo Phil Knight)

Beyond the now-gated entrance a short low phreatic tube that leads to an excavated 5m shaft. The sides are currently loose and a rope and fixed ladder protect both cavers and the loose walls (fig. 9).

Altitudes



Ogof Marros

10 m

Length: 49 m

Depth: 22 m

Surveyed by: Michael Perryman, Antonia Freem
(provisional version 6 Dec 2015)



(fig. 10) grade 4 survey of entrance passage January 2016



(fig. 11)

*Entrance shaft
on the day of the
Fred's Despair
breakthrough.*

At the base of the shaft is a tight bedding squeeze (Fred's Despair)...



(fig. 12)

*Returning through
Fred's Despair
during the first
exploration.*

...which leads to a letter-box exit into a largely stooping height passage descending at 15° over a boulder choke floor. 20 m on this passage ends with the unique Antonia's Grotto, with a range of formations that show distortion and fracture linked to settling of the choke floor.



(fig. 13)

*Columns
fractured by
compressional
settlement in
Antonia's Grotto*



(fig. 14)
The Llama formation

This area is taped for conservation as there are no open passages beyond. Any attempt to cross the taped area would be very destructive.

To the left of the grotto is a draughting and loose 3 m climb (Claire's Clamber) down the edge of the choke. The rumble of water flow through the choke below also adds to the experience. There is a large volume of stacked rocks here. At the base of the climb the route continues to hug the left wall of the choke, and descends the scaffolded Sciatica Shaft to the small 'Three Man' Chamber at its base.

(fig. 15)
Sciatica Shaft during digging. The choke has water flowing on the right and at the base.



From this a crawl continues into an increasingly oppressive and scaffolded route under the choke and into the stream crawl. Water levels in this can vary but it always flows quickly.

Just before the stream crawl is reached, a now-refilled squeeze on the right led to a view through a floor level slot into the un-entered Chamber of Terrors. This much larger void contains a terminally loose, multi-ton boulder arch directly above the entry point – try to visualize a human-sized mouse trap!



(fig. 16)

The stream crawl in low water conditions.

(fig. 17)

The view upwards into the Chamber of Terrors under the boulder arch. All the very large rocks shown shifted downwards towards the digger when levered and retreat was not that easy either. Definitely time for a plan 'B'.



The streamway crawl quickly lowers to the 'Back to the Future' constriction that carries the entire stream in a concentrated squeeze and is impassable all but moderate water conditions.



(fig. 18)

The constriction early in the process of widening.

The 3 metres of this obstacle passes beneath 'theatrically' loose boulders ...

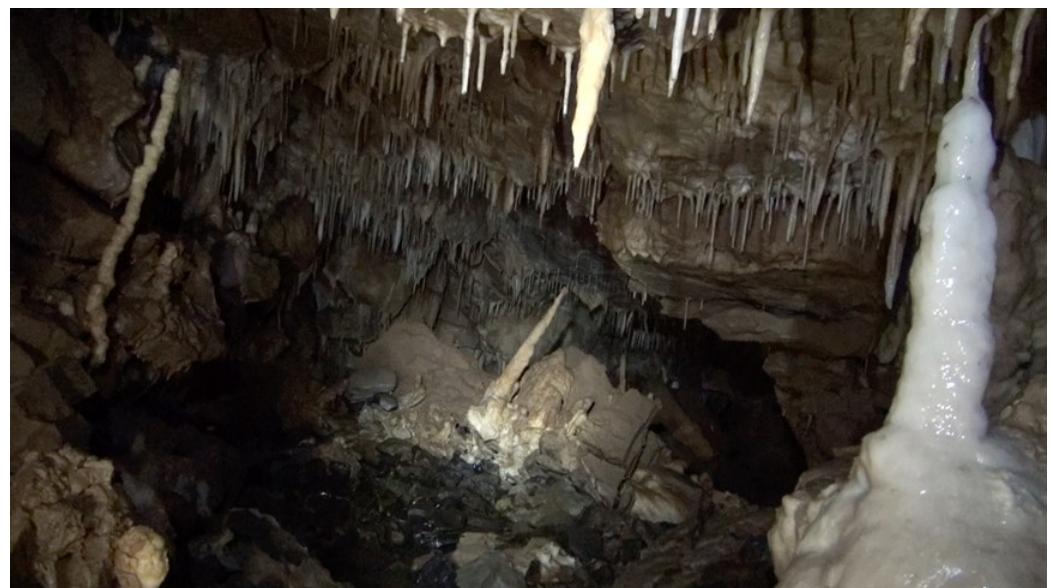


(fig. 19)

The thought provoking choke immediately above back to the future constriction.

..but then suddenly emerges into the relative safety of Wildest Dreams passage. This has a the solid roof, many decorations and a delightful, quickly flowing stream. The view backwards is dominated by a large and sobering choke rising to the roof.

Progress down Wildest Dreams is necessarily slow to avoid damage and to appreciate the profusion of both active and fractured formations (figs. 20 and 21).



(fig. 21)

A re-cemented speleothem pile in Wildest Dreams

25 m further on, the still decorated 'Shrimp Crawl' leads via an ornate chamber to another crawl and then into the higher first boulder chamber. Several small side passages on the left near Shrimp crawl have been left untouched due to their highly decorated character and to show visiting cavers the character of the pristine cave.

There are walking sized passages radiating out from the first boulder chamber. The right hand passage ducks under a stalagmite adorned boulder into a grotto and the route forward is taped to protect sand and mud formations (the main river passage can be reached by the alternative central route). The main river passage (fig. 22) displays flood debris and re-eroding fallen stalagmites that indicate a 5 m wide by up to 50 cm deep river would be found here in flood.

(fig. 22)

The Main River Passage looking upstream towards the inlets (taken 5 minutes after its discovery).



Pools in this passage contain trout. Upstream two inlet passages, with associated oxbows and some fine decorations, trace the water back towards the sinks - though which feeds which is not known at present. Downstream the passage enters a loose choke that can be carefully passed to a further short section of wide and high river passage (fig. 23).

This point can also be reached by going half left at the first boulder chamber and climbing 5 m down over a blocky wall. Fully left at the first boulder chamber leads via a taped area to a viewpoint into Crystal Carpet Chamber, which must not be entered for obvious conservation reasons.



(fig. 23)

Looking downstream in the main river passage towards the 'Long in the Tooth Choke'

A further higher level, taped off passage leads into the back of Crystal Carpet Chamber from the 1st boulder chamber – again profusely decorated, but easily viewed without entering it.

The main river passage is disappointingly short as it ends at present in the ‘Long in the Tooth’ choke where a horse tooth was found. Draughting tubes and boulder slots have an optimistic feel to them and developing these is currently the objective of the Marros Digging Team. Up and to the left of the river-level choke is a high level series of extremely well decorated passages: Three Tier Rifts (fig. 24).



(fig. 24)

Three Tier Rifts has a passage that links back to the Crystal Carpet area but also some higher level, draughting, boulder-filled rifts and crawls

It is unclear how much the river floods upstream of the current limit of the discovery. Contradictory evidence indicates both rapid flow in places and also static water, high-level mud accumulation. Time will tell how limiting water conditions will be here.

Initial discussion on the Geomorphological origin of Ogof Marros and the potential for further discoveries.

The entrance is in a nearly horizontal, excavated, natural phreatic tube 2.5 m above the current water level of Whirlpool sink at the Coggan’s cliff rock face. It is located in a shallow syncline (fig. 25).

(fig. 25) The cave entrance is visible above a debris cone, centre-left. The synclinal dip of the beds down towards the entrance is just evident.



It is likely that the cave follows this structure down the 7° dip. It may form a natural

structure for the cave water to have followed and may also have been the cause of the collapse that dominates the first part of the cave.

The entrance tube is likely to be part of sink's earlier development when its base was higher. It seems to link to similarly sized phreatic remnants in the roof and walls of the collapse passage between Fred's Despair and Antonia's grotto (known as Ash's grotto) and also abandoned down-pipes near Sciatica Shaft.

Excavated sediments in the entrance tube and shaft were complex with evidence of fairly recent flooding of the passage, possibly when the current sinks' outflows are choked to create a deep lake. However peculiar rafts of calcite, calcite fragments and blocks isolated from the walls by sand and silt seem to be remnants of passages now destroyed by sink expansion. Old cave remnants can be seen in the walls of Coggans cliff above to the right the entrance. The excavated shaft down to Fred's Despair passed through sediments in the process of re-cementing, particularly at its base where brecciated blocks are fully re-cemented.

The next section of the cave is dominated in various ways by a major boulder choke, the consequence of roof failure in the original stream passage for around 30 m. This is probably, as stated above, the consequence of the shallow syncline creating an inherently incompetent structure when the cave development led to removal of support from below.

The cave from Fred's Despair to Antonia's Grotto follows the void space over the choke. In high water the stream thunders, most impressively, deep underneath this passage through the choke.

The roof void is pinched out beyond Antonia's Grotto by large fallen slabs, but a natural sequence of voids down to the left is sufficient to allow both sound and air flow, indicating the means of constructing a caver's route to reach the base of the choke and the voluminous, noisy, but diffuse flow of the river. The base of the choke follows a shale band and/or Dolomitic beds but also contains a layer of crushed remnants of calcite formations that one can assume decorated the pre-collapse passage. The choke is still a very gravitationally mobile location and is to be treated with respect.

Beyond the choke in Wildest Dreams the cave follows the 10deg SSW dip of the lowest beds of the limestone. Only in the area of Three Tier rifts is there possible evidence of more massive bedding of the Dowlais Limestone and the shift from bedding based cave passages shapes to some joint developed cave sections. The roof of the 'Long in the Tooth' choke at the current limit of exploration may well mark a predicted shift of the cave up through into younger and more massive bedding and hopefully into dreamed of passages 'measureless to man'.

The cave has certainly an exceptional character considering its current size and it significantly increases our knowledge of what lies beneath Marros Mountain.

There are enigmatic aspects to the system that are worth mentioning:

- An old remnant cave Ogof Garreg Wen lies in a wood some 500 m SW of and 40 m higher than the Ogof Marros entrance. Its origin has something of the feel of Powell's Cave about it and could well signify a discontinuous upper series under the Marros hillside.
- The Draught in Ogof Marros is cold and consistent. It always flows out of the entrance and comes out of the end choke cold and unambiguously. Does this come from higher up the hillside or from Green Bridge Cave?
- 2 km to the west, on top of the Marros Grit cap of Marros Mountain, (the same as the grit above Penwyllt), there are a dozen or so large interstitial collapse dolines,

where we can assume the limestone beneath has failed and the grit has sagged into it. These also drain water through the fracture-permeable grit and into the limestone beneath. This water is most likely to return to the surface at the Morfa Bychan rising and so there is the question of where and how does this water enter the system.

- Underground drainage even further west of Marros Mountain and the synclinal structure there could direct water from these into the system. The shear volume of the rising allows us to seriously consider the potential for a wider catchments than the obvious ones local to the cave.
- The water enters the Carboniferous limestone through its oldest, basement beds and leaves the limestone at its youngest beds, on the disconformity formed by its junction with the (younger) Namurian Marros grits. The resurgence flow is remarkably steady and voluminous, even in dry summers which could indicate a large phreatic store. It does get a little milky, though never really turbid, in higher flows. A system of phreatic lifts and loops might be expected as the water has to negotiate the sequence beds and joints to migrate into the younger beds, but if so, how soon these begin in the system is yet to be found. We all hope the later the better! The draught seems to support our optimism that there is plenty of dry cave still to find.

Photos by Andy Freem, Antonia Freem, Duncan Hornby and Phil Knight

All information and access arrangements are by email to: ogofmarros@email.com

A note on Access:

The landowners, the Bevan Family, have been highly supportive during the exploration but are understandably concerned prevent access for inappropriately equipped visitors such as local children. This is particularly relevant when considering the hazardous, steep, loose and easily flooded entrance series. They have requested access is managed (initially by the digging team) and that the entrance is gated.

Seven Years of Welsh-Finnish Caving

Miri Pihlaja

In the summer of 2015, the Finnish Caving Society (FCS) did its first bigger caving trip abroad, to Vercors, France. 17 Finnish cavers participated in this trip, where we did 44 caving trips to 9 different caves in a fortnight. The trips varied from rigging trips to photography trips, from easy couple of hours' initiations like Grotte Roch to over 10 hours long trips, such as the Trou qui Souffle – Saints de Glace through trip. Our earlier club trips had been on a much smaller scale, usually including three to six people at a time, so this was huge step up for the club.

We had a few novices on the Vercors trip, so during the spring before it we organized an SRT course and weekly practice sessions at a climbing wall to familiarize them with ropes as well as to keep up the skills. Vercors was also the first trip where we did all the rigging solely by ourselves. To prepare, a few FCS members took a part in rigging courses in the UK and Sweden, and some of us did a trip to Yorkshire to practice rigging. Getting some caving done there wasn't a bad thing either!

The Vercors trip was huge success for the Finnish Caving Society. The caving was awesome, the weather was mostly splendid and all participants got to do plenty of caving trips. The rigging went smoothly, but offered challenges and learning experiences for riggers as well as to those using the rigging. All in all, the trip left us considering where we should head next, because clearly we now have the capability to run bigger holiday caving trips. But how did a small Finnish caving club get to this point?

As you might already know, Finland is not famous for its caves. This means that being a caver in Finland tends to require a fair amount of traveling. Me (Miri), Velma and Dare started our caving hobby properly in 2009 by visiting SWCC for the first time. We later joined the club. Ending up at SWCC was more or less pure coincidence. As absurd as it sounds, we first got interested in caving after watching the horror movie, the Descent. We all had a climbing background, but very little idea what caving was like. We ended up googling caving clubs from the UK, and stumbled on the SWCC website. The place seemed nice, and after sending an email we got a swift and friendly reply to our request.

After 2009 SWCC has played a big part in the growth of the Finnish caving scene. I could perhaps go as far as to say that there wouldn't be a Finnish Caving Society without SWCC. In 2010 me, Velma and Dare were involved in founding FCS, which nowadays has 50 members and regular caving activities in Finland and abroad. We got to know caving through SWCC while visiting South Wales and later participating in club trips to France and Spain; we got used to SRT and learned plenty of caving in general; we got to witness how bigger caving trips abroad were organised. We were always welcomed open-hearted to every occasion where we decided to make an appearance. The three of us formed the organising team for the Finnish Caving Society's trip to the Vercors. That destination wasn't chosen by chance: it had been the destination of our first caving trip outside of the UK with SWCC in 2011. So, on behalf of the Finnish Caving Society, I want to thank South Wales Caving Club—the Finnish caving scene (yes, we do have one nowadays!) owes you one!



Three happy but tired Finnish cavers (left to right: Dare, Miri and Velma) after their first ever visit to OFD, 2009. Picture by Ian Alderman



Jukka Palm and the turquoise waters of Grotte de Gournier on the Finnish Caving Society 2015 Vercors expedition. Picture by Tor Paulin.



Recognize the flags—the nationalities of the participants of SWCC's 2015 Dent de Crolles expedition!

Picture by Velma Aho.

P40 to Trou De Glaz Through Trip: The Re-Match

Andy Dobson

(see newsletter 122 "101 Great Caving Trips" for the account of the original 1996 epic)

Our first day trip in 1996 turned into one of those "everything that can go wrong..." epics. This time we were prepared and forewarned – what could possibly go wrong?

3/8/2015: A campsite departure at 09:00 gave us all day (and all night, if necessary) to allow for plenty of faffing and route finding difficulties. After kitting up at the Col De Coq car park we shared round the essentials for a longest pull down of 32m: 2x40m standard 10mm ropes, plus 50m of 9mm as a back-up rope and two copies of the Speleo Secours Isere (SSSI) route and rigging description (in French, but by far the most comprehensive we could find).

As we were faffing a middle aged Frenchman approached us (translation courtesy of Martin)

Le Monsieur: What trip are you doing?

Martin Hoff: P40 to the Glaz (this was clearly the wrong answer).

LM: Do you know the way?

MH: Not yet.

LM: Only it's really complicated.

MH: We know; we have a SSSI route description and a survey.

Our new pal was obviously unhappy with this (perhaps he had my article on our previous go) but walked off up the hill.

Having finished faffing we followed the path up, only to catch up with our Gallic friend again by the cattle troughs just below the Col Des Ayres. He was determined not to let the matter slip.

Le Monsieur: You have to make sure you get the right pitch to drop down – there are lots of places to go wrong (yes – he must have read my article). You should have the ability to re-climb the rope as well (though how do you do that if you've already pulled down?)

Martin Hoff: We know.

LM: Have you left a call out?

MH: Yes. (Oui, oui).

We walked on up taking the right hand fork for the summit, glad to see our friend take the left hand turn for the Glaz route. A very long sweaty climb (much longer than the SSSI suggested) eventually saw us onto the plateau and we started to search for the entrance. With the scenery roughly matching our description we headed for an obvious cairn in the distance – only to find from close up it was an upturned tree stump! Fortunately a real cairn was just visible from here; following a very vague path lead to a further cairn then black lapiaz.

Looking around in puzzlement I spotted a small metal sign attached to the rock wall. Closer up it clearly read "P40" and a black traverse line led to a narrow pitch head with pull through chain – first mission accomplished.

A leisurely kit up and a spot of lunch saw us ready (or as ready as we're going to be) to go underground about three hours after leaving the Col car park. Martin set up the rig and abseiled down; however, he made some acrobatic manoeuvres when near the bottom (clearly there was some obstacle). On hearing "rope free" I followed, admiring how the shaft immediately belled out below the tight pitch head. As I approached the floor Martin called for me to stop and land carefully. A quick glance down (confirmed by my nose) showed the problem – a marmot had made the descent some time previously and was now in an advanced state of decomposition, exactly where the rope would land!

All safely landed we carefully pulled the rope down, trying to avoid the liquid marmot. Starting through the squeeze off the scree slope at the bottom of pitch we were immediately reminded of the tight nature of much of the trip with improvised SRT (descender on cowtail) on the short, tight "Puits De Cabri" which directly followed. I had to breathe out to get my chest through the tight slot, which we all found to be a struggle to get down safely.

Crawling onwards and downwards we found the SSSI description to be very accurate; however, where the main Dent Del Crolles through trips are now comprehensively signed, here there was little route marking. The occasional carbide arrow or coloured tape, (though my recollection of 1996 was that then there was almost nothing). This did give a much more natural feel – as long as we didn't go wrong!

Steady progress saw us through Les Galleries D'York and followed the instruction to find the correct turn "behind you!" successfully. The first meanders proved straightforward, with only one low awkward section with a pool specially designed to give you a wet foot. Arriving at the Puits De Trois Soeurs we were slightly baffled by the description; however, on descending it proved correct – traverse round to the second shaft, then once over the lip of the big overhang swing back into the side (trying to ignore the horrendous rub on the rope) to a small ledge half way down. Ignoring the obvious crawl, re-rig off the tatty rope hung off naturals and descend 10m to a large landing but do not descend the final drop below this.

Very relieved to have passed all this without a hitch we started into the second meanders, ignoring the pitch down we had descended in 1996, not knowing it was wrong. The traverse line over the pitch head was a comforting sight – the middle eco-hanger was hanging off the rope rather than being attached to the wall.

These meanders proved to be an absolute b*st*rd; a continual struggle in a body sized key hole with awkward bends, trying not to lose the tackle bag (or myself) down the rift. Smaller and more agile people would no doubt have little problem, but I was constantly reminded my body does not bend and flex as well as it did 19 years ago (and possibly it is a little wider) and also that I cannot bend my legs in two opposite directions at the same time! One very tight and awkward section with knobbly bits of rock took each of us three tries in different positions to pass. I was very glad I was wearing elbow pads as well as knee pads.

After seemingly endless contortions the route became sketchy. By chance, I spotted an A4 sized red plastic sheet on a shelf below; squirming down I was relieved to find it was an instruction to descend at this point. However, we hit a slight technical hitch as the SSSI description fell out of Martin's over suit on the climb down and landed in a puddle; good job he'd had the foresight to make two copies and given me the spare one!

The meanders were slightly less difficult after this; but with no in situ tat on the Puits Des Orbitolines or other short pitches we had to unpack and rig a 40m rope in the muddy floored meanders to pull down drops of 3, 4, 6 and 8 metres. After a shower on the Puits Des Pompiers, we stopped for a short food and drink break. Agreeing it was the hardest 90 m of caving we could recall and taking one and a half hours meant we

averaged a metre a minute.

The final meanders proved no more taxing than Maypole Inlet and with some relief we reached the top of the balcony pitches. Here the cave changed dramatically: a wide shaft opening out, with the waterfall down the back wall and nice big ledges on each successive landing – very atmospheric.

The first pitch was only short onto a wide, slightly sloping ledge which felt quite exposed with no in situ traverse line on it. The other three pitches varies between 16m and 25m with good straight hangs; but even so the pull down (as opposed to abseil) rope caught around a flake when dropped down from the top and I had to pendulum over under the waterfall to free it off. Apart from this, it was classic SRT on all the balcony pitches with the waterfall at the back providing atmosphere without giving us a soaking.

On bottoming the fourth pitch we found the 20 m drop in the Salles Des Douches to be already rigged with in-situ fixed rope – bizarre as nothing else on the trip had been rigged, even where it would have helped considerably!

While Martin waited for Dave to abseil down, he suggested I leap frog, making a fairly swift descent as the pitch was living up to its name as a definite shower bath. Once down I stooped through the low passage leading off to check on the way out and was delighted to recognise the crux climb Dave had found in '96 (when we were lost). A quick shimmie up there and there was a "Glaz" arrow sign – the first we had encountered.

On the plan survey this point is about halfway in horizontal distance; but I knew in reality we were minutes from the Glaz entrance. Although most of this is stooping height passage, it was a breeze (literally and metaphorically) after all those tight meanders.

After 6½ hours underground we exited into glorious late evening sunshine, half expecting our French friend to be waiting for us – I had imagined him doing a "Fergie" and tapping his wrist watch as we emerged.

De-kitting as far as possible, we embarked on another sweaty walk down to the Col. The car park, which had been packed when we started, was now deserted. Back at the campsite, about 12 hours after first departing, we celebrated banishing the demons of yore. I finally felt able to put on my old "I got lost in the Dent de Crolles '96" t-shirt without tempting fate.

P40

Martin Hoff

Back in the last century, when Ian Middleton was still a caver and not a 'Who?' to anyone who had joined the Club after hot and cold running internet access became a domestic commonplace, a select number of us had visited the Dent de Crolles cave system in the Chartreuse area of France. The historic background of its exploration is recounted in Pierre Chevalier's "Subterranean Climbers" and our own slim history can be found in SWCC Newsletter 119, documents which will provide some enlightenment on why we ended up at the collective decision to return there some years later.

Subterranean Climbers notably tells of the efforts required to finally make the connection with the P40 entrance on the upper plateau, making the top to bottom through-trip possible. SWCC Newsletter 122 contains Andrew Dobson's account of The Bob Hall Memorial Through Trip, in which half a dozen of SWCC's finest attempted to enter the system via the P40 entrance to emerge some time later via a more familiar entrance located at a lower level. The trip in question turned out to offer more opportunities for epic sport than the party might have wished for and lived long enough in our collective folk memory that a trip to see what all the fuss had been about was top of the list of objectives in the summer of 2015 for my first trip back to the area.

The modern joined up world had made it clear that the Bob Hall Memorial Through Trip party had not been the last to have some issues in terms of route-finding and downloadable sets of "Here's how you do this trip properly" instructions were available to even the most incompetent of clowns via the local cave rescue team's website. That the place had something of a reputation and that visitors from further afield had a rather worse reputation was made abundantly clear before we had even left the car park.

It is true that a casual observer spotting Andrew and Dave Dobson changing into their caving gear in a mountainside car park might not necessarily immediately be able to identify the calibre of caver they are witness to. It is something we are not unfamiliar with, even at home around Penwyllt, that the capability of unknown quantities may come under indirect suspicion or into direct question when they announce that they are off to undertake some trip which is known to offer certain challenges. It was no huge surprise then to be approached as we changing in the car park. I offered the benefit of the doubt and of my language skills to the elder gent who was desperate to find out where we were going, and on hearing of our planned trip, whether we knew the way. It was all becoming a little tedious by the time the same character interrupted our walk up the grassy slopes towards the Pre Qui Tue with further admonishments to ensure we selected the correct pitches and to enquire whether we had left a call-out. It was by a matter of tiny margins that he was not invited to accompany us and hold our hands for the entirety of the trip and but for walking straight into the obvious trap of hubris, an invitation to mind his own business might similarly have been readily forthcoming.

Finally we were left in peace to continue towards the top of the plateau, sweating profusely and cursing the horseflies which offered a similar if marginally less noisy nuisance to our earlier uninvited company. The views to the south and east opened out beneath us, over Grenoble and following the massive Isère valley on its way to join the Rhone and ultimately to discharge into the Mediterranean. Our planned journey to join one of the upper horizontal levels of the Dent de Crolles and then to emerge on the Western flank of the hill seemed modest in comparison, though obviously not without scope for trouble.

Less than two hours into the walk up, we were on the sloping upper surface of the plateau, heading in the rough direction of the lower Guiers Mort resurgence and

navigating pretty much by feel. I knew which side of the path the entrance would be on, having walked up there with the fated party and it had only been nineteen years since we had all last been there, so what could possibly go wrong? Scanning the horizon for cairns or other markers revealed one likely candidate and we headed off the walking path towards an expanse of barren limestone. What had looked like a distant cairn turned out to be the root cluster of a fallen tree, but a few tens of metres away was a proper rock cairn, then another. We split up slightly and Andy announced he had found the famous metal plate marked P40. Straight to it, give or take, having been up on the plateau proper for less than half an hour.

In another echo of the debacle those nineteen years before, the three of us all had different recollections, different expectations of the entrance we would find and none of those three turned out especially close to the reality. Other realities neared, as SRT kits were readied before a quick reminder session on how rigging for pull-throughs is intended to work and a final descent out of the late summer heat which saw me on the floor of the entrance shaft within half an hour of midday. Also on the floor of the entrance was a less successful visitor, a marmot whose uncontrolled descent had met terminal consequences and just the right number of days earlier for it to glint and pulsate in the light of my caplamp, throbbing with a mass of wriggling maggots. With the other two following me down the pitch also following the instruction to stop a few metres off the deck so as to be redirected slightly and avoid landing where the marmot had, the moment of truth came. A final check that nobody had changed their mind and wanted to pull a Bob, to coin a phrase, we hauled on the rope and enjoyed the thwicka-thwicka-thwick as it came down to join us. Committed we were.

Andy led on down the Puits du Cabri, a short pitch tight enough for each of us to struggle in slightly different ways and variously improvise with descenders on cowtails or parts of SRT kits lowered down the pitch first. The commitment of Chevalier and his pals to have explored upwards to that point was immediately apparent, the subsequent chambers and passages offering roughly the same degree of spectacular going as the big collapse chamber just before the Mini Columns (depending on direction of approach). It all felt rather too much like Mendip.

Route-finding was straightforward, the way on well enough marked that our concerned inquisitor's interest seemed unwarranted. Not for the first time were we to find that route-marking is often easy, abundant even, where the going is easy, only to later to be neglected at points where it would be more helpful though correspondingly more inconvenient to install. Soon enough we encountered the Puits Des Trois Soeurs, properly executing pull-through manoeuvres for the first time via a huge wedged boulder to reach a stance on a ledge part-way down, then diverting into a meander off to the side.

Here or hereabouts was probably where the trip all those years earlier had gone off course, multiple pitch-heads dropping out of the floor of the meander as well as other options for pitches to follow by not getting into the meander at all. We continued, encountering the eight metre and four metre pitches exactly as expected, and stopped briefly for a few mouthfuls of food. There was no incentive to linger though, the chilly air whistling through the place reminding us as much.

One further five metre pitch to pull down and then it became really awkward. With instructions recommending staying high to avoid the ever diminishing dimensions of the passage, it was a simple choice to pursue the wear marks at the upper level. With the depths beneath us sufficiently visible that the challenging consequences of dropping tackle sack, harness or other crucial items did not require spelling out, our progress was calm, cautious and considered, but above all it was slow. If Maypole Inlet were left the same height but scaled down to half its width, that would be roughly representative of the fun to be had trying to stay suspended at the roof level while almost all progression

involved constant contact with both walls.

Becoming wedged fairly early in this particular series of struggles, it was half a relief and half an additional trouble that I did not need to retreat to a minor widening of the meander and slowly disassemble my SRT kit to stow it in my tackle sack, all the easier for fitting through the restricted openings. The knock-on consequences of this sensible step would become apparent some time later but only after Andy spotted an almost hidden red marker on a low ledge at one of the bends in the meander and dropped down to investigate. This was how I was not at the front of the party at the pitch-head that followed, but nevertheless needed to kit up and then squeeze round and over Andy in order to take on the rigging job of putting the ropes in place for our subsequent descent.

The following meander was a bit less awkward, revealing tantalising hints of the greater spaces that awaited us once the meanders were finally dealt with, something we dared not truly trust was only a little way ahead of us. One final tricky down-climb that turned out little more than a barely controlled slither and I was clipping my cowtails into the pull-through chain, correctly threading the abseil rope and loading myself onto it. Once again there was a moment for consideration of the efforts of Chevalier et al, navigating upwards through meanders that had been resistant enough to our progress even in a downwards direction. To be pioneering their way upwards through there, with scaling poles to help them up the pitches and under wartime conditions on top is a remarkable exercise.

Dave had joined us by now and it was time for the most fun part of the trip, a sequence of the four balcony pitches and the Puits de la Douche to drop us a hundred metres or so in five enjoyable stages. Each pitch was slightly different, all in a decent-sized shaft perhaps a little bigger than Gnome Passage turned on end, landing on ledges both with and without traverse lines to reach the next pull-through chain. The third pitch landed on a bigger ledge, a rising traverse to its successor pitch-head intended to avoid the water which by now was accompanying us down the shaft series. The final pull-through rope end snagged on a flake right in the water and Andy had to swing in to collect it, but all four were very fine pitches which more than repaid the effort of getting through the meanders. The final drop of the Puits de la Douche was already rigged in situ so Andy went down while I packed away my rope and then followed Andy down while Dave packed his. One final short stretch of meander led to the small chamber beneath a roof composed of the false floor which we had crossed over on our way to the Ogive a few days before.

Back on territory known to all of us, Andy pointed out the sites of various aspects of mutiny that had occurred in this area on his first visit years ago as we packed away SRT kits and wasted little time in moving on out, the final dampening of the Douche encouraging us towards the remaining daylight outside. If crawling back towards the main Glaz walking passage was mildly inconvenient, it was still a welcome alternative to the meanders we had been in some hours before and the proper standing height progression of the last metres towards the open skies was a deserved relief, a pleasure that we could tell ourselves that we had earned.

Taking only seven hours from daylight to daylight, we had made rather a better job of the trip than when Andy and Dave had last been through there, a pleasant if at times taxing day and only spoilt by the fact our inquisitor from that morning was not sat there waiting for us to emerge. All the same, with the slopes of the Dent largely abandoned but for the odd paraglider passing high above us, the three of us had all the company we needed as we set off back down the path, racing the shadow line as the sun dropped behind the skyline to the West. Encountering just the right amount of aggravation without ever quite having trouble enough to give us genuine cause for concern, we had had a good day.

Guiers Mort Round Trip

Helen Hooper

27th July, 2015

With a party of 3 persons: myself, Andy Jones and Chloe Francis, we thought we'd make rapid progress. We had a short description in English, a full French description (with the route in reverse to our planned escapade) and an old survey—what could go wrong? Arriving at the Plage some 2 hours after crossing the threshold of the spectacular entrance portal, we appeared to be making good progress.

Just a few metres upstream, we reached a bifurcation in the passage—description and survey said left, Andy tried right—just to make sure no mistakes were made, and Chloe went for a wee. Andy returned with tales of deepening rifts and slippery tight crawls on the edges of precipices... Well the compass and survey said left so we happily avoided the seemingly more dangerous route—for a while at least. Very soon we were faced with multiple route options on different levels—and none of the 'fleches oranges' that were supposed to clearly mark our route. Both English and French guides leave this section of the round trip out of their descriptions and just say that it is well-marked. (In retrospect, when the French mark a route and write a description in one direction, it was probably misguided to expect to see the same markings when proceeding in the opposite direction). About an hour later, I decided to cross a rift following carbide 'route markings' between some columns. After a long hands and knees crawl, I reached an in-situ rope traverse.

Andy and Chloe had retreated and gone back to tackling the precipices of the right hand passage. Having heard my whoops of joy clearly, they emerged in the same place having taken a completely different route. So, at the bifurcation, either left or right will take you to the roped traverses—but neither very readily.

After the traverse, and amazing formations, Escaliers Services were marked clearly with a large 'ES' and comprised a strenuous, 4-part ascent of a narrow rift passage. Phew! The rest of the way to Puits Noir seemed straightforward from the description—but still took around 2h of head-scratching uncertainty. There was an unhelpful label near the bottom of the pitch saying 'Puits Cerf'. This led to about 50 minutes reorientation of surveys and pacing around to locate the missing Puits Noir. Eventually, there was nothing for it but to ascend the slightly too short rope, past 2 awkward rebelays to reach the top, where a sign and arrows confirmed that we had navigated correctly to Puits Noir in the first place. A tired ascent for Chloe necessitated a helping hand at both rebelays. Andy spent an unnerving 15 minutes on the same piece of tired in-situ rope helping with passing the first relay and Helen engineered a pulley system at the 2nd relay where an awkward manoeuvre from a hanging relay was required to exit onto a sloping ledge.

The top! Chocolate and fleches galore—orange and green and black arrows and labels signposting the exit on every corner. It was a superhighway but still took 3 very tired cavers, 1.5 hours to exit into the last of the day's sunshine.

An amazing day. A huge system with plenty more to explore. Magnificent formations, geological and caving interest and plenty of challenges still to be met....

A Selection of Photographs from SWCC's Dent De Crolles Expedition 2015

Dave Dobson



Annette Trip: Puits Ferdinand



P36 to Guiers Mort



P36 to Guiers Mort



Martin Hoff at P40 entrance

OFD 1 Depth Gauge

Graham Christian

"Write me a sexy article on the OFD 1 depth gauge" she said. Talk about a tall order!

Over the years people have regularly asked what the main stream levels are likely to be. Even the longest standing members and those with the greatest experience of the cave have only been able to give a guarded answer except in the worst wet weather, when the answer was a fairly obvious "No chance!"

Logging rainfall was the start of trying to put a value on what we were observing. A miserable wet day may not have actually dumped much rain or the combined rain over the preceding days may have been considerable. These things could now be demonstrated and give us a better idea of what to expect underground. We could now say: "We had six inches last night. It will be very damp!"

The conversation then moved on to the subject of getting real-time data on the actual stream level. There seemed to be enough interest to actually do something about it and we were encouraged by Prof. John Gunn, a noted cave hydrogeologist. An attempt was made at repairs to the dam outside the Ffynnon Ddu resurgence to give a better control of levels, with a view to monitoring the level of water at the most accessible point of the stream. The dam was found to be so badly undermined that stopping the water from flowing under it proved not possible. The idea was that in lower flow conditions, all the water would go out through the spillway on the right, a confined channel that would help create good fluctuations in level. In flood, the water would still go over the main dam wall, but by that stage we would know that the main stream would be impassable.

Stuart France is well known for data logging and volunteered to build a depth logger and came up with a proposed sensor that seems robust enough to stand the rigours of years in the main stream.

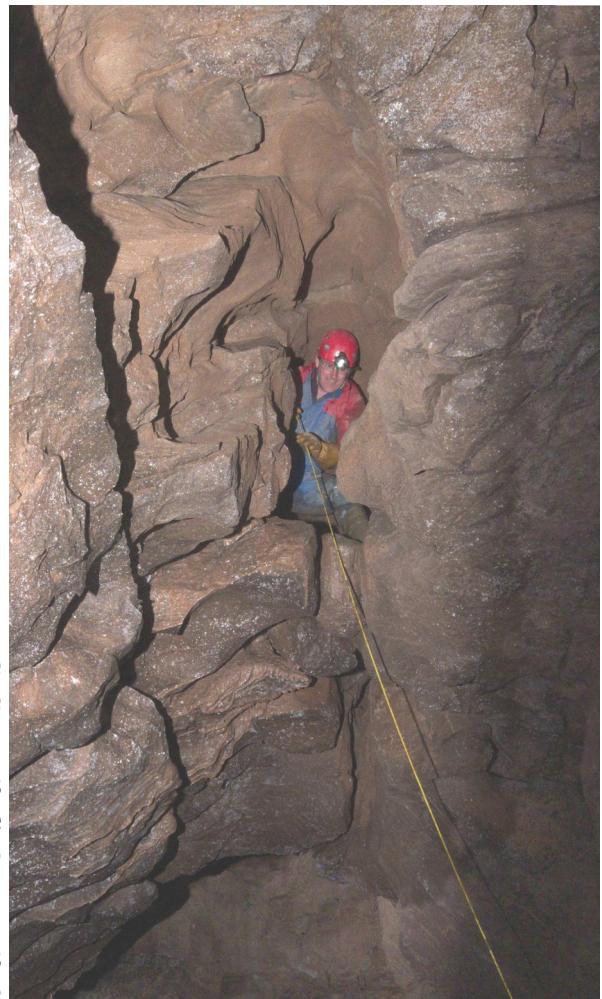
A visit was made into OFD 1 to determine a suitable place to do the monitoring. We needed a bit of passage that was not going to be subject to too much turbulence and with easy access to getting at the logger unit for easy data retrieval. This first stage of the project was very much going to be proving that the sensor was up to the job and we were getting good data, albeit not in real time. A scaffold pole was obtained and a fitting made to secure the sensor up the end of it.



Once the sensor control box and logger box were ready, the apparatus was installed in the cave. The scaffold pipe was bolted upright to the wall of the stream canyon.

The base is in a small pot in the stream bed, which gives it some protection from the full flow of the stream and ensures that the end is always in the water. From the sensor a special cable runs up the middle of the scaffold pipe and via a length of flexible conduit to the logger box that is screwed to the cave wall on the main through route, at the upstream end of the balcony path. The cable actually has an air pipe up the middle of it, ensuring that changes in atmospheric pressure are compensated at the sensor. (If it were an absolute pressure sensor, changes in air pressure would affect the "depth" registered).

The box on the wall contains a pair of coupled boxes and a couple of battery packs. The battery packs power the actual sensor and its associated electronics. These electronics are contained in one of the boxes, the other containing the data logger, real time clock, memory chip and another battery. The two boxes are unplugged from one another to enable the data to be retrieved. The logger box is opened, the memory chip swapped for a fresh one, the battery volts checked and closed again. A control box is then used to restart the logger, setting the date, time and logging interval (10, 12, 15, 30 or 60 minutes). As it takes a little while to do this process, we make sure that a reading has just been registered on the hour or half hour, before disabling the logger.



The reading and logging process is indicated by a red LED briefly lighting up on the logger box. The unit then effectively goes back to sleep for the allotted interval.

There is also the facility to take an instantaneous reading from the sensor by connecting the control box to the sensor box. This is useful to make sure that the sensor is working, and an immediate check against a manually measured water depth can be made, water levels permitting! While in the cave, it is useful to note the water level at The Step, which is only a short way upstream. It is the intention to produce a table of comparative levels between the gauge and The Step. We generally accept that six inches (100 mm for the kids, 10 cm for Americans) is the "limit" at the step for forays into the streamway.

Having got a functioning gauge, thoughts now turned to the problem of getting the data back to the club in real time. Stuart assured us that the data could be sent down a long length of cable to the outside world. Once outside, there are number possibilities of how

the data can then be forwarded to the club, but that is, at the time of writing, for the future. First has to come the bit of getting to the outside world.

Over the Christmas/New Year holiday, a useful reel of telephone cable was acquired, the cable drum stand dug out of the workshop and a long, thin glass fibre rod that is designed for poking through floor cavities was borrowed. The survey had been thoroughly examined, all possible routes checked and thus armed, Allan, Brian, Andy, Dave and myself went underground to lay the cable. It was agreed that the drum should be stationed near the entrance and the cable pulled into the cave, feeding it through bedding planes, slots, windows and eye-holes as necessary to keep it hidden out of the way as much as possible.

A short distance along the main route, a low phreatic tube leads off to the right. We stationed the cable drum in the main passage here and started pulling the cable into the tube. To the right of the tube is a bedding plane that proved ideal in which to lay the cable. The thin rod was soon to prove its use by feeding it back round the far side of a pillar to pick up the end of the cable and draw it through. As the cable was pulled round various obstacles it soon became obvious that it was sliding along far more easily than we could ever hoped for. With a bit of gentle guiding to keep it out of the way of the worst pinch points we soon had it out of the low stuff and back out into main passage again, but having cut off a considerable distance. Plenty of slack was pulled through and flaked back along the main route.

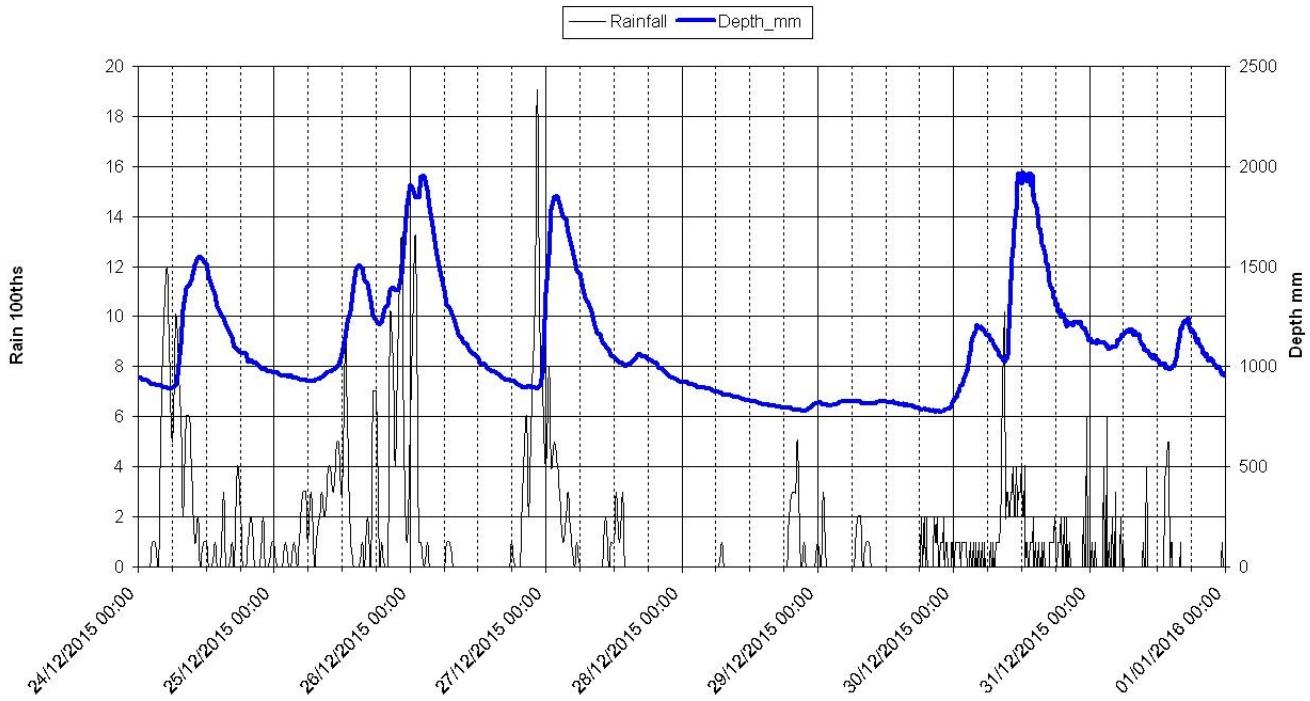
A low bedding slot on the right enabled us to feed the cable over the drop down into the bedding planes that take the flood overflow when things get a bit damp at the way into Fault Series. From here, the cable was laid along the right wall and up and over the high level oxbow before dropping down to the floor just before the Toast Rack ladder. Andy went up into Attic Passage and was able to grab the end of the cable when passed up on the end of the thin rod. At the other end of Attic Passage, the cable was dropped again, followed the main passage, then fed down the low crawl that runs parallel down to the main stream. Finally it was laid out along the concrete path to the logger box.

The end was chopped off and the new, clean end potted to keep the damp out. A spare length was coiled up and the long business of tidying and securing it into position all the way out began. Gradually we made our way back towards the entrance, wedging, tucking, looping, burying and when all other options failed, using cable clips to hold it out of the way. By taking slack out of the cable and using useful knobs and protuberances, we were able to keep it high and tensioned up near the roof to the top of the Toast Rack, then up into Attic Passage. Again we were able to keep it high and on a ledge near the roof where it comes out of Attic Passage and back towards Fault Series. Given the nature of flooding at this point, we clipped the cable into the roof in what we hope is a protected position, where it won't be damaged by raging torrents or passing cavers' heads. For the short bit of main passage again, it was buried at the side of the floor. Diving back into the bypass passages, it was tucked and wedged into the slots at the side of the passages. Where there is a junction, it was clipped into the roof to keep it out of the way of anyone crawling through. The final approach towards the entrance is behind boulders and the drum with the remainder of the cable on was left ready for the next stage – taking the line out and to somewhere useful on the surface.

So what have we seen so far with the data gathered from the stream? It goes up and down. Quickly. The greatest rise over 30mins we have logged to date is 574 mm, and a 124 mm rise over 10mins between Christmas and the New Year when we increased the logging frequency. The greatest depth at the logger so far is recorded as 2.268 m at 4:30 to 5:00 pm on 26th January 2016 (that is over 7'5" in old money).

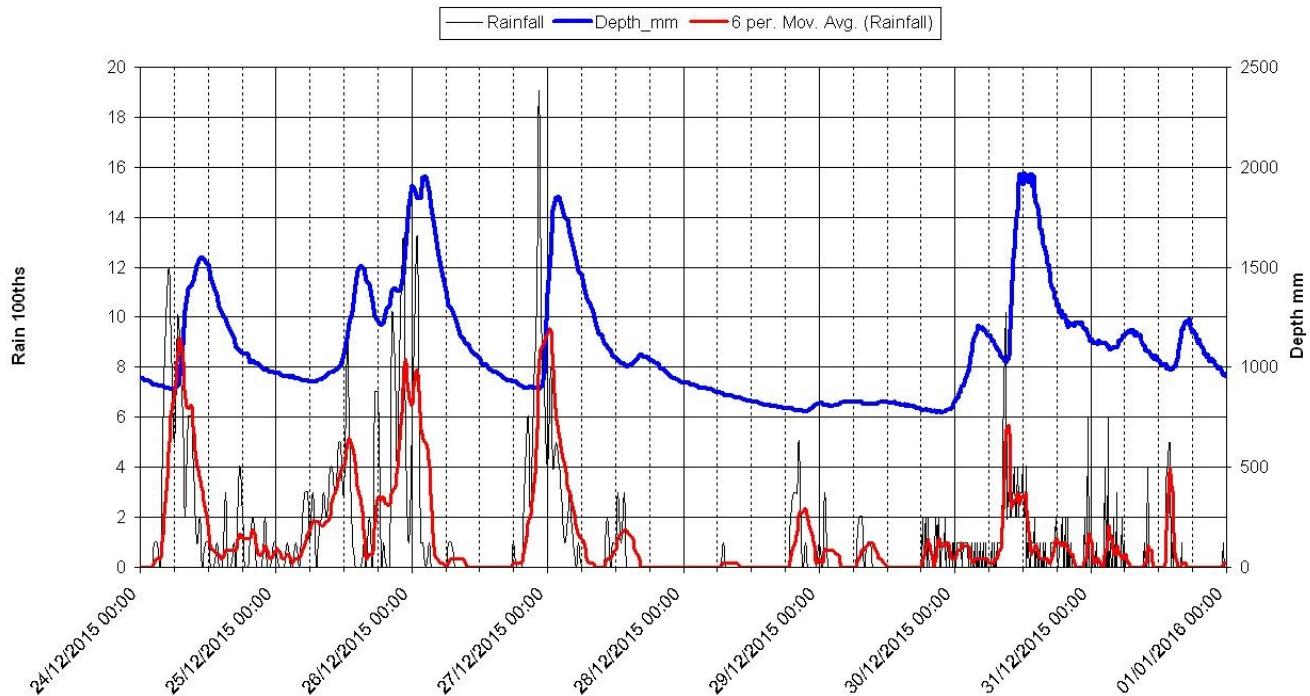
Plotting the data on a graph starts to give us a good idea of the speed that the stream rises and also shows that the fall after rain ceases is a similar curve each time. Below is a section of the data for between Christmas 2015 and the New Year.

RAINFALL AND WATER DEPTH OFD1



One can immediately see the relationship between the rainfall and the stream level. It becomes a little more interesting when a trend line of a moving average of 6 is added to the rainfall. See the graph below.

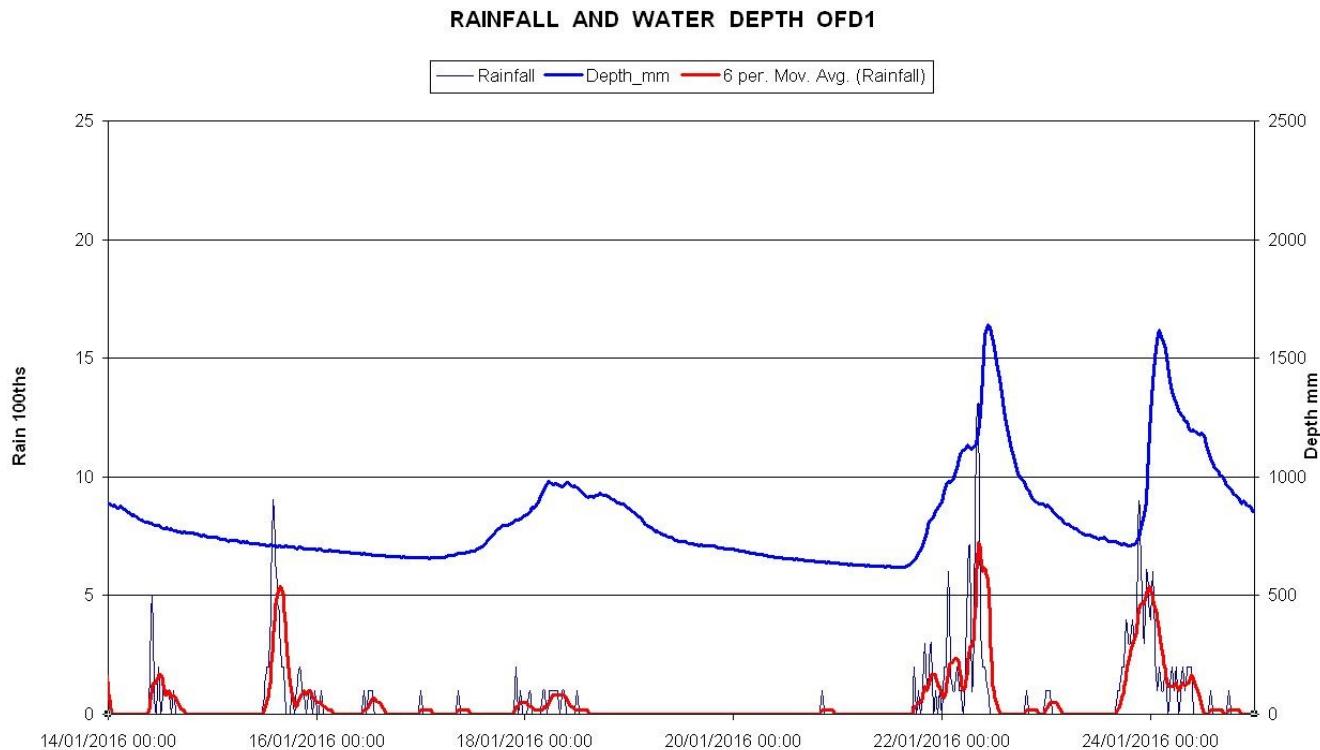
RAINFALL AND WATER DEPTH OFD1



This line looks like it is copying the stream level, so we potentially have a means of assessing the stream level based on the rainfall alone. Obviously, with the ground being saturated for much of the 2015 autumn / winter months, there was more or less instant run-off when it started raining yet again. Drier months of the year most probably will produce a different relationship between the rainfall and stream levels, so we are keen

to see what the forthcoming data will reveal.

Another anomaly spotted was when we had a fall of snow from around midday on 15th January 2016. The snow that fell on the rain gauge melted quite quickly as there is no insulation and it is exposed to fluctuating air temperatures more readily than the blanket on the ground. The rise in the stream level was delayed until the morning of the 17th January, as shown in the graph below. Quite clearly, the lesson to be learnt is "beware the snow-melt".



Rain on top of snow will obviously produce an even more dramatic rise in river levels. The moving average trend line does not pick up such a situation as this, so a bit of empirical evaluation of the situation in snowy weather will not go amiss.

As mentioned above, the next stage of the game is getting the data in real time, or near real time, back to the club. Noises are being made in the right quarters and we have been getting encouraging responses back from the various parties concerned. The thoughts are for a line-of-sight radio link to a suitable premises to pick up the internet and get the data back to Powell Street through that medium. A Plan B could be to have a radio repeater on SWCC land – a suitable point with a view both ways exists – and have a pure radio link back to the club. Dog-bowl antennae are not such a stupid idea, but that is a different story....

Easter 1946

Clive Westlake

The sun shone in the Swansea Valley at Easter 1946. There were plenty of cavers around to enjoy the good conditions above and below ground and to meet and start the South Wales Caving Club. A few were around to enjoy the good conditions underwater and found the Cave Diving Group.

Just as there had been some earlier caving in South Wales, cave divers had been active before. Graham Balcombe had been the presiding spirit at Wookey Hole, where heavyweight Standard Diving Dress was used to explore upstream from Chamber Three, and at Swildon's Hole, where home-made equipment was used to pass Sump 1. Towards the end of the Second World War Balcombe designed and built his own oxygen rebreather and diving suit.

He used these in pioneering dives at several sites in Yorkshire. "Ffynnon Ddu is a beautiful spring whence the water bubbles over a stony streambed to the Tawe. The banks were sprinkled with violets peeping with big-eyed curiosity to see the doings of the latest callers. There was a nice flat-topped mound for those who like to loll in the sun, and the sun shone as I have only once known it at Easter." So wrote Graham Balcombe in one of his many notebooks which were later published by the CDG as "A Glimmering in Darkness." On Friday 19th April, Balcombe dived in excellent visibility for about 12 m to an airspace, where he could lift his head out of the water, but boulders prevented the rest of him and his bulky gear from following. He also noted, but did not enter, a side passage. The next diver was Jack Sheppard, who twelve years before had been the first person to pass Sump 1 in Swildon's Hole. He confirmed Balcombe's findings and they decided to blow up the boulders preventing entry to the airspace.

On Saturday 20th Balcombe dived again and took the side passage which soon surfaced. He was able to climb out of the water, but make no further progress from the bouldery airbell. He dived back, collected half a pound of gelignite prepared by Sheppard and laid it in the choke beneath the airspace reached the day before. When they detonated the charge, it destroyed the visibility, which had not cleared by the afternoon, so they decided to abandon diving for the day. That evening thirty-five cavers met in the Gwyn Arms for a meeting chaired by Brigadier Glennie. They decided to found the South Wales Caving Club and three of the club's first committee, Ted Mason (Chairman), Arthur Hill (Secretary) and Bill Weaver (Committee Member) soon became cave divers.

On the morning of Sunday 21st Ffynnon Ddu was flowing clear again, so Balcombe, then Sheppard dived to find that the obstructing boulders had been destroyed, but a collapse of still more boulders now blocked the way even more effectively. During the afternoon Weaver, Mason and Hill did their first cave dives and later they all went for tea with a local family. They greatly appreciated the quantity and quality of the food, for this was still a time of severe rationing.

"As a speleological undertaking it was disappointing", wrote Balcombe, who like most cave divers hoped to pass the sump and explore caverns measureless beyond. Of course the disappointment did not last long. In August 1946 Peter Harvey and Ian Nixon dug into Ogof Ffynnon Ddu and what is now known as OFD I was explored in the following months and years. Indeed Balcombe and the CDG were diving the inlet sump at the end of the OFD I streamway as early as November 1946. Cave divers made the major breakthrough of the next generation when they climbed up beyond Dip Sump and discovered Ogof Ffynnon Ddu II – but that is another story!

All these photographs are from the South Wales Caving Club archive: many thanks to Jem Rowland for making them available. They appear to have been taken by Frank Frost, better known as a Wessex caver and by L.E.M, whom I cannot identify; can anyone else?



Ffynnon Ddu - Easter 1946

Graham Balcombe in middle, Bill Weaver left and Peter Harvey right





Jack Sheppard left, Graham Balcombe in middle

Left of centre: Graham Balcombe ready to dive



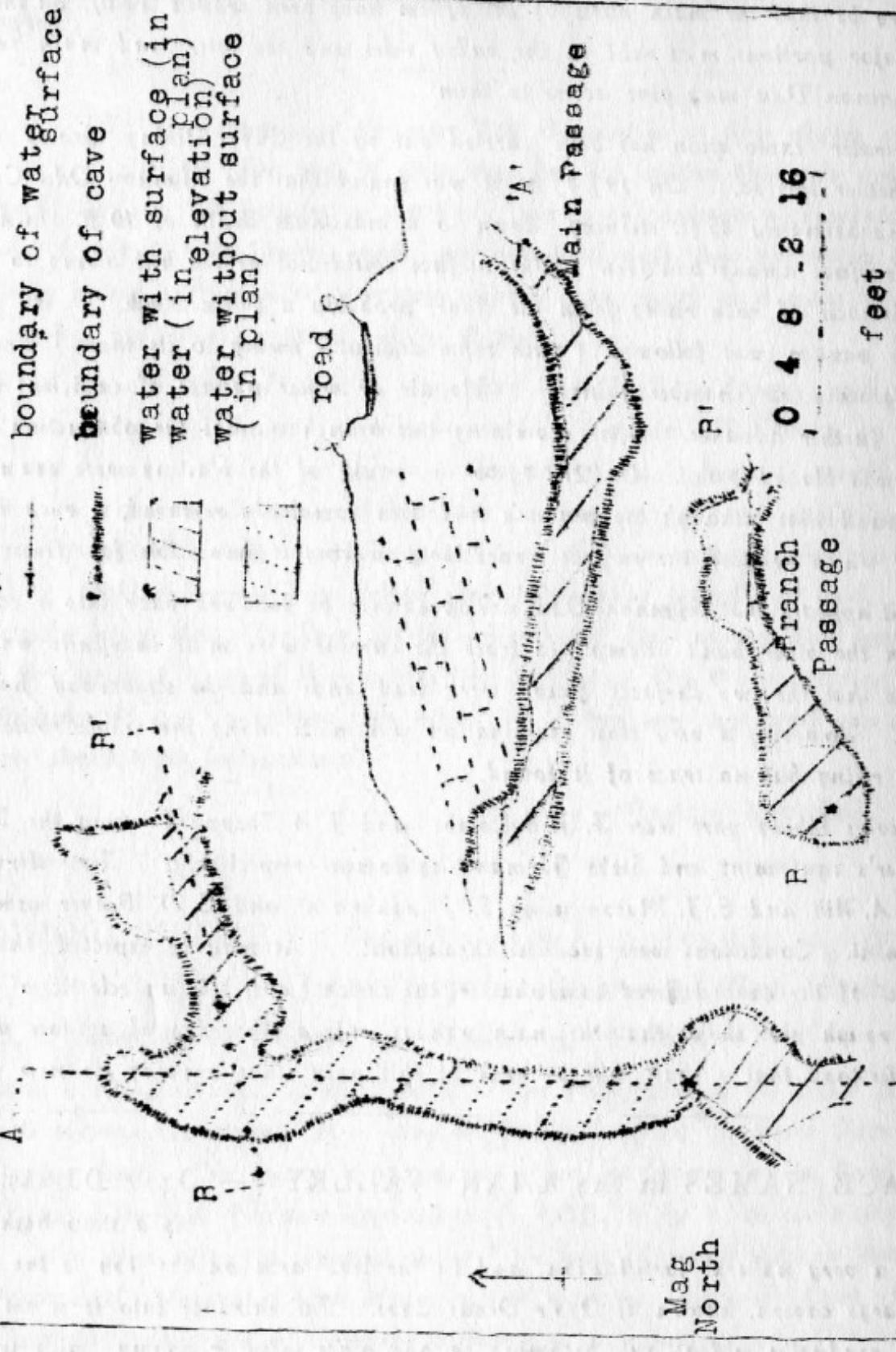


Graham Balcombe sets off on the first cave dive in Wales

Jack Sheppard (left) and Graham Balcombe (right) in resurgence pool



Cave Diving Group, Report No 1/46,



Rough Survey of Ffynnon Ddu

All that was known of Ffynnon Ddu at Easter 1946

A Scribble Through The Shivers

Martin Hoff

It was one of those trips, not quite done just for the sake of it but very nearly so. I didn't really need to be there but then I didn't need to be anywhere else either, not until the following day. I needed to see some people and push them for some progress on an ongoing situation that had been hanging over us for a while; I had a new sit harness I needed to spend some time hanging in so I could make some adjustments. I could combine a quick Saturday trip to the Dales with seeing my friends, doing someone else a favour along the way and still make my Sunday commitment.

Nobody knew that I was coming and I just turned up at the cottage where I knew that the others would be, to settle into a late Friday night of catching up. Saturday morning came with a heavy frost, thin layers of white blanketing the surrounding fields and the sluggish race to get up the hill and down the cave being more of an imposition than an eagerly-awaited delight.

There was just enough space for a couple of cars in Clapham, just enough enthusiasm to start moving up the path towards Trow Gill and just enough volume in the thin coating of snow across the landscape to reinforce the scenic wintry vibe. Brrr. Stragglers gradually caught up on the other side of the last stile and we divided into the caving parties for the day, five of us heading down Flood Entrance Pot with no particular project or purpose in mind beyond getting underground and enjoying ourselves.

It had been a good few years since I was last in Flood and beyond the fact of having been there, I remembered little about the place. Perhaps this is one of the benefits of the ageing process, as so many trips blur together and repeat visits still turn out to offer ever renewed novelty value.

One thing that had definitely escaped my recollection were the stretches of crawling early in the trip; small puddles chilled by what little snow was melting on the surface and lurking to ensure minor inconvenience and moderate discomfort for anyone stupid enough not to avoid them. Never keen to err on the side of convenience, I tried my luck at getting some fairly ropey photographs in the small passages around the puddles and ended up with exactly what I had expected. Rigging was proceeding somewhere further down the cave in front of me, so there was no huge hurry to chase the rest of the party; but soon enough I was dropping down the narrow rift of the 14 m pitch and following the floor gently downslope, gently downstream from junction to junction.

Indistinct chatting advertised that the rest of the party was not far away; another corner revealed a cluster of cavers looking over the edge of the main pitch and watching as the rigging continued from the other side of the broad ledge.

This 38 m pitch is in a fine wide shaft, with deviations suited to avoiding the falling spray as it heads on down to the bottom of South-East Pot far below or just to swinging around for the fun of the exercise. The ledge above South-East Pot provides a somewhat exposed landing place, but with multiple route options leading on towards Sand Caverns and so on towards the Main Chamber, where Fell Beck tumbles and thunders down from the patch of daylight far above. The strong draught that had accompanied us through from the last pitch was dwarfed by the air currents circulating round the huge chamber and, even if the low temperatures were holding most of the water on the surface as lying snow, it was still not a place to linger.

Knowing something about the limited joys that may afflict people kept hanging around to carry out de-rigging operations while other people take their time on ropes above them, I was reminded of one fine example of this scenario involving SWCC members from

exactly this location as I stuffed a bit of food into my mouth, shoved everything else back in my tackle sack and headed back towards Flood. We were not going to be able to move out together and still have even these few pitches de-rigged in good time, so it seemed a worthy plan for two of us to make our way out and leave the other three to do the heavy lifting.

Progress up the pitches was straightforward, much improved by Vicky sharing some of the load of my camera kit on the biggest of these and slightly reducing the amount of time I spent swinging around between deviations. Then it was pretty much just a case of following our noses and the ropes, a couple of final attempts at avoiding the puddles as we headed towards the dark fell-side above, thankful for the relative ease of our exit and glad not to be coming out through the more unavoidably damp final stretches of somewhere like Little Hull Pot or Black Shiver in those conditions.

The final shift in the air from steady cave draught to the freshness of the great wide open was something we knew awaited us, but the icy chill stuck in the throat as we scrambled out onto the path, quick to remove SRT kits and re-arrange ourselves and our tackle sacks before anything froze into position. With no sound of the others catching us up, there was really no reason to delay nor value in doing so beyond giving them something else to worry about should they emerge to find us tired of waiting and thoroughly deprived of warmth. If we were not on the surface and they hadn't found us on their way out of the cave, the conclusion would be obvious: that we must have made it out successfully and headed back down towards Clapham.

For all that the low air temperature was only heading further down, due to the lack of cloud cover of sufficient density to keep the surface warmth in, the conditions remained manageable at a couple of degrees below as there was little wind and no precipitation to make things worse. That said, the cold always bothered me and anyway, it was no place to wait unless there was something that really needed waiting for. The path had seen a little further melting since we had gone underground but remained predominantly white and Vicky and I headed for the stile, anticipating a certain amount of sliding and working hard to remain upright on the usually muddy slopes that would shortly follow.

As long as we were walking, the movement of our muscles kept the lukewarm blood pumping and it was a tolerable enough descent of the slippery rocks at the head of Trow Gill that saw us back down towards Inglebrough Cave to carry on down the easier going of the better path towards the village. Our oversuits were prevented from becoming a restrictive frozen carapace by little more than our continued movement. Our earlier conversation about why waiting was not a good idea came back as part of a discussion about why decision-making is one of those skills that can go overlooked or underestimated in its importance, even trips where everything had proceeded more or less according to whatever vague plan had never been discussed in full, only assumed.

It was clear that waiting at the locked cars had certain associated drawbacks. Even our continued activity had only just kept us ticking over on the warmth front and to stop moving for an indeterminate period of time would only see us cooling further. Rather than stand around talking it over, we made a quick lap of the village as we shuffled towards the obvious decision that we simply needed to keep moving. The many years of shouting obscenities across the Ogof Twyn Tal-Draenan shakehole as my fingers started the painful process of thawing had been a worthy apprenticeship in the fine art of knowing when getting even colder is not advisable.

Always with one eye on the bigger picture, my companion pondered whether the others would guess that we had carried on and walked back to the cottage, should we do so. Never under-equipped, I had the answer even if my frozen fingers struggled to extract the small pot of emergency supplies from the tackle sack. Lid off, dump the contents in the road, pick up the pen and one of the half-postcard sized pieces of waterproof paper

and attempt to coax a legible scribble from my rigid digits. I scooped up the bits and pieces from the road, shoving some into pockets as I secured the drawstring on my bag while Vicky left the note under a windscreen wiper.

Onwards, chillingly onwards. It took a few minutes to get the blood moving again, as we headed out of Clapham to cross the A65 and continue our gentle progress through the freezing night. There was no major hurry and anyway, the extra effort would do our fitness no harm so we took the longer way round, passing Clapham station to see the twinkling lights of Greenclose in the far distance, just beyond the occasional ribbons of tail-lights trailing along the road we could have taken had we gone the most direct way.

There was just time enough for a cup of tea and a quick sit in front of the log burner, which persons known would later fill with logs and stoke till the whole thing glowed red with heat, while our extremities inched closer to normal temperatures. The extended walk to cover roughly two sides of a triangle had delayed our return a little and it was not long before the others reappeared, having made haste to de-rig the pot and get back down with a minimum of delay. All the same, we would have had more than an hour to wait for them to reach the cars, an hour which would have been enough to have a very unpleasant time.

Between the extremes of a frozen fell-side and a log burner warm enough for its heat to chase people out of the room, there had been a little of everything: just enough effort to feel we had done something worthwhile with the day; just enough discomfort to make the subsequent comfort appreciated. As Saturdays go, I have had plenty worse.



Puddle Evader



Sand Caverns

There are no caves in this part of Costa Rica

Allan Richardson

In February/March 2015 I was on a wildlife tour of Costa Rica. This was somewhere I had always wanted to visit after seeing David Attenborough's "Life on Earth". I was accompanied on the tour by Chris Grimmett and his wife Sheelagh, amongst others. A quick Google had determined that there were caves in Costa Rica so a helmet and light were packed. On arriving in Costa Rica and speaking with the guide, I found that we were not going near any of the areas with caves. I have always found though, that it is better to travel with hope, so dutifully each day I carried my head torch with me. It did prove useful at times: for example lighting up the insides of hollow trees so one could see the vampire bats which inhabit this part of the world.

One day we were visiting a dry forest area in Santa Rosa which was on an old lava flow. I hopefully asked about lava tubes but was assured there were none, so I didn't take my light.

Whilst walking through the woodland, I realised that at one point I was standing next to a collapse depression. Now, collapse depressions can normally only occur if there is something for the ground to collapse into, or so I have always understood. Without thinking, I was straight down into the depression and wriggling between some large lava blocks into a lava tube. At this point I realised that my head gear was a soft hat; I was wearing shorts (lava is very sharp); I had no light and there are some very poisonous snakes in this part of the world which like cool shady places. I did, however, have a walking pole and a camera.

Using my walking pole to tap the walls and floor to check for holes and side passages, progress was made. I continually fired my camera flash to provide some light. The air around me was alive with thousands of small bats, which I had disturbed, and which



were being driven further down the lava tube by my presence. I eventually turned a corner and emerged after about twenty or thirty metres of reasonable sized passage at the entrance, which was at the head of a small gully in the lava. Apparently I was preceded by a large cloud of bats, which was a fairly impressive sight.

The guide was pleased to see me back in one piece and interested in what I had found. The moral to the story is of course: always carry a light as you never know what you might find!



Is there another skeleton in Ogo Ffynnon Ddu?

Jem Rowland

The story of the skeleton of the itinerant castrator that was found in 'Skeleton Chamber' in Ogo Ffynnon Ddu 1 is relatively well known. Rather less well known is that when we first entered OFD II Top Entrance in 1967, we found a skull, probably of a horse (see picture). It was just inside the entrance, against the left hand wall (when entering) at the bottom of the first downward slope. The process of digging out the rubble-filled entrance, which was done simultaneously from the inside and outside, seems to have resulted in a stray rock breaking the front part of the skull. All the breaks appeared new so, prior to the dig, the skull was likely intact.

It would, of course, be interesting to know the age of the skull but, unfortunately, shortly after its discovery it was removed from the cave and supposedly taken to the National Museum in Cardiff for dating. Whether it reached there we do not know, because once it left Penwyllt it was never seen nor heard of again and the person concerned is long since deceased.

Before the entrance was dug, there was just a smooth grassy bank, just like the ground on either side of the present entrance, with no indication that a cave entrance lay beneath.

So, many questions arise: Was it a horse? How long had it been there? Did it wander into a large, open, cave entrance to die? Was it dragged in there by a predator? If the entrance was indeed an open cave, when did it become filled with rubble (presumably as a result of glacial activity)? Was the entrance passage truncated by previous glacial activity so as to form an open entrance? Is the rest of the skeleton still there beneath the rubble?

Archaeological dig, anyone?



Skull found at Top Entrance Ogo Ffynnon Ddu in 1967

Photo by Jem Rowland

Geology of the Gower Bone Caves

Keith Ball

Introduction

The Gower Peninsula is underlain by rocks which, although broadly similar to those found in our home ground, on the North Crop of the Coal Field, in detail show many differences. The limestone is very much thicker and because of intense folding and faulting the structure is often much more complex.

On the North Crop the limestone thickness is seldom greater than 150 metres. On Gower the thickness may be greater than 1000 metres. Whereas the dips on the north crop average about 15 degrees to the south, in Gower the dips are anything up to vertical. Further differences between the two areas stem from the nature of the contact rocks. The subjacent rocks (Devonian Old Red Sandstone) are not dissimilar to those on the north crop, comprising red conglomerates and coarse sandstone, however the overlying rocks are generally mudstones and that marked feature: the scarp of the Namurian Basal Grit, is absent on Gower.

The purpose of this account is to describe and attempt to elucidate the controls on cave development in Gower. The peninsula is famous for its bone caves. These have been studied intensively for their archaeology, but there has been little investigation as to their geological control. A study of the hydrology of Gower has been published in this newsletter and is the work of Richard Baynton. The geomorphology of the coast is described in a booklet by Bridges (1997) and this also covers the Pleistocene deposits and erosional features. A listing of the caves is available in Jenkins and Mason-Williams (1963), Stratford (1978) and the "Caves of Gower" by Tony Oldham. A cursory account of the inland caves systems and hydrology is given by Ede and Bull (1989). The bone caves are mostly on the coast although not exclusively so.

Geology

Lowe in 1989 reviewed the geology of Gower as part of a broad account of the limestone geology of Wales. As seems almost inevitable this small area is covered by two Geological Survey Sheets. The eastern-most No.247 (the Swansea sheet) was published by the British Geological Survey (BGS) in 1957 and the Gower section was partly based upon a geological map by George in 1940. Geological maps on the scale of 1:10,560 are available for much of this eastern part whilst a 1:50,000 sheet No.246 (the Worms Head sheet) is available for the western section. A recent development has been the production of the BGS app which provides a seamless map of Great Britain and Northern Ireland. It is based upon the 1:50,000 scale maps and is free. Just enlarge and go.

A summary bedrock map is given in Figure 1. The oldest rocks are Devonian Red Beds - mostly sandstones with thick conglomerates. They underlie most of the high ground in the peninsula, forming the core of the area. The geological "grain" of the peninsula is WNW-ESE and limestone dips away from the anticlinal cores within which the Devonian rocks are found. The situation is more complicated in the very west where a very large fault brings upper beds of the limestone against rocks which are well within the Devonian succession.

The limestones are overlain by Namurian shales and these outcrop in a broad band extending from near Llanrhidian to Mumbles Bay. Within the limestone area, Namurian rocks are also found in three synclines: at Oxwich Bay, Port Einon Bay and Mumbles Bay. Further to the north and east the Namurian rocks are overlain by the Coal Measures.

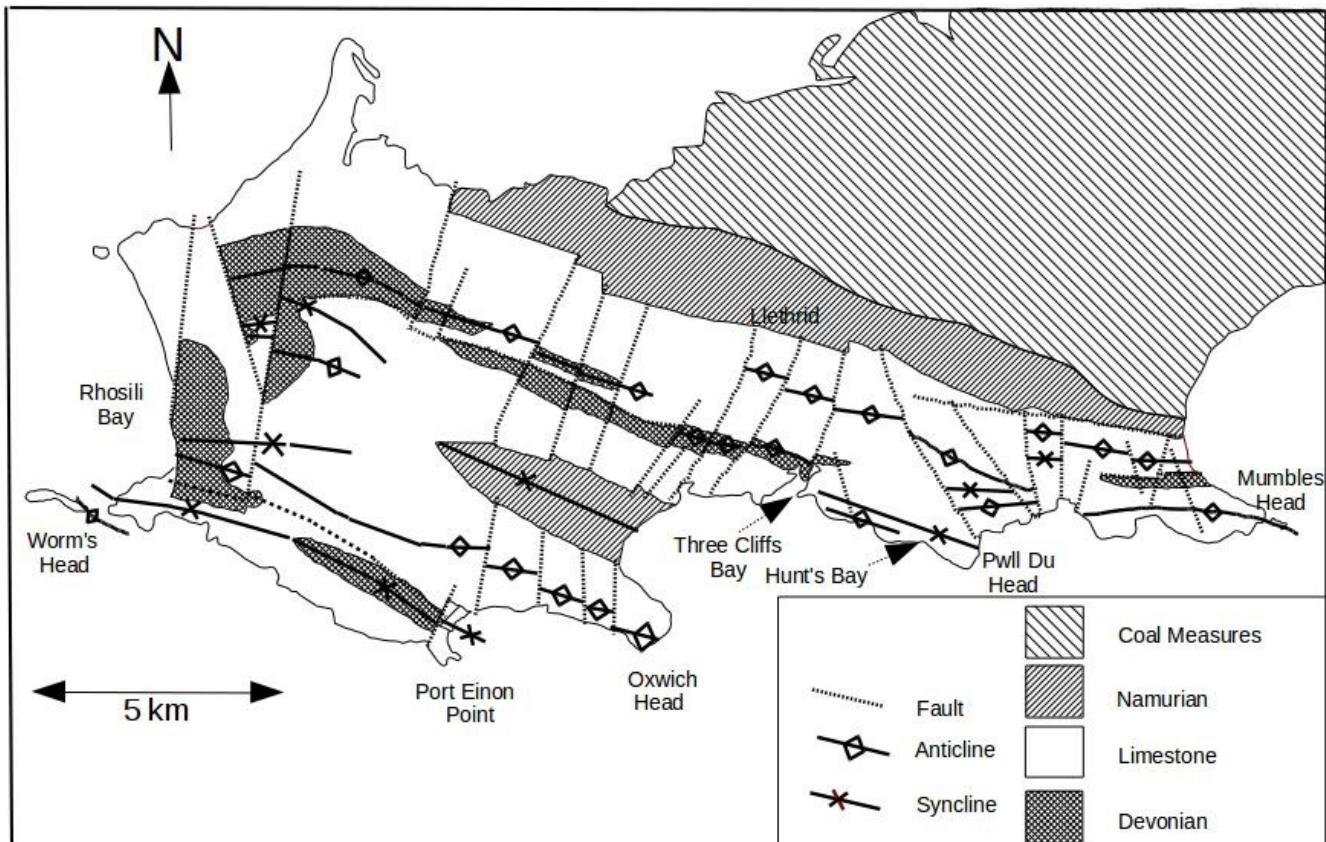


Figure 1. Simplified bedrock geological map of the Gower peninsula

In about 1880 the basic geological map was published and classified the limestone simply as the "Mountain Limestone". Development in limestone petrography and in particular the recognition and development of zone fossil information in the years since 1880 meant that there was scope for substantial revision of the geological map and this was first undertaken by George for the limestone area in 1940. The Swansea sheet was re-mapped by the Geological Survey of Great Britain in 1948 and this map also reflects the greater knowledge and methodology developed during the intervening decades.

The geological map by George in 1940 may be regarded as the first to assemble the data, describe the distribution of the fossil zones within Gower and to sort out the complex structure. Figure 1 is based upon a simplified version of George's map and shows the distribution of the main rock units and the structural elements. The grain of Gower is WNW- ESE and most of the folds: anticlines and synclines, accord to this trend. Many of the major faults (only the main faults are shown in Figure 1) are almost perpendicular to this trend but there are important exceptions. Such faults are steep and because of the folded nature of the ground have variable downthrows. A number of low angle thrust faults also occur. These parallel the trend of the fold axes and in the main show over-thrusting towards the north.

The later mapping by the British Geological Survey in 1947-48 built on this but for the Swansea sheet only. There are not surprisingly differences in interpretation and the geological survey map differs in some respects from that published by George. The main difference is that whereas George distinguished, as mappable units, the lowermost zone of the main limestone and was able to divide this into the Z and lower C1 biozones, the Geological Survey grouped these together into a single formation: the Penmaen Burrows Limestone. George had pointed out however that the distinction between the two biozones was only possible based upon the fossil evidence and that in practice it was difficult to distinguish between the two zones on appearance only. For an excellent review of the rationale, various methods and reasoning behind the splitting of

stratigraphic column into "Biozones", "Formations" and "Stages" see Lowe (1989). The geological succession according to George is as follows with the BGS formations identified:

Table 1.

<u>Succession from George (1940)</u>		<u>BGS Classification</u>
Upper Limestone Shales	D3	Oystermouth Beds
Main Dibunophyllum Zone	D1-D2	Oxwich Head Limestone
Seminula Zone	S2	Hunts Bay Oölite
Upper Caninia Zone	C2S1	High Tor Limestone
Modiola Phase	???	Caswell Bay Mudstone
Caninia Oölite	???	Caswell Bay Oölite (Gully Oolite)
Lower Caninia Zone	gC1	Penmaen Burrows Limestone (Black Rock Limestone)
Zaphrentis Zone	Z	Penmaen Burrows Limestone
Lower Limestone Shales	K	Cefn Bryn Shales (Lower Limestone Shales Group)

The formations noted in parentheses accord to the more recent classification used in the Worm's Head Sheet. Because the larger scale maps are available only for the earlier Swansea Sheet, the Swansea Sheet classification is used for this account.

The succession at Penwyllt is somewhat different. The main limestone unit (the Dowlaish Limestone Formation) is within the S2 biozone and is only about 100 m thick. This is underlain by the Lower Limestone Shales, ascribed to the C2S1 biozone, and is overlain by about 30m of D zone limestones. It will be seen that it is only towards the top of the succession that there is some comparison. The lowermost formations have no lateral equivalents in our part of the north crop although there are some representatives as one proceeds further east towards Brynmawr. There are still some instances of non-deposition amongst the more complete succession in Gower. Notably there are unconformities between the Penmaen Burrows Limestone and the Caswell Bay Oölite; between the Caswell Bay Oölite and the High Tor Limestone; and finally between the Hunts Bay Oölite and the Oxwich Head Limestone. The Caswell Bay Limestone in particular shows an eroded upper surface and is overlain by a rather thin but easily recognisable series of impure limestones and shales: the Caswell Bay Mudstone. This passes sharply but conformably upwards into the High Tor Limestone.

The Cefn Bryn shales are poorly exposed and although originally thought to contain Silurian fossils have since been shown to be Carboniferous. They are overlain by the rather uniform limestone described by George as a dolomitic crinoidal limestone (the Penmaen Burrows Limestone) which is estimated as not less than 300m thick. The distinctive Caninia Oölite (Caswell Bay Oölite) is about 60 m thick and is immediately overlain by the Caswell Bay Mudstone a few metres thick but widespread and easily recognised. The High Tor Limestone (= Upper Caninia Zone) is up to 100 m thick. The Hunts Bay Oölite (= Seminula Oölite)(160-200 m)

The Oxwich Head Limestone is about 100 m thick, in the middle of which is a number of cyclothsems mostly comprising limestones, shale and seatearths, one of which has a thin coal developed upon the seat-earth and is thus another useful marker band. The Oystermouth Beds (30 m) are the lateral equivalents of the Upper Limestone Shales of the North Crop and similarly comprise interbedded limestones and calcareous shales.

The limestone units are however usually rather thicker < 30 cm on average.

Coastal features and more recent geology

Over the past two million years or so it is generally recognised that the climate in Wales was much cooler (on average) than the present. There have been a large number of climatic fluctuations resulting in extensive glaciations. As a result of the water locked up in land ice the sea level during glacial periods was much lower than at present. There were at least two major glaciations to have affected our local area of which the last reached its maximum between 22,000 and 18,000 yrs. before present (BP). Because this was the latest major event, remnants are still easily recognised. This glaciation resulted in small deposits of glacial deposits (moraine) along the tops of the cliffs and more important valley glaciers extending from the north to the outskirts of Swansea. The deposits of earlier glaciations may well have been destroyed or incorporated in the latest event. During this glaciation the sea level was at least 100m lower than at present and because of the low angle of the continental shelf the shore line was much further to the south and west, well into the Bay of Biscay and beyond the south west tip of Ireland. The present cliff line was probably in existence from earlier times. During the last glaciation it is likely that it would have been mantled by frost shattered scree, remnants of which are well displayed along the coast, along with remnant sand dunes. During the last interglacial (extending from 122-132 ka BP) the sea level was about 5m higher than at present. There is a well developed raised storm beach at this level, remnants of which are observable in Hunts Bay, Minchin Hole and Bacon Hole.

Where a fault cuts across dipping strata, unless there is some indication of the direction of movement, it is very difficult to describe the nature of the fault. In simple cases if the fault plane dips towards the direction of downthrow the fault is called a "normal" fault (a "reverse" fault if the reverse is true). If the movement is lateral then the fault is called a "wrench" or "tear" fault. Unfortunately where there is a steepish dip to the bedding planes, in the absence of directional indications it is very difficult to ascribe a sense of direction to the movement. In most cases therefore a truly normal fault will have an apparent wrench component and a truly wrench fault will have a vertical displacement (throw). If you look across the fault plane and the apparent movement is to the left then the fault is called a "sinistral wrench fault" ("dextral" if the movement is to the right).

The Caves of Penard

As a beginning, the famous bone caves in that stretch of cliffs extending from Hunts Bay in the east to Three Cliffs Bay in the west are described. They include two caves in particular which have been the subject of detailed investigation in the recent past, especially with regard to the Pleistocene faunal remains. This stretch of coast is characterised by steep cliffs, about 60m high. The main geological feature is a sharp anticline extending parallel to the coast, the axis is slightly inland and the dips on the coastal side are variable and towards the sea and increase in steepness from east to west.

The vexed question is: what constitutes a sea cave? In an area like Gower there is a host of rock shelters and more definite caves that abound on the cliffs fringing the Peninsula. There are usually no difficulties when the more important bone caves are identified, since these are described by Allen and Rutter, their archaeology has been well recorded and there is usually a wealth of information on the more recent fossil content. Many of them have been re-investigated very recently with important conclusion reached about their development during Glacial Times and with the benefit of reasonably assured age determinations for the deposits (Campbell & Bowen, 1989). In the present account it is intended to view these bone caves to attempt to elucidate the controls on their formation. Whether the smaller caves that are without or have limited archaeological interest are investigated usually depends upon the geological features identified and

whether these shed some light upon the development of the larger caves. In this sense the choice is again personal and to some degree arbitrary.

Proceeding from east to west, the caves in this section of the Gower cliffs are distributed in the following order Bacon Hole, Bosco's Den, Crow Hole, Bowen's Parlour, Minchin Hole, Forester's Cave, Devil's Kitchen and Ravenscliff Cave.

BACON HOLE SS561868

This is dominantly fault controlled. It is located in the Hunts Bay Oölite but just above the contact with the High Tor Limestone (a dark grey limestone with crinoids and corals). There is much scree material, poorly sorted, with large boulders irregularly distributed, these presumably fallen from the cliff face. The present sea cave is eroding along the line of the fault and is actually re-excavating a former cave originally filled with raised beach material overlain by cemented scree.

The fault trends 16°N and the fault plane dips to the west at 58°. The fault is at a high angle to the bedding which dips at 18° towards 134° N. It is difficult to classify the fault in the sense that whenever a fault cuts across strata which are dipping it is very difficult to determine which way the fault has moved. In this and most other cases locally there are no recognisable signs that would give an indication of the direction of movement such as chatter marks and slickensides. The downthrow side is to the west and in this location at least the apparent throw is about three metres.

The cave is some 42 m long. There is some considerable vertical development along the fault with avens extending as far as the eye can see in the inner part of the cave. (see Figure 2a). Figure 2b is a sketch showing the relationship between the faulting and the cave entrance viewed from the sea-ward side. Down at sea-level the sea is re-excavating a former cave partly at least filled with cemented scree and storm beach deposits.

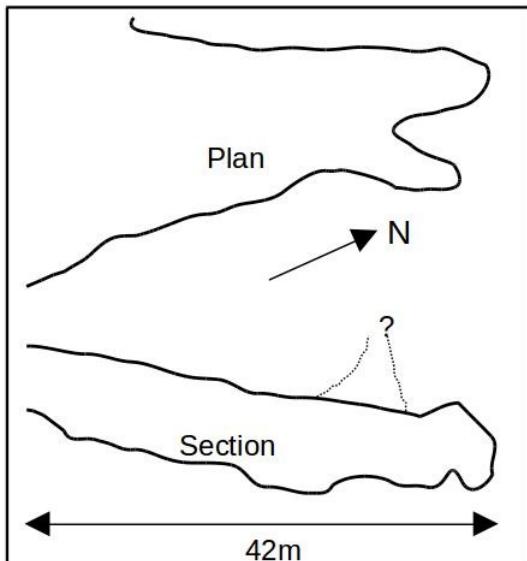


Figure 2a

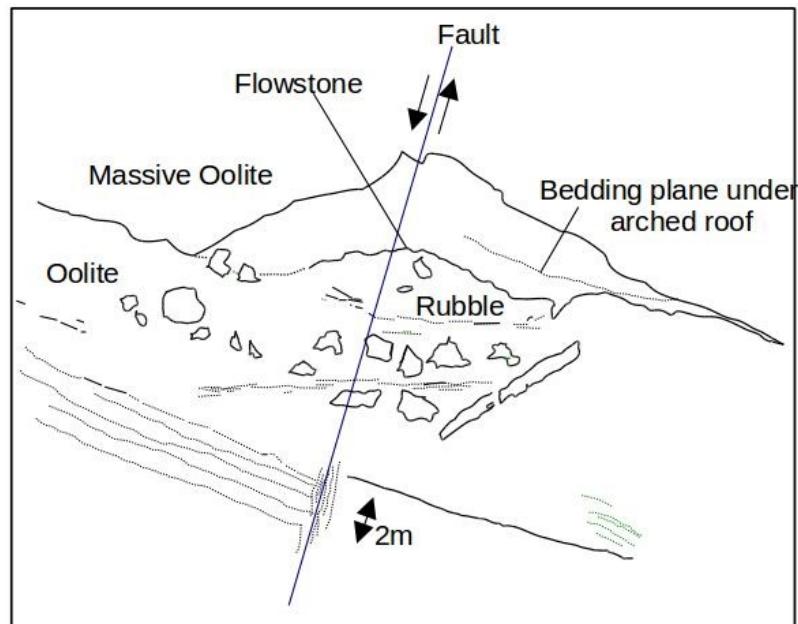


Figure 2b

BOSCO'S DEN (aka Bacon's Eye) SS560 902

Bosco's Den is situated less than 150 metres west of Bacon Hole, in the western side of the next indentation. Access is difficult and only practical at low water. It is composed of two storeys; the lower about 6 m. above the beach and only extending inwards for about 10 m.; the upper is about 20 m. above the beach and penetrates the cliff for about 22 m. The dividing floor separating the two storeys, is composed of cave deposits.

The lower storey is within the current storm zone, has been completely denuded by the

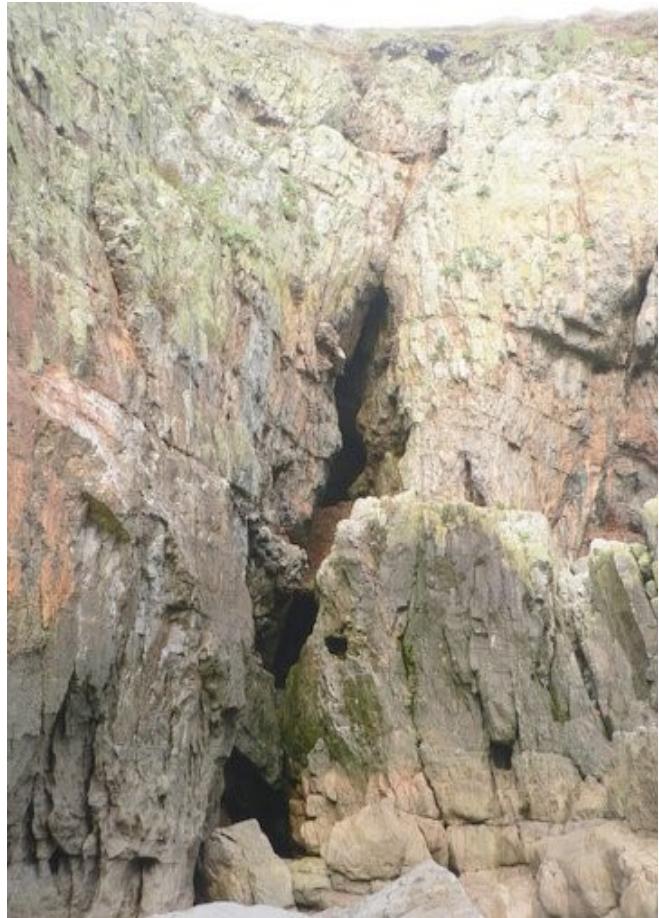


Photo 114054 24/12/2007

BOWEN'S PARLOUR SS557 868

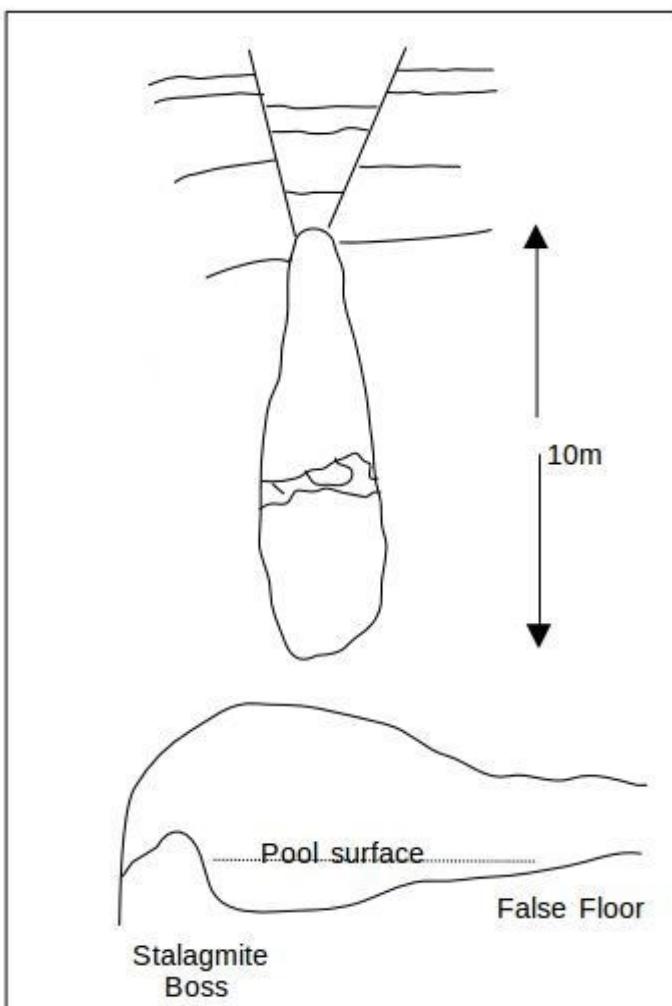
A small cave of little archaeological interest having been within the storm zone and much of the soft material has been removed by wave action. This is another two-storey cave, the lower portion about 2 m high, the upper about 3 m, the storeys separated by a false floor of well cemented angular limestone fragments resting upon marine sand, the surface of which slopes gently into the cave at about 15-20°. Remnants of the false floor extend for some metres out onto the cliff face. Towards the back of the cave and above the false floor is the remnant of a pool with horizontal narrow dissolution groove and banked up upon the false floor at one end and against a largish stalagmite boss at the other. The impression given is that the formations at least, formed deeper underground than now. The local dip is about 28° towards 210°N.

There is minor faulting with a trough fault above the roof (Figure 3). The overall throw is about 40cms to the west.

sea and has revealed no animal remains; but in 1858, in the upper story a Colonel Wood excavated a large collection of bones, teeth and antlers. Especially remarkable was the enormous collection of antlers belonging to over 1,100 reindeer. The antlers were chiefly shed, small, more or less broken and belonging to young animals.

The false floor separating the two caves is 3.5 to 4 metres thick and comprises rounded boulders at the base, making a layer about 0.5 m thick, mostly of local Carboniferous limestone. Some are irregular blocks but most are sub-rounded and about 20 cm across. Bigger blocks are more tabular and up to about a metre maximum dimension. Overlying this is an angular pebble-sized layer in a red clay and sand rich matrix.

The cave is eroded along a small fault trending 3°N, the plane of which dips at 68° to the west and has a downthrow of about one metre. There are no obvious slickensides though a minor parallel fault to the east exhibits sub-vertical slickensides.



CROW HOLE SS558 869

This is a peculiar cave produced by erosion of the scree infill of a rather large gully.

The scree has been partially cemented especially on the upper surface. Access is from the seaward side although the roof is pierced by a hole through the sloping terrace feature that extends along the cliff face. A sub-vertical fracture trending 010°N along the west side of the gully controls the cave.

MINCHIN HOLE SS555 868

The cave has a large slot-like entrance and has clearly been known about and occupied for a long time. The floor is steep and the roof arches over an impressive void. In 1956 Harold Inson and Terry Powell (of the University College Swansea Caving and Climbing Club) pegged their way into the upper reaches of the cave followed by Bill Harris and myself. This is reached at the topmost exposure and the highest point from which access may be gained to the upper storey. This level mostly comprises angular scree material, well cemented (at least on the upper surface) by stalagmite deposits. There were no obvious leads.

The sea is presently re-excavating the infill material along the fault zone and associated cave infill. The cave is mostly eroded along a fault trending about 15°N, the zone of which is about 20 cm wide and which has a sinistral throw of about 3 m. The plane dips steeply (75°) to the east. There is no obvious indication of the direction of transport.

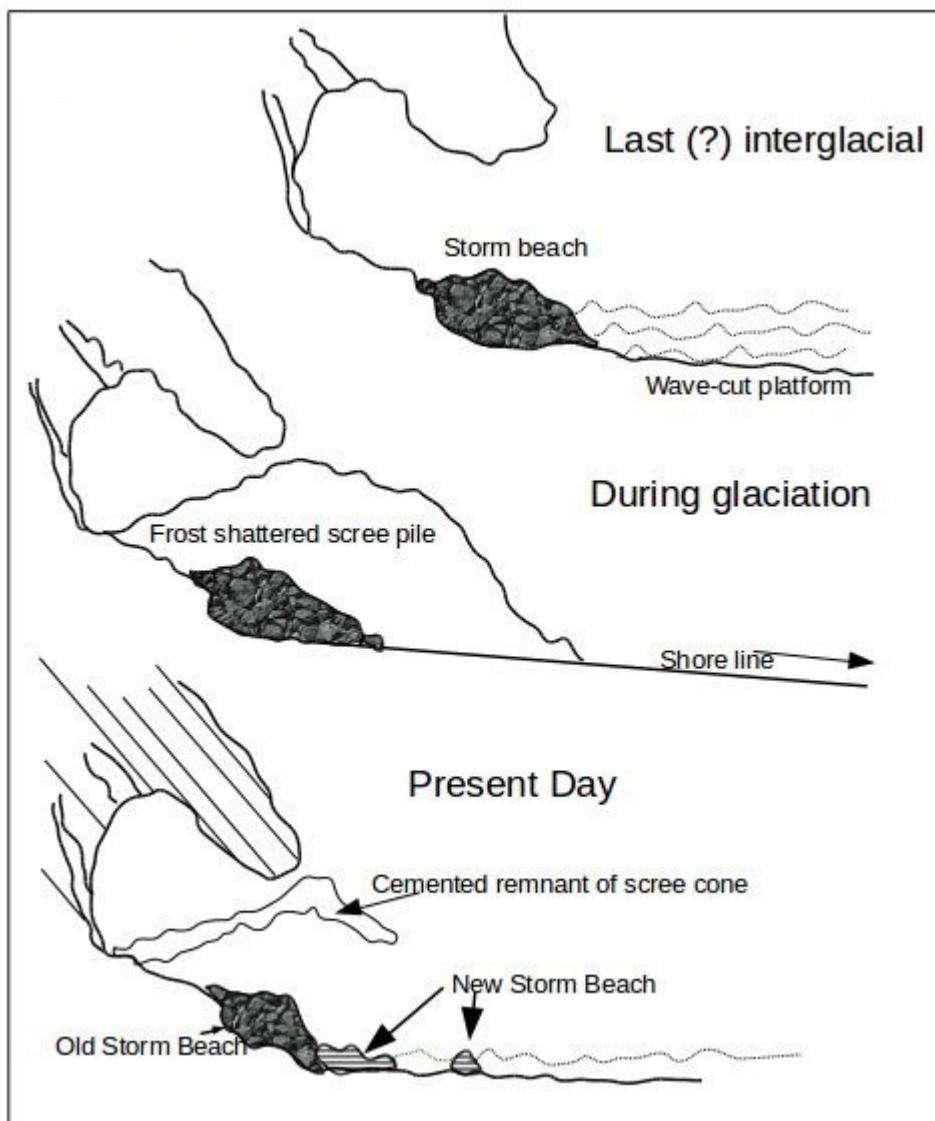
The dip of the beds is southerly at about 50° and the cave is in the High Tor Limestone. The cave has been extensively studied and the deposits in the floor of the cave have shown one of the best sections through the late Pleistocene of any other in Wales.

The archaeological deposits show firm evidence for a series of deposits relating to cold periods, when the sea level was much lower than the present (maybe as much as 100 m at the maximum) and warmer times when the sea levels were as much as 3-5m above the present. The cold periods are recognisable by the remnants of cold weather fauna such as cave bear, mammoth etc. Based upon the palaeontological evidence the earliest deposit, the Inner Beach, is referable to the Isotopic Stage 7 (i.e. about 200,000 years ago). This is overlain by a cold weather assemblage of Cave Earth characterised by fossils of the Northern Vole and presumably is referable to the succeeding glacial stage peaking at about 140,000 years ago.

Erosion of these deposits with the production of a small cliff face then resulted in the deposition of a storm beach: The Patella Beach, so-called after the dominant fossil which passes upwards into the Neritoides Beach after the Flat Periwinkle the most common fossil in this deposit. These have been dated to the Ipswichian Interglacial (130,000 to 115,000 years ago). The Neritoides beach is now regarded as being interstitial between the Patella Storm beach and the terrestrial Earthy Breccias. There is world wide evidence that the sea level during the Ipswichian Interglacial was about 5-6 m higher than at present (something to look forward to with global warming). The Overlying Breccias, of which there are remnants adhering to the cave walls, are Devensian debris cones. These are partly cemented and were formed during the last glaciation when the sea level was much lower. Frost shattered scree from the cliffs above accumulated as a steep cone pile within and partially obscuring the entrance. It is possible that the cave entrance was completely obscured during this time. Subsequently the sea level rose to the present height and the partly consolidated scree cones were washed away, only the reasonably well cemented material adhering firmly to the gully walls remain.

The formation of the cave is difficult to envisage. The simplest explanation is that it is a straight forward sea cave produced when the sea level was very much higher than the present. It has all the characteristics of a sea cave: it is fault controlled, has a large

entrance and then diminishes rapidly inside. However there is some evidence for terrestrial modification with dissolution tubes (dome pits on a small scale) along the fault zone in the roof. So that although the main cave can be regarded as a large sea cave there is some modification by fresh water. As to when this is formed is difficult to envisage. Many of the cliff caves on Gower are at a substantial height above the present sea level and certainly higher than during the Ipswichian. The simplest explanation is that some at least were formed during the period of re-adjustment between the 200 foot platform and the present sea level. This presupposes that the cliffs line was largely in existence however. The alternative is that the caves are remnants of terrestrial cave systems that are truncated by marine erosion.



If we go for the Sea Cave hypothesis then we have to assume a sea level at least 20 m higher than at present. Early Pleistocene but pre-glacial would be the expected age.

FORESTER'S CAVE SS551 872

Prior to excavation by a Colonel Forester there was no cave present. The cave has a large entrance that closes down after about 6 m but a small passage extends for a further 10m. at the back of the entrance opening. This is the cave shown as Foresters Hole and pictured as such in Allen and Rutter. There might be some confusion in Jenkins and Mason-Williams between this and Ravenscliff Cave. The description of Ravenscliff Cave in Jenkins and Mason-Williams seems more like that for the true Foresters Cave.

Set in the High Tor Limestone this is fault controlled. The fault heads at 24°N and dips steeply to the east. A large entrance closes down after about 6m but a passage at base extends for a further 10 m. along the fault.

The dip of the beds is steep and towards the sea. The cave is in the High Tor Limestone and again is fault aligned. The fault trends 24°N and dips at about 60° to the east. The fault exhibits a sinistral throw of about 20 m. The fault zone is about 2 m wide and is calcite mineralised with haematite and red-stained calcite. Large "horses" of limestone are also found within the fault zone.

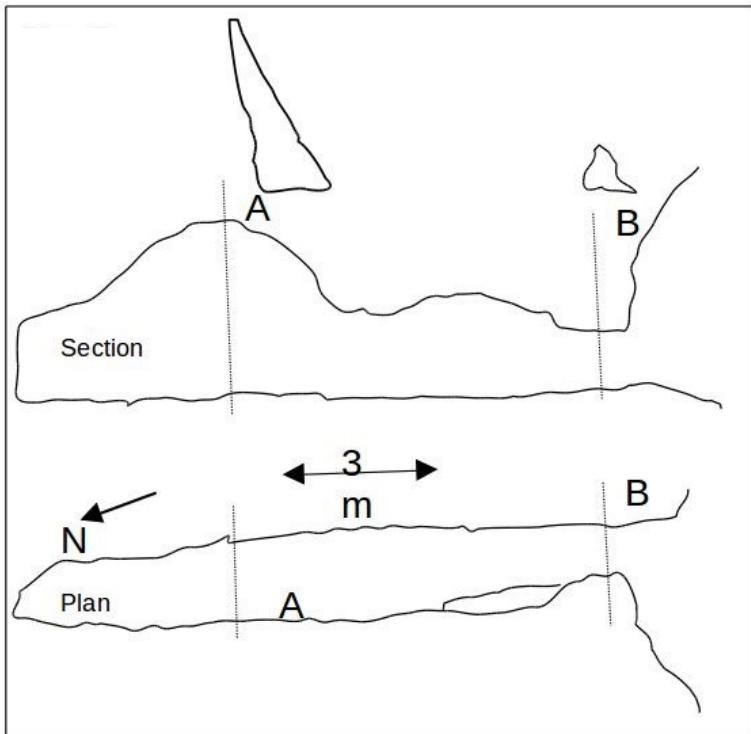


Figure 5

The infill at the base comprises water worn boulders with rounded shingle and gravel mostly, with rarer boulders.. The matrix is sand sized and is cemented by calcite. Pebbles of ORS and Carboniferous sandstone (Coal-Measures type) occur, but the dominant pebbles are limestone.

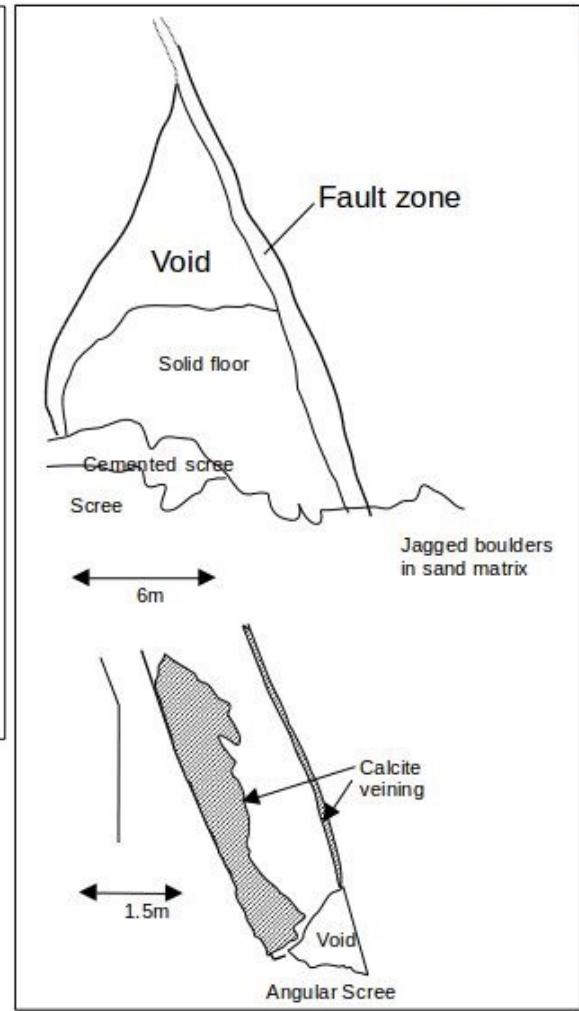


Figure 6

There are patches at a higher level of angular limestone scree. The remnants of a false floor exists at about 5m above the floor with calcite flowstone over angular blocks.

DEVILS KITCHEN SS547 873

Another cave with no archaeological remains. A feature of the cliffs above the entrance is a deposit of cemented dune bedded sand.

The cave entrance itself is located on the north side (inland) of a ridge of hard resistant limestone. It comprises a vertical shaft of 10-15 m into an active sea cave. The upper part of the shaft, which is circular in cross-section and ~3 m. in diameter, is mostly in bedrock although the upper part is in the dune sand on one side.

RAVENSCLIFF CAVE SS546 872

Not much of a cave, more a rock shelter with a flattish floor. It is within the Hunts Bay Oölite, and is not fault controlled. At the back of the main entrance a low passage goes off along the dip for a few metres.

It is eroded partly along a particular group of beds. The bedding dips at about 62° towards 225°. In the massive bed forming the hanging roof there is a high angled reverse fault with associated calcite veining in the footwall.

There is a pair of faults about 1.5 to 2 m apart and about 20-25 m to the east. These trend 330° and are at a high angle to the cliffs. There is active marine erosion along these with a small cave and blowhole between the tide limits.

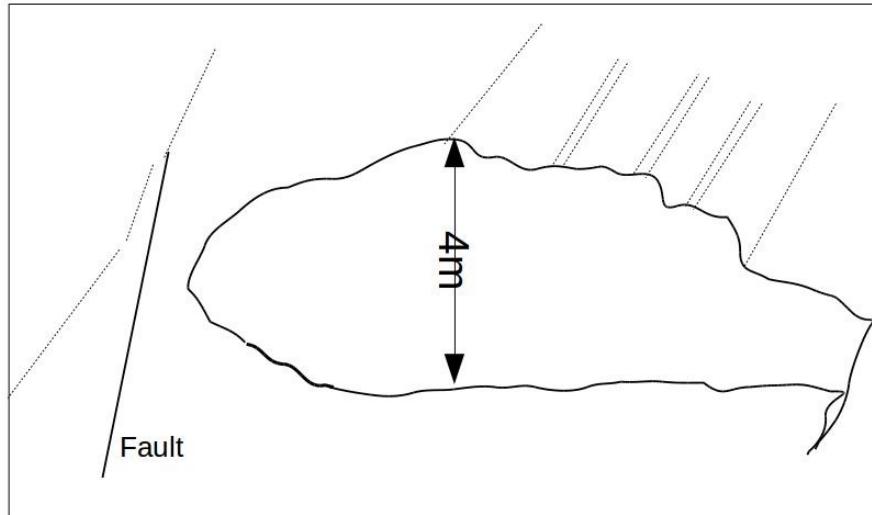


Figure 7

Summary and Conclusions

The bone caves in this particular section of Gower are mostly fault aligned. The caves show features typical of sea caves with large entrances tapering away inland. The faults themselves typically show some evidence of phreatic cave development, usually with small irregular tubes extending along and alongside the fault planes. Most of the caves exhibit external sloping platforms at about 10 m above the high tide mark, and these would have provided easy access from the south during times of low sea level. Such a feature is not seen in relation to Minchin Hole but there is a feature inside the cave which is at the same approximate height.

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The Best Exotic Daffodil Hotel

Paul Meredith

With apologies to Trip Advisor

We wanted something different for our weekend away and our local caving club suggested the Best Exotic Daffodil Hotel at Penwyllt might suit - yes indeed, look you.

Having looked it up on the web site we thought that this was just the sort of place we were looking for and a group of 8 of us booked for a weekend in February. The booking process was quite straightforward and we received confirmation very quickly. The no up-front deposit was also a nice touch.

The long journey from civilisation to Wales in mid-February was surprisingly uneventful although the 2s 6d toll to cross the Severn Bridge did come as something of a shock. Still I suppose London has it's congestion charge.

We thought that going native for the weekend would help us get more out of our stay and so we left the SAT Nav. and other 21st century trappings at home. Bit of a mistake. The Daffodil is well hidden and not that easy to find on a wet and stormy Friday night. After one abortive attempt we turned round and called in at the Ancient Briton pub in 'the valley' to ask for directions. Fortunately we bumped into some gentlemen of a certain age - beards it seems are de rigueur - who claimed to be long term residents at the Daffodil and who gave us directions in more or less standard English - 'No, no, no, no, no not left. Just go up the hill and turn across the quarry and keep going' - before returning to their beer.

The track across the quarry could have been better but our small Chelsea 2X2 tractor managed it ok - just - and quite soon, out of the mist and rain, the grey stone walls and blinding Colditz like security lights welcomed us into the car park. At this point, and our environmental antenna should really have already alerted us to this, we began to realise that a stay at the Daffodil was going to be something different!

The first problem was working out which of the multiplicity of doors was the front door. We tried one, got lucky and stumbled through the porch to a corridor. There is no obvious reception desk, or indeed receptionist, and we were just wondering what to do when a blue door at the end of the corridor opened and an elderly man (bearded of course) asked if he could help us and would we like a drink. The obvious answer to both questions was, of course, yes please. The gentleman kindly relieved us of the responsibility of having to choose our beverage and glasses of traditional ale were promptly served to each of us. There was no mention of payment.

We were then given a short introduction of the 'house rules' by the bearded one who, as it turned out, was mine host for the weekend. At this stage I should point out that the Daffodil's differences (already alluded to in a previous paragraph) extend to a local vocabulary and mine host is known as the 'Duty Officer'. He invited us to take our bags up one of the very quaint, very steep, staircases and find a bedroom and bunk. There was no offer of assistance and there are no lifts at the Daffodil so you might want to consider this if you're planning to include any elderly or disabled members in your party.

The bedrooms can, dependant on your point of view and expectations, be variously described as adequate, full of character, compact, bijoux, quaint or frankly squalid. They also require an intimacy with the other guests that I hadn't encountered since boarding school days. Fortunately here at the Daffodil only the sharing of bedrooms is compulsory, not beds.

We quickly sorted ourselves out but it seemed that our arrival may not have been

expected because the bunks had not been made up. Never the less we unpacked as much as was necessary - hanging space is at a premium so you might not want to take your entire wardrobe - before gingerly descending one of the staircases. We found mine host, sorry Duty Officer, in what we took to be the lounge. Although here again the Daffodil has its own quaint vocabulary and the lounge is known as the Long Common Room.

We mentioned the issue with beds and got a slow 'Yes...' which we took to mean that nothing was going to happen any time soon. We also enquired about the restaurant and were pleasantly surprised to be told that it was open 24/7.

The Duty Officer was kind enough to show us the dining room which was well equipped with what seemed to be communal tables and benches. Again I was transported back to those long forgotten boarding school days. But still never mind, when in Rome and all that. However things really came to a head when we asked to see the menu. The Duty Officer suggested we take a seat and have a chat.

Once we'd clarified a few things we really started to settle in quite well. A few more glasses of the 'on tap' real ale and the open fire in the Long Common Room soon saw us exchanging tall tales with the other residents.

We were quite late to bed and as a consequence we were none too early into the well equipped kitchen where various breakfasts were being cooked. One resident, bearded of course, was having kippers!

Nevertheless, at some time before noon we managed to find our way outside - the view is amazing - and along to the changing and shower rooms. These are well equipped with lights, radiators and benches - a welcome change from the usual road side bunny hop routine in freezing weather.

The caving was simply amazing. I have no idea where we went, nor could I take you there again but after 6 hours of walking, climbing, squirming, grunting and puffing - that boarding school thing again - we were back at the Daffodil and ready for a shower.

Although there's no pool or jacuzzi at the Daffodil the single sex communal showers are to die for. Welcoming, warm, wet and loads of space - just like a good shower should be.

La Douche des hommes au naturale. Oh la la!!



The evening entertainment was, like much else at the Daffodil, assisted by considerable quantities of alcoholic beverage. Our rendition of Delilah went down very well with the native residents we thought. Another late night ensued.

On the Sunday morning we were having breakfast when the Duty Officer gentleman arrived with a red cash box and the signing-in register. Names were called and bills were settled. The accommodation charges were amazingly good value and this is definitely something to bear in mind when evaluating the whole Daffodil experience.

To conclude then: we had an absolutely fantastic weekend stay at the Daffodil. Quirky yes, but full of charm and it simply oozes character. It is also amazingly good value for money - our stay cost us £1 10s and 6d per person per night. The other residents made us very welcome and made a real effort with the language. Give them a few more 'yers' and I am sure they will be fluent.

You don't so much stay at the Daffodil: you experience it. And what an experience it is. Seventy years on and we are still going back.

Vivre La Daffodil!!!



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