South Wales Caving Club

Clwb Ogofeydd Deheudir Cymru

SWCC CODC

Newsletter 131

December 2015

Front cover— ***A long trip to the OFD I toast rack for three 3 year olds***

Photographer: Jenny Burrows

23rd Aug 2014

Back cover—***Aragonite formations in 6th Heaven Chamber***

Taken in Ogof Draenen

Photographer: Mark Burkey

21st March 2015

Editorial by Chloe Francis

A huge thanks to everyone who has contributed to this issue of the newsletter. Without you, there would be nothing to publish; nothing to keep members informed about what is going on in our club.

As the club approaches its 70th year, it seems appropriate to reflect on and celebrate both the history and future of SWCC. We are a large, diverse and active caving community. Members are involved in various digging projects; surveying; trips abroad; matters of conservation; photography and introducing new cavers to caving. Our blog highlights just some of the mid week caving which goes on around Penwyllt and the various trips to other parts of the country.

The content of this newsletter does not fully reflect the great variety of activities which club members are involved in. It would be fantastic to have more members contributing articles. As long as it is vaguely related to caving—I will consider it! I intend to publish another newsletter prior to the 70th Anniversary in April 2016. Therefore, the next deadline for submissions is 7th March 2016.

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What's In A Name? Martin Hoff

The appeal and potential of the place was obvious, YF1 was an open shaft on the scale of Alum Pot, but without the ring of trees surrounding it and with only a site designation rather than a descriptive name. The depths of the shaft sheltered a substantial snow plug and people who had been there in previous years were excited to note that this was observably a low snow year, the summit of the snow plug receding to a full 20m below its known high level. Earlier exploration attempts had been thwarted by pitches and passages becoming choked with snow and ice but hopes were high that lower snow might mean further access would now be possible.

My first trips into the place involved documenting some rebolting of the entrance pitches, getting to know the chilly nature of the tunnel through the snow plug and the limited options for bolt placement in the few places where the rock of the walls emerged from behind its frosty coating. Landing on a tight rope to flounder down a rapidly disintegrating snow slope was a particular highlight and at certain points the fluffy whiteness gave way to the harder ice.

Other parties had already pursued the cave beyond the limits of previous exploration, breaking out of the snow zone into something rather more familiar, if still a little on the chilly side. A thermometer left in the other main cave site had recorded a steady temperature of 0.8°C, in a place sheltered from any air movement and a good hundred metres below the nearest patch of snow. YF1 was clearly not a place to be hanging around inactive for any length of time, not with its significantly greater bulk of frozen water.

Two weeks into the expedition, people had started leaving for home and my two companions were contemplating their final trip underground before doing likewise. A night of sleep disturbed by the tent rattling in the wind was the prelude to a leisurely morning of faffing before the three of us headed over to YF1, just ahead of the A team who were supposed to be racing on in front of us to continue the exploratory effort. When one of them returned to camp yet again for something else forgotten, Lieke led into the cave and I followed with Ruud bringing up the rear.

Our steady descent saw us eventually popping out of the snow and ice into a sizeable collapse chamber, some way beneath pitches where rock and snow walls mixed and a pitch formed in a pure ice shaft, as well as the larger sloping snow chamber where multiple knot passes were required. After a brief pause in activities for the party to come back together in the first snow-free chamber, a short rocky crawl followed into a rising roofed, stooping passage, leading to some popcorn encrusted stalactite formations. Progress at various levels along a rift saw us arrive at a bold step traverse feature, where we were caught up by Mark and Andy, finally, the pushing party being waved on through to descend the big pitch and get involved in some actual pushing.

We followed them down the big pitch, an impressive shaft not unlike the second and third pitches in Stream Passage Pot run together and dried out a bit. For such a magnificent, imposing shaft of this size to remain unnamed seemed a waste of an opportunity, just as reaching the top of it and not launching a series of depth-testing rocks into the void would be; yet this too had apparently failed to happen when the first party reached this point.

Just as instructed by the previous party to visit this part of the cave, Ruud fitted a new gas cylinder to the stove for a warming drink after the time spent waiting above the nameless shaft. Something like three hundred vertical metres already stood between us and the surface so the base of the large pitch was intended to be about the limit of our trip, where we would leave the exploration to the others, so we watched as Mark and Andy left some of their kit to one side of the chamber and headed off in search of new territory. Ruud and Lieke finished their soup and the three of us followed the dry stream passage to see what went on, enjoying a stretch of the legs before getting back on the ropes upwards toward the colder level.

Finding the head of the final pitch down in the rift still to be clinging to a hanger, Ruud set about removing it from a through-bolt which may not have been tightened far enough to force the collar to jam. A short straight section of the otherwise serpentine rift proved long enough to snap a couple of photos of Lieke in a suitable spot, then with our activities below the ropes complete, we headed back along the rift. A delay of only a few minutes, but enough.

Our minds contemplating the fun of swinging about on bolts, our leg muscles contemplating the distance from here to home. Approaching the chamber, my characteristically insensitive nose alerted me to the smell of gas, the other two agreed their concern and Ruud picked up the stove to investigate. It would later turn out that there was a subtle size difference between the gas canisters currently available in Montenegro and those for which the stove had been designed, thirty-odd years previously. At the time it was enough to establish that no amount of pressing the canister, twisting the valve as far as it would go or any other obvious measure would plug the apparent leak.

It was all too quickly decided that rather than wait for Mark and Andy to return to a chamber full of gas, the best solution would be to burn off the remaining gas and then they would not have a problem. Having paced backwards and forwards while attempting to complete the partial seal between canister and stove, Ruud set the stove back down on the pile of rocks and clicked the lighter.

One spark at the stove head ignited gas at the conventional burning position. But it also set light to the gas pooling around the stove, to the accumulation of loose gas slowly flowing down the pile of rocks on which the already melting stove sat and to half the floor of the chamber. As the carpet of gas turned into a creeping fireball, three stunned cavers all watched to see which of them would first be reached and stepped back in unison, in different directions.

A very brief discussion of options saw the flaming stove launched into the shallow pool of water at the base the ropes, the bottom rope immediately wrenched away from its hang point to be draped over a prominent buttress and left to dangle into the one available alcove. In a matter of moments, three cavers had recoiled from an approaching sheet of flame, lobbed the molten plastic stove into two inches of water, pulled the rope clear and taken positions of limited shelter in the alcove, hands over ears to reduce the expected boom if the flames breached the canister.

We waited. Waited and peeped round the corner to watch flames licking round the remaining plastic. The smell of gas that filled the chamber was now partially displaced by pungent plastic fumes, as we started looking around the roof in search of loose blocks that might be about to descend on our heads, should the imminent explosion rattle the walls as well as our eardrums.

After twenty minutes of flaming, flickering and threatening, the barely recognisable remains of a reformed plastic and blackened metal object sizzled to a non-event. Gradually gaining the confidence to handle what was left, we pulled rocks out of the shallow pool to produce a deep enough indentation to perform a bubble test for continuing leakage. Now very cold despite the impromptu bonfire, Lieke opted to head up first with the remnants of the stove hanging from her harness in order to be immediately aware of any subsequent gas leak.

I wrote a note for Mark and Andy, briefly explaining what had happened and in due course Ruud and I headed up the ropes to spend the next few hours photographing pitch after pitch, snow feature after ice shaft. It would be a long exit, documenting the chilly nature of the place. The time taken over the photography also meant that by the time we reached the surface, we were not that far ahead of Mark and Andy, who appeared before I went to bed.

They expressed some surprise at being deprived of the warming brew they had been looking forward to, especially after seeing the gas cylinder changed and discussing which items of kit we would take out with us, clarifying that the stove should be staying there. As I filled them in on the detail behind the events of a few hours earlier, they came to understand the story behind the note, the crucial part of which read as follows: “MASSIVE GAS LEAK. RUUD TRIED TO BURN OFF GAS. INFERNO!”

The twisted remains of the ex-stove were presented for inspection and even in the half-light of our head-torches, a broad smile could be seen as it broke across Mark's face. "I've got it," he said. "We have to call it the Inferno Shaft".

Mulu 2013 Phil Walker

Introduction

When I first started caving in the early 1990's there were two big foreign caving projects that always caught my eye, the China Caves Project and the expeditions to Mulu. At the time they were the remit of the 'big boys', famous names from the caving world, largely dressed in cotton overalls and impressive beards, a testament to how hard it must be, too hot for normal caving attire and no time or mirrors to shave with while deep in foreign jungles. At the time I was too green for these type of trips, too interested in drinking, caving with university clubs and trying unsuccessfully to impress fresher girl cavers that the only reason I don't go on such remote expeditions was Long Churn was just as good.

Fast forward 20 years and after many years of honing caving skills, at the expense of drinking skills, and with the ability to now grow a beard, the call came through with an invite onto the Mulu trips. After a good few years jungle bashing for caves in Belize, the thought of more jungle based caving held no fears, plus they needed someone who was good with computers! No need to buy jungle attire as I had just returned from a Belize trip earlier in the year, so all I needed to do was grasp the difference between Borneo, Mulu and Sarawak, so that I turned up in the right place.

Travel

The full expedition was for 4 weeks, but work commitments meant I could only manage the first 3 weeks. Travelling with Hannah Moulton and Rob Middleton (SUSS / BPC) from Manchester Airport meant I wouldn't by doing the travel all by myself. A nice early start for the airport saw me arrive in good time but at the wrong terminal. No worries, the correct terminal was only a 5 minute walk away, then promptly the shoulder strap on my nice new shiny rucksack snapped. Not ideal but I can manage, except it's the right strap that's broken, meaning I have to place it all on my left shoulder, the same shoulder I snapped 12 months before and now held together with a shiny plate. OK, maybe this is a bad start.

By a combination of dragging and swearing I made it to the correct terminal and dumped the kit on an unsuspecting bag handler. Security took great interest in the contents of my shoulder, when the scanners start beeping, a good pat down follows and my cries of it's in my shoulder not my inside leg go unheeded. Finally get through customs to meet up with Hannah and Rob and time to relax.

A long uneventful series of flights, see us through Dubai, Kuala Lumpa and finally Miri (Borneo). We have a stop over in Miri for 2 nights, before we can catch an internal flight to the Mulu National Park. Miri is not the greatest stopover for sights, a rather rundown old mining town with local delicacies of turtles and impressively large frogs. I always like trying local cuisine, but I give these two a miss and stick to the rice and noodle dishes. Whilst out shopping for supplies we bump into 2 more team members Nicky Bayley and Andy Harp (SWCC) and join up to peruse medical supplies for Andy and a towel for me.

A few days later we catch the internal flight and travel into the National Park. The park, as you fly over, is impressive, plenty of jungle and the karst peeking out. As you come into land at the local airport the entrance to the famous Deer Cave can be seen, containing the largest cave passage in the world and hints at the potential scale of caves we will be exploring on the trip.

Park HQ is impressive, nice accommodation and really good food, this is nothing like Belize, where we end up fighting each other for half an egg to eat and time on the hard bed as relief from the hammocks. Some of the Mulu expeditions are based solely out of the HQ and as much as I quite like the idea of that, the trip to the actual expedition camp is approaching. The majority of the other team members are here already and we spend the next couple of days sorting kit and I get in a quick tourist trip to Deer Cave. The cave is as impressive as the tourist photos suggest. Although quite short, the size of the passage is immense, with the piles of bat guano just as impressive. A trip to the cave is not complete without a dusk time view of the bats leaving the cave, as they swarm and circle out of the cave and into the jungle. Unfortunately, weather (or boredom at performing for the tourists?) meant not many bats on display for my visit and I left the cave feeling a bit aggrieved at the bats' arrogance in not turning up.

The one thing that was standing out about Mulu was the size of the insects! In Belize they are small and irritating, here they are huge and quite capable of carrying you off into the jungle. One nocturnal visit to the toilet was spent cowering in the corner while a moth thumped, what must have been a human head, against the toilet door.

Logistics for the trip to camp were quite simple; most group kit was to be carried by porters and we were only responsible for our own kit. Due to my broken rucksack I had to borrow a smaller rucksack and split my kit across 2 bags. There were various conversations about the route to base camp being nice and easy so I'm not too concerned about carrying the 2 bags.

The trip to camp involves a boat ride, great fun, travelling up the river with the karst looming up ahead and to the side. The water is low, so a few stops are required to push the boats over the shallows. The ride is over all too soon and we disembark at the start of the trail to camp. It's an 8km hike, crossing a number of rope bridges but all generally nice flat going. 8km doesn't seem far but the 2 bags soon start to take their toll, no easy way to carry them other than one on the back and one on the front. The humidity in the jungle is a killer, worse than I have been accustomed to, but the kilometres are slowly ticked off and I arrive at Camp 5.

Camp 5

Base camp is not quite what I was expecting; things have moved on since the early expeditions in the 70's and 80's and the camp is actually a large wooden structure with plenty of space for tourists, cooking facilities, toilets and electricity from generators. Two rooms are taken up by the expedition, in total 16 members, with a huge assortment of caving equipment and electronic gadgets.

The laptops are there as well, so my first task is getting to grips with the survey data for the expedition. It's like a day in the office, just with more sweating. I'm also pretty sure the giant moth has followed me out and so I make sure my mosquito net is tightly tucked in, so he can't get hold of my feet and drag me under the bed.

Team meetings are held and groups formed to attack the various leads of the main objective of the expedition, Whiterock Cave.

Whiterock

Whiterock was discovered in 2003, part of the larger Clearwater system, with a number of leads still to be investigated.

My first trip into Whiterock was with Ross and Simon, camping in the 'Daydream Believer' passage with a plan to attack a number of high level leads at the end of the 'Api Birthday' passage. The journey in was fairly easy, only a couple of hours from the entrance in large walking passage with camp setup in a nice warm sandy corner. Arriving at camp in the early afternoon we decided to make a start by carrying equipment to the site of the leads. The route up to 'Api Birthday' passage is via a greasy small ramp, following a nice draft. The ramp ascends approximately 70m up some very jagged rock which promptly ripped the backside out of my new Ron Hill trousers. Unfortunately, with me leading up the ramp and my spare underpants back at camp, Ross and Simon were treated to a rather unnecessary sight, a portent of things to come.

The top of the ramp pops out into the large and impressive 'Api Birthday' passage. The laminated survey of this section suggested a nice easy 20 minute walk, in flat passage to the leads. About 90 minutes later we were still trudging up and down various ramps and muddy slopes, the scale of the cave having been a bit underestimated (and no scale on the section of survey not helping matters). Just as we were tempted to turn round we reached our goal. Dumping some equipment for the next day we quickly looked at one of the leads, a downward ramp. Spending the next few hours, we explored a couple of hundred metres of brand new cave before turning round at a low muddy crawl. The passage still continued but was getting increasingly lower and muddier. A much quicker time was taken getting back to camp for a big bowl of pasta and off to bed.

The next day, back at the leads, we tackled a small aven climb. Ross bolted up the climb, approximately 8m high to a low network of tubes. These were pushed for around 200m to a low downwards ramp. More technical clothing issues meant the day was spent with my underwear on, for them to be promptly ripped via the existing hole in my Ron Hills on the same section of ramp. Back at camp, wet and ripped clothes meant that the team were treated to my very poor impression of Gandhi, with my remaining dry t-shirt tied round my waist in a rather poor nappy style.

The third day started with the brain wave of wearing my Ron Hills back to front. These promptly ripped on the backside (formerly the crotch area) on exactly the same section of the ramp. There was now nowhere for the team to look without the view of something inappropriate. The final lead was dropped, down a small 5m pitch (free climbable with care) to a shallow descending ramp, followed until the passage steepened and dropped away down another pitch. Lack of rope and a fast approaching turn around time meant this was not descended and we started the trip out. Long days and short sleeping time meant we were all starting to flag. The route back down the ramp was becoming increasingly treacherous and previous safe handholds becoming quite loose. One such hold came away and a shout of 'BELOW' only served to distract Ross, who subsequently slipped, tumbling about 5m down the ramp after the rock. Luckily the slip was in probably the 'safest' place; otherwise a long painful fall all the way back down to the camp would have occurred. Camp was quickly packed up and a swift 3 hour exit saw us back to Camp 5 just in time for dinner. All other teams were out of the cave, roughly at the same time, so a well attended team meeting quickly made plans for the next trips into the cave.

Flying Monkey (Part 1)

My next trip into Whiterock, accompanied by Nicky and Hannah was to the furthest camp, 'Flying Monkey', to look at a number of leads at the upstream end of the 'Whiterock River'. A number of leads in this area offered the possibility of creating a 2nd entrance, only 50m from camp, a tantalising prospect as a trip to the end of the cave is a large and long undertaking.

A leisurely post-lunch start saw us depart camp heavily laden with rope, surveying kit and drills for our planned 4 day trip. The journey to 'Flying Monkey' was excellent, with large well decorated passage throughout the route and no major obstacles. Passing a few of the more grotty underground camps, 'Flying Monkey' camp was an unexpected treat. Ignoring the rather distinct smells from the designated toilet area, the camp sits on top of a large obvious boulder collapse, with ample sleeping space and a running waterfall for showers!

As before we decided to check out some of the leads the same day and a couple, close to camp, seemed the obvious choices. The plan was just to check out the leads and drop some equipment if they seemed promising. The main lead was an undescended pitch, starting with a steep ramp down to the pitch head. Hannah was first down, rigging down the ramp to a rather unstable ledge above the pitch. As we only had 2 SRT kits between 3 of us, some precarious dangling on bolts was required to leapfrog each other down the pitch. At the bottom a narrow and tight crawl soon became too tight for me to get through, but Nicky easily got through, followed by Hannah and some digging of the floor enabled me to follow. The other side soon opened up with 2 ways on. Following the obvious sound of water we descended a nice waterfall. Excitement was building but the passage soon started to reduce before we were crawling around in low tubes, so we surveyed back out to the initial junction. The other route slowly started ascending and I followed it up before it started to drop once more and then opened out over a large pitch. My memory of the survey suggested we were just back above passage down from the camp, so we called a stop to the exploration. It was about 4am by the time we got back to camp and dinner / breakfast of pasta once more was eaten before climbing into bed.

The next morning (or was it afternoon?) was the main trip down to the 'Whiterock River'. Big bags were packed and we set off down the cave. The main route down to the river is via 'Ski Wednesday', a gritty ramp with lots of sharp gypsum and plenty of places to fall. Taking it in turns down the slope, so not to knock each other off, meant we missed a lot of the well decorated sections until our return trip.

Eventually, the passage levels off at a cross passage and a number of further steep down ramps pops out on the 'Whiterock River'. The river is impressive and must have been quite an exciting find when first discovered. A large 5m wide, slow moving river, can be followed upstream for a good few kilometres, through a number of large boulder collapses, until the final boulder choke is reached. The main leads here were a number of bolt climbs and an undescended pitch in the area of 'Pointless North'. The necessary equipment was left for a future trip to the bolt climbs and we headed for the undescended pitch. A few more tight and muddy crawls were navigated until a well decorated chamber marked the start of the pitch.

Dropping the pitch led to a cross rift with ways on to the left and right. Initially we took the right (upstream) hand route but this soon degenerated into low muddy tubes. The late night / start began taking its toll and enthusiasm for crawling about, when the rest of the cave is of railway tunnel sized proportions, was limited. I quickly took a look downstream, with Hannah, and we found a continuation of the passage in a 2m wide by 8m high old stream passage. As we hadn't brought the surveying equipment beyond the bottom of the pitch we decided carrying on would be poor sport so beat a retreat.

It was a long trip back to camp, tiredness taking over any enthusiasm for exploration, although a few detours were made to take some photos on the way back up the 'Ski Wednesday' section of cave. Back at camp a further pasta breakfast was made before bed. Although a further day underground was planned, we decided to exit the cave the following day as another long trip to the end was not a popular choice with the erratic sleep and food patterns taking effect. The trip out was fairly slick with no major route finding problems and once more we were back at Camp 5 just in time for evening dinner. Later at camp, the new passage was drawn up, and it revealed that the pitch on the first night, that I had thought dropped back into known passage, was in fact above a totally blank area of the map and well worth a trip back!

Flying Monkey (Part 2)

A further day off was taken before another trip to the end was planned. This time I was with Simon, Hannah, Rosie and Jeff. The trip in was long and we decided that we would stick to normal sleep patterns and went straight to bed when we arrived. The next day we split into two groups. Hannah and Rosie to look at the pitch I had turned back at previously and myself, Simon and Jeff to return to the end to look at the downstream lead under 'Pointless North'.

The trip to the end seemed markedly easier this time, probably thanks to a good night's sleep and breakfast. Back at the lead we went straight to the old river passage where Hannah and I had turned round. High hopes of some big passage heading straight to the surface and camp were quickly dashed when it stopped round the next corner in a long static sump! Not to be defeated Jeff spotted an obvious passage in the opposite direction that we had missed on the previous trip and we quickly pushed along this before hitting a big deep sump flowing from under one wall and back under the next. Jeff traversed across but could not find a way on.

With this lead dried up, we spent some time exploring the large chamber at the end of the river, following a number of leads. Unfortunately they all ended under large grit stone boulder chokes, evidence we were close to the surface but no obvious way up and out. One particular choke nearly became our tomb, when a boulder slip nearly blocked the only way into the chamber where we were standing. Some hastily combined tactics saw me holding the boulder up a few centimetres away from sealing the hole while Simon and Jeff wrapped a sling round it and hauled it out of the way.

On the way back, I started to develop an obvious limp, which once back at camp proved to be the dreaded 'Mulu foot', a rather irritable and painful foot fungus. Best remedy is to keep it dry, not easy when down the cave, so the next day I had to reluctantly leave early, with Hannah kindly agreeing to come out with me, while the others checked out further leads.

The next 2 days were spent drying my foot out, which brought me near enough to the end of my trip. A fantastic helicopter ride out from camp and back to HQ was a definite highlight, followed by a tourist trip down Clearwater Cave to end the expedition.

Stats

In total the expedition added a respectable extra 7.9km to the Whiterock cave, which has pushed the overall Clearwater system to 197km long, making it now the 9th longest cave in the world. Additionally, a number of other caves in the area were visited and explored with more leads identified for future expeditions.

Website

http://www.mulucaves.org/

Members

Nicky Bayley, Simon Brooks, Mark Brown (Expedition Leader), Ross Davidson, Andy Eavis, Rosie Hadfield, Andy Harp, Louise Korsgaard, Rob Middleton, Hannah Moulton, Frank Pearson, Torben Redder, Pete Smart, Jeff Wade, Phil Walker and Tony White.

Thanks

The expedition thanks Veno Enar and the local people for logistics support, and the staff of Mulu National Park.

Upper Flood Swallet

Tim Lewingdon

SWCC Trip, 29th March 2014

The three of us, Tim Robjohn, Neil Weymouth and myself met at the MCG hut at 9:15 on a pleasantly bright and sunny Saturday morning, far too nice for caving we mused. Our guide for the day, Kev, arrived shortly after and all thoughts of bunking off to enjoy the sunshine were quickly forgotten. At this point we got a couple of useful hints from Kev, sadly ignored at the time but which rang true later; things like you'll need gloves, you shouldn't need a bag and you don't need your belt. We changed at the MCG and took the short ten-minute stroll to Upper Flood Swallet.

The cave entrance is a vertical shaft under a manhole cover, about 5m with a fixed iron ladder. Once down the cave looks almost like a mine, if slightly smaller so lots of crawling over what looks to be the remains of blasted calcite, a nice warm up for the knees.

Midnight Chamber is a pleasantly decorated chamber and the end of the crawling for a while; it is also the beginning of the finely decorated Midnight Stream way. Progress is slowed by the need to keep low, to avoid damaging the formations as well as the need to pass low sections of the passageway. In most caves this would be considered something of a highlight, though in this case it is just the beginning of the formation feast.

All good things must come to an end and so it is with the Midnight stream way. After the formations there is a section of shale passage that eventually leads, via Bypass passageway to the Lavatory pan, a fine opportunity for immersion to the neck in muddy water, followed swiftly by the canal; some more crawling and wriggling through water, this time flowing gently.

By this stage Kev's words of warning are beginning to make some sense. My hands are tattered, forgot to bring my gloves, I now hate my tackle sack and even my belt has got caught and snagged numerous times.

The boulder chokes are separated by Golden Chamber, which has some nice formations and a fine crystal pool and a short, yet damp squeeze that would have ideally involved squatting in the water and then standing up again on the other side. Sadly, that approach only works for those a little shorter than I, for me it was head first in and out, and another opportunity to rinse some mud off.

Beyond the second boulder choke the cave changes character dramatically with the start of The Departure Lounge, with the passage opening up to a scale more reminiscent of South Wales and good decoration throughout.

At Royal Icing Junction we parked the bags, had a snack and set off to explore the end of the cave. First on the bucket list was West Passage and Neverland. A quick glance in through the now disused Neverland Bare Hands Dig entrance gave us a heads up on what to expect. The way into Neverland is an interesting climb / thrutch up to a small chamber with a pool. At this point we removed our oversuits to protect Neverland from the mud we had collected to date. The first section of Neverland was impressively decorated with pristine white stal and curtains in abundance.

This was a weird moment; this formation would be taped off in most caves, so to see the taped path zigzagging its way up it was bizarre to say the least. I can also confirm that calcite crystals are as sharp and uncomfortable as they look to walk over. At the top, a short walk through yet more pristine formations leads to a short crawl under straws to the viewing platform for the caves poster boy formation, the Pork Pies. While we lacked the club's proper authorities on such things, these Pork Pies certainly impressed me.

Returning from Neverland we explored West passage, formation free but 'geologically interesting' it showed us a little more of the variety the cave had to offer.

After West passage it was time to retrace our footsteps and exit the cave. Progress beyond the boulder chokes was again slow, with the tackle sacks again making themselves felt. Mine was a pain, but at least it was small and light, Tim's was large and contained all manner of treasures: Darren drum, flask; water; food; iPhone etc. and really made its presence felt. I suspect Tim may pack more conservatively next time.

We exited to daylight after a 6 hour trip. An abortive trip to the Castle of Comfort (closed) was followed up by a much more successful trip to the Queen Vic, a well earned pint and the opportunity to reflect on our day.

For those of you contemplating the July trip to this cave, some words of advice: avoid a tackle sack, drinking water can be found in the cave, don't use your new kit and take a camera. Enjoy.

Curtain in Neverland

Triple Curtain in Neverland

Climbing over formations in Neverland

Pork Pies in Neverland

Why gloves are a good idea!

Hudgillburn Mine Allan Richardson

Hudgillburn Mine, between Alston and Nenthead

Grid NY751454

Hudgillburn mine was opened some time in the 1700's and was by all accounts very profitable until the London Lead Company decided it was uneconomic in 1808. In 1810, two local men John & Jacob Wilson took it on. They issued shares in the usual way at £1 a time; a total of £860 was raised; nothing was found for two years or so; then they struck a major lead ore vein (Cerussite). Each £1 share became worth £17,500 by 1814. The mine finally closed in 1870 and at some time the entrance ran in, this was dug open by Cumbria Amenity Trust Mining History Society (CATMHS) in 1993.

The entrance

There are a number of interesting things about this mine:

1. There was silver in the lead, not unusual in the area; what is unusual is that the silver was kept separate when refined, and used to make, amongst other things, a silver dinner service, possibly for the mine owners. There are still a few pieces of Hudgill Burn silver in existence, one can be seen at the Killhope Lead Mining Museum.
2. There is an extensive maze cave system above the main mine; this was discovered by the miners.
3. A lot of the miners and Victorian tourists wrote their names and the date on the walls of the cave.

Safety instructions

Typical mine passage

My second trip to the mine was in October 2013, in the company of Christiane and two other friends who shall remain nameless to save embarrassment, though both have been exploring mines for 30 - 40 years.

The mine is gated and locked for safety as the entrance is next to a caravan site and also on conservation grounds. On my previous visit the water was ankle deep; on this visit it was nearly 2 feet deep at the entrance - so much for the dry trip we had been promised. We eventually found our way up into the cave system. There is an Ariadne's thread leading to the far end of the natural system; you leave this at your peril as it is a serious maze.

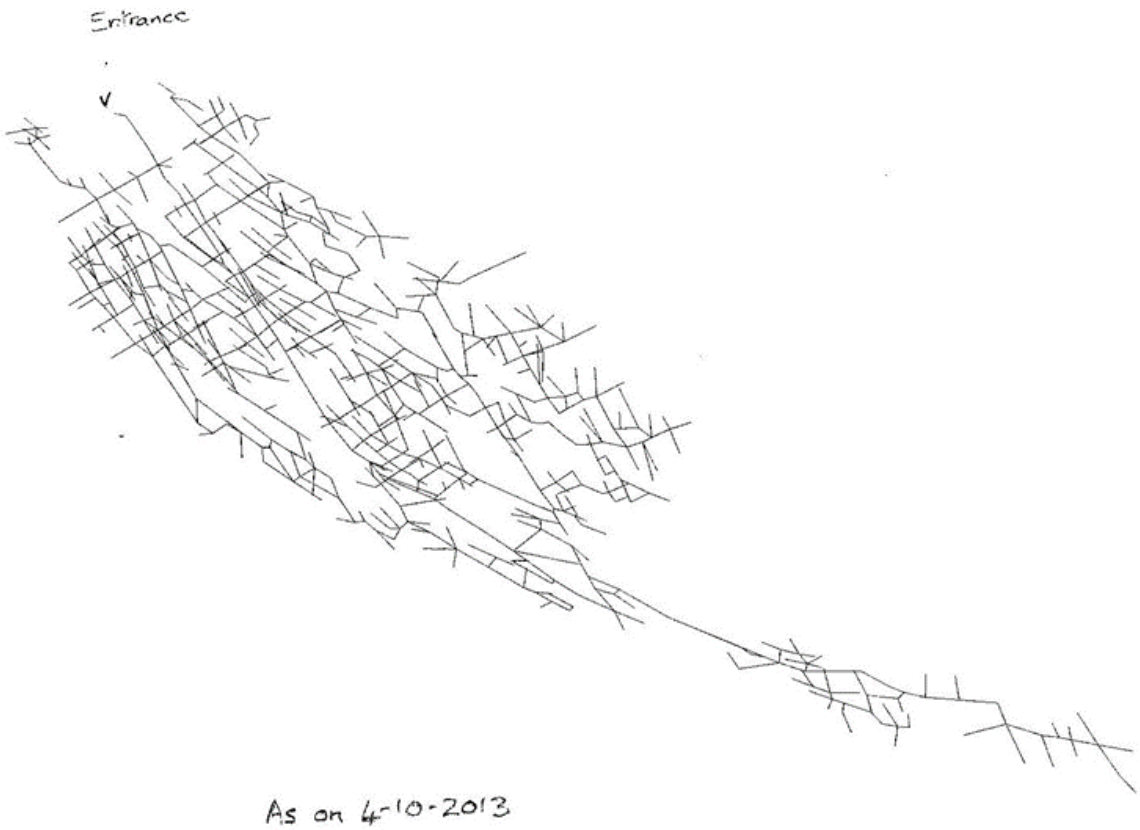
Two examples of Victorian graffiti

After a couple of hours poking around and photographing the various names, Christiane and I went out, leaving our two friends to continue their explorations. Several hours later people were starting to ask serious questions as to where they were; at this point they returned, tired and somewhat stressed. They had both been separately lost for some three hours or so in a relatively small area. The survey below shows just how complicated this cave is, also not all of the passages have been surveyed as yet.

Small maze passages not on the survey

Entrance plaque

There are a number of maze caves in the Northern Pennines, they are formed in the Yoredale series, this is a thin band of Limestone separated from the main Limestone series by impermeable beds. Most Yoredale Series caves are short, sharp and small, but some have developed into extensive maze caves, this was the subject of a lecture at the 2013 Hidden Earth caving conference. The current length of the natural passages in Hudgill Burn Mine, is now 13.2 km.



Hudgill	North
Plan view	
Scale 1:1400	Scale (10m) 0 2 4 6 8 10
Up page 000°	Survex 1.0.39 - http://www.survex.com/

Survey 'Hudgill' Page 1 (of 1) Processed on Fri.2013.10.04 11:04:49 GMT Daylight Time

Cave Conservation

Gary Vaughan

The use of Cave Surveys in Cave Conservation
- A discussion by Gary Vaughan

The Pointless Introduction

Picture the scene. It's January 1998 and from the windows of a live music bar high in the Haute Savoie a warm orange light washes across the crisp snow covered main street of a thriving ski resort. Inside, a live entertainer is perched on the tiniest of stages in the corner of a packed and smoke filled bar. His Australian accent sets him apart from most of the clientele in any event. The bar is packed with huddles of skiers from all over Europe; French, Belgians, Dutch and of course the Brits are there in force. The slopes have been shut for hours and quite a bit of alcohol has been consumed. The Dutch are completely wrapped up in the moment. Swaying as a group in time with the music, beer spilling from the tops of their glasses as they hug each other's shoulders in a Saturday night rugby club style ensemble. The opening chords of the next song ring out from the small PA system. It's an obvious favourite with the Dutch and overtaken by the need to show their support for the entertainer's choice of music, one of the party climbs clumsily onto the top of a table amidst the group. Bolstered by the enthusiastic support of his skiing buddies he turns to face the rest of the bar and spies my friends and I eagerly exchanging tales of the day's exertions on the slopes. Our dress code, our demeanour, our complete lack of outward signs of inebriation must be more than sufficient to label us as 'Brits'. Without hesitation he shouts in English across the packed bar in our direction.

'SING!' He shouts towards us. COME ON……. GET UP…….DANCE……..SING!'

In the blink of an eye the music stops as suddenly as if somebody had pulled the plug from the back of the PA. The entertainer has stopped dead, plectrum still in hand, poised as if to strike the next chord. He leans forwards so that his lips almost touch the microphone and to his stunned audience he declares in the broadest of Australian accents……

'No, No, mate. Ye can't tell them what to do; They're English!'

The Purpose of Cave Conservation Management

So why do we have cave conservation and/or cave management? A common understanding of the term conservation is the act of preserving, guarding, or protecting a particular environment or resource. Another way of putting it or a simplification could sum that up as 'wise use' of the environment or resource.

The Cambridge dictionary offers the following definition of conservation: 'the protection of plants and animals, natural areas, and interesting and important structures and buildings, especially from the damaging effects of human activity' or in the alternative: 'carefully using valuable natural substances that exist in limited amounts in order to make certain that they will be available for as long a time as possible.' There are two distinct elements here. One based upon protection and one based upon careful use or 'management'.

A third possible element is that of 'restoration'. As anyone who has visited the Palace of Knossos will know, restoration of a resource can be a contentious issue with some. One man's view of how a thing should look is not necessarily shared by all. Attempts to restore an environment or a resource should therefore be undertaken with the utmost care, consideration and consultation. This article in any event is not immediately concerned with restoration.

It follows therefore, in the view of the author of this article at least, that effective conservation must flow from an effective management plan. Older members of the club will be aware that there have been several initiatives over the years to create management plans certainly insofar as OFD is concerned. These initiatives have been driven in the first instance mostly by enthusiasm for such plans by the national body for conservation, the Countryside Council for Wales currently known as National Resources Wales. In the whole however, I think that previous attempts at a cave management plan have for the most part failed. The evidence for this is simple. Ask anyone around the club about the cave management plan for OFD and they will simply shrug their shoulders and say words to the effect of….'I think Elsie Little once looked into that……' The conclusion that one must draw at this current time is that there is not an effective management plan for OFD at least and this is in spite of the fact that some fifteen or more experienced cavers regularly sit and meet on the OFD management committee, (the author is included in that number). What I would suggest to you the reader of this article is that actually current cave management is mostly 'reactive' rather than 'pro-active' and deals with issues of conservation on a rather micro scale rather than a macro scale. What I would also suggest to you is that there now exists an opportunity to make a new initiative in cave conservation management that could significantly improve the way that …….

- The conservation of caves is viewed by cavers in general
- The conservation of caves is viewed by landowners
- The conservation of caves is viewed by those charged with management

The BCA currently sets out guidance for cave conservation. The guidance points out that whilst all caves are a special and rare environment, some are more special than others and in turn a particular part of a particular cave may be even more so. The guidance draws a distinction between 'active stream' passages and potholes with fast moving water and 'fossil' cave passages where all sorts of delicate structures remain.

Shuttleworth Pot February 2015 Photographed by Martin Hoff.

Question: Did the owner of these footprints visit the cave before or after the conservation tape was installed?

The general principles promoted by the BCA are that active streams way may have very little that can be accidentally damaged by the passage of a caver whilst a fossil gallery could be easily damaged by the passage of a single thoughtless caver. This of course is a gross simplification but in general terms it is a concept that most cavers (and possibly landowners) could identify with. The evidence of the fossil passage seen in the photo above is typical of the fragility of a fossil passage. Similar damage would be unusual in an active stream way.

For the management of cave conservation to be effective therefore it must consider a great number of factors and ultimately balance the need to protect the environment against the needs of carefully using a valuable natural resource. Ultimately caves (on this planet at least) are a finite resource and the degradation that results from un-managed access is arguably un-justifiable. In addition I would like to suggest that for the management of cave conservation to be effective a clear and visible plan is needed in order to communicate between those charged with management and the rest of the world. It is not effective I would suggest for the cave conservation management plan to only exist inside the minds of a small group of people.

The Efficacy of Cave Conservation and Cave Management

Having been associated with caving for a number of years now the author believes that he can rightly point to the fact that most cave management plans are somewhat hidden in the shadows.

When it comes to the level of comprehension of the average visiting caver the 'plan' will not in my view be clearly obvious if indeed a plan exists at all. Yes there will be evidence of acts carried out by 'others' clearly intended to assist with conservation (such as the taping seen in the previous photo) but in the round, seldom will one be lucky enough to witness 'The plan' adopted by mankind for the protection of the resource in question. The basic thrust of this article is…… 'Well I jolly well think that is a shame!'

The first thing I would suggest is a need to draw a distinction here between a 'Management Plan' and seemingly random acts of conservation. Without wishing to be overly critical of those entrusted with the conservation of any particular cave, it is my perception (for what it's worth) that many cave conservationists approach cave conservation on a micro-managerial level. We have all seen evidence of this. A particular formation (typically nearer to the entrance of the system than the furthest reaches) will be afforded a degree of protection by the placing of some form of barrier. Conservationists will spend hours deliberating over how best to hold the tape clear of the ground to improve its efficiency. Mud splattered on walls as a result of caver 'larks' will painstakingly be scrubbed clean to remove the offending splots of mud. Particular damage to a particular formation may come in for 'restorative' measures involving hoovers or araldite.

All of this is very commendable but ultimately it amounts to micro-management of the problem. To use the common analogy, it is like King Canute attempting to turn back the tide! What is needed I would suggest is not to attempt to turn back the tide but actually to turn the 'tide' of visiting cavers into an army of cave conservation enthusiasts. The challenge that faces cavers today is how to achieve such a transformation.

There is no 'I' in team but…….

In the view of the author of this article there is potentially an unhelpful underlying division between cavers when it comes to the matter of cave conservation. I have heard it said by some that hold themselves responsible for cave conservation that certain cavers (including whole clubs) cannot be trusted with the conservation of certain caves and that conservation is best handled by a small elite group. There have also been occasions where one caver has said to another that he or she knows nothing about conservation and therefore he or she should keep quiet about matters of cave conservation whilst 'others' decide on such matters.

I find the stark implication of such exchanges between experienced cavers quite shocking. Irrespective of whether there is any basis in fact for either of the two assertions recounted above, the clear implication of such beliefs held by any caver is that there exists a divide between those who should seek to order and manage caves and those who 'simply cave'.

Another example perhaps is the type or tone of language used by the current BCA guidance for Cave Conservation. Here is some of the current guidance……

CAVE WITH CAUTION! - KEEP TO TAPED ROUTES! - DO NOT TOUCH FORMATIONS! - KEEP AWAY FROM BATS! - NEVER DIG WITHOUT PROPER CONSENT! - NEVER INTERFERE WITH SCIENTIFIC EQUIPMENT! - LEAVE NO LITTER OR POLLUTION! - TAKE NOTHING OUT OF A CAVE! - TAKE PHOTOGRAPHS WITH CARE!

Shuttleworth Pot February 2015 Photographed by Martin Hoff. The first three lines of this sign are informative and constructive and engage the reader. Question: Having informed the reader of the delicacy of the environment was the fourth line necessary?

The language used in the BCA 'guidance' is framed very much in imperative tones. It comes across as a series of orders to do or orders not to do a particular thing. Whilst this sort of language may work well with certain types of people it is a simple fact that many cavers are by their very nature non-conformist and ever so slightly anti-establishment.

As a young person at primary school or as a member of the local golf club you may well come across notices written in a similar vein. The author's thoughts on this are 'Do we really need to use such language in order to get the message across? Could we as cavers be working more effectively? Ultimately what best influences a caver to adopt a sound ethos towards cave conservation? Is it a sense of threat from somebody wielding a stick or is it a sense of enticement knowing what is needed from experience and knowledge?'

Theory X and Theory Y

There are two basic types of management, 'Theory X' and 'Theory Y'.

Currently to my way of thinking, cave conservation management in the UK seems to take a Theory X approach, that is an 'authoritarian management' style. To put this into a caving context those charged with the management of cave conservation may assume that……

- The average caver dislikes cave conservation and will avoid/ ignore it if he/she can.
- Most cavers must be forced with the threat of punishment (removal of access etc.) to work towards / comply with cave conservation objectives.
- The average caver prefers to be directed; wishes to avoid contribution; is relatively disinterested, and wants to cave unimpeded above all else.

An alternative is the Theory Y approach 'participative management' style. To put this into a caving context those charged with the management of cave conservation could assume that……

- Effort in cave conservation can be considered a natural extension to effort in caving.
- Competent cavers will apply self-control and self-direction in the pursuit of cave conservation, without external controls or the threat of punishment.
- Commitment to cave conservation is a function of being an accomplished and competent caver.
- Cavers typically accept and often seek responsibility for conserving caves.
- The capacity to use a high degree of imagination, ingenuity and creativity in solving cave conservation problems is widely, not narrowly, distributed in the population.
- In caving in general the conservation potential of the average caver is only partly utilised.

Cave of the Winds – Mulu, Photographed by Martin Hoff. A classic example of Theory X cave management?

A question therefore for the future of cave conservation management: which is best, Theory X or Theory Y? Perhaps the answer is neither. Perhaps there is a grey area in the middle which requires that we utilise elements of both theories and combine them as necessary to suit a particular resource. Certainly if one introduces the general public as opposed to experienced cavers there is little evidence to be found that Theory Y works in isolation. This is perhaps indicative of a much larger problem faced by the whole of humanity.

This article however is not intended to deal with systems open to the abuse of the general public. Arguably these resources are at the whim of any passing member of the public who neither understands nor comprehends the concept of cave conservation. The practicalities of communicating a management plan to the general public are beyond the scope and budget of the average caving club and in turn I would suggest that wisdom dictates that there are simply some battles that cannot be won. This article is concerned with those situations where access to the cave in question is already restricted to experienced cavers. Whether by some form of gate, some form of technical difficulty or by its remoteness and inaccessibility, if a cave is effectively restricted to visits by experienced cavers it is worth considering whether we can improve our systems of cave conservation by taking a more Theory Y attitude. If nothing else we should keep an open mind towards the way that a cave system is managed and perhaps more importantly the way that 'we' manage other cavers.

Perhaps a primary question to be answered when looking objectively at cave conservation and cave management is 'does it work?' Before we can answer that question of course there is the further question, 'how do we measure success?'

A measure of success in Cave Conservation

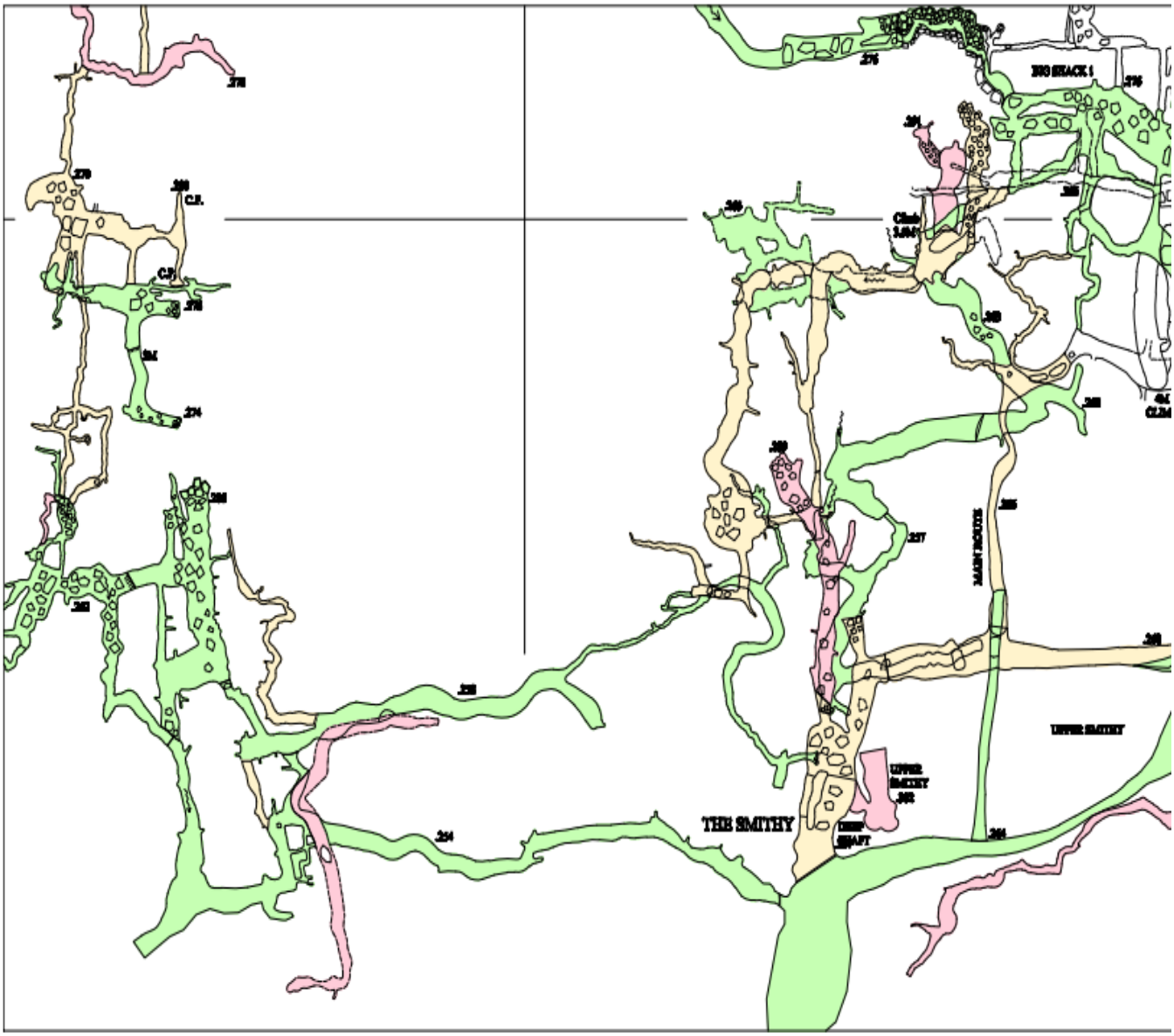
The cave itself cannot speak. Any measure of success must be gauged from those who visit the cave. It follows therefore that the only way to gauge the success of a cave management system is to survey the cavers who visit it. Theory X cave management would involve some sort of system of measurement based upon those who administer the cave management plan. To those who administer such systems it would follow of course that 'other cavers' would not be a reliable source of measurement. But what if we were to consider measuring success on a Theory Y basis? Such systems are already in place here and there. A simple feedback form from visiting cavers may give invaluable insight as to how the cave management system in question compares to the experiences of cavers from a wide and diverse database, possibly from other parts of the world. Any permit system in place could easily be adapted to promote a management plan. For example it could ask that visiting cavers make themselves aware of the plan before visiting the cave and consider making a positive contribution during and after their visit. This would be an example of cave management on a macro scale as opposed to a micro scale. Cavers could be asked to comment on their experience within the cave. It would be a simple and short matter to score on scale of 1 to 10 whether they found the level of conservation applied to a particular cave to be:

- **appropriate,**
- **relevant,**
- **sufficient,**
- **effective.**

Such a system would provide invaluable feedback in the form of statistics that could be used to evaluate the efficacy of a particular management system. Perhaps more importantly of course is that such a system of cave management is engaging and involving the growing 'tide' of cavers. They could (and should in my opinion) be made to feel that in visiting the cave they have become a part of the cave conservation team for that cave. In my view the future of cave conservation lies with greater education and greater involvement of 'ordinary' experienced cavers. What is needed are innovative and stimulating initiatives to actively involve everyone who journeys into a cave.

A Possible Future initiative for Cave Conservation and Cave Management

The plan attached here shows a small extract of the current OFD survey. It's a random extract and the location of the extract is of no particular significance or relevance to this article. The passages are not coloured in the same way as the standard survey. Instead this extract, by way of example only and not by way of actual implication, has been coloured using a three colour system, green, amber and pink. Before anyone starts looking too carefully at which colours are used on which passages let me assure you that the choice of colours on this example are completely random and in no way are they intended to show the actual 'sensitivity' of the real passage in the real cave system.



Adopting the BCA notion that some passages are more 'robust' for want of a better word than others, it strikes me that we have available to us a wonderful fresh resource that could be used as the basic framework for a total system cave management plan. Such a plan, I would suggest, would not be hidden in the dark shadows but actually displayed and made use of on a daily basis both by those seeking to manage the conservation of the cave and by visiting parties.

There are a number of useful things that we could do with this resource. The colour coding of the passages should be simple. The example here uses three colour shades.

Green could represent the most robust of passages, those sections of a passage that are devoid of delicate formations and reasonably impervious to the passage of cavers. By implication it is these passages that should form the trunk or arterial routes to be followed when moving from one area of a cave to another.

Amber could be used to denote those passages that are either i) fragile but negotiable with ease so as not to cause further deterioration or alternatively ii) fragile. Depending on which system (i or ii) were to be adopted, the significance of amber shading could be either that it represents passage that is to be negotiated with a much higher degree of alertness by smaller parties moving with particular care and attention or alternatively passage to be visited under express intent i.e. with specific purpose as opposed to just a shortcut.

Pink shading could be used to denote either i) fragile passage not easily negotiated without causing further deterioration or ii) fragile passage in need of better conservation measures than those that currently exist.

The fact that the passages within a system are designated a status provides the basic bedrock of a conservation management plan. On top of the basic plan other more subtle uses could be put to work. Visiting parties for example could be encouraged to plan a route using green passages for the most part but at the same time heightening their awareness of the need for greater care and diligence when moving into amber or pink passages. Conservation chores could be linked to certain amber or pink passages such as recording the condition of the conservation measures within that passage and reporting back to the conservation management team.

Conservation projects could be focused on amber and pink passages so concentrating effort and effectively managing resources. Isolated projects requiring caver input could in some way be marked on the plan as a list of things to do. This could not only provide a useful organisational tool for recording what is needed and where it is needed but if used correctly it could provide a focus for visiting parties to actively contribute in the conservation of the cave. Far better in my view for the conservation effort to be shared by all experienced cavers. It endears those involved in the ethos of cave conservation. It engenders an attitude of 'Team' and of 'Us' when it comes to the protection of the resource. Who knows, it may even give certain older cavers the motivation that they seek to go caving again! The basic tool to undertake such a plan exists. The next step would be a complete system appraisal to grade each passage green, amber or pink. This could be an exercise shared with the wider caving public as long as clear guidelines on the basis of classification can be agreed.

The Elephant in the Cave Passage

There is one glaringly essential necessity for such a cave management plan. To work effectively the colouring system denoting passage 'fragility' must be exactly that.

It cannot be allowed to become a map of tourist caving 'must see locations'. In order to ensure that such a management system does not inadvertently end up as a source of increased traffic to the more delicate parts of the cave it would be essential in my view that an extremely careful balance is drawn between those passages that truly warrant 'robust' status and those that require particular care and attention. For example some sections of the streamway will inevitably warrant a green shading. However there are particularly fine sections of the streamway that warrant care and attention. Amber or even pink shading may be appropriate to such sections. Some of the popular routes within the cave clearly warrant designation as extremely fragile and thus in turn pink shading. Selenite Tunnel is an obvious example of such a passage where it strikes me that the vast number of passing cavers are truly unaware of the fragility of the resource.

The point to make here is that fragility of passage does not necessarily equate to fine cave pearls or delicate straws and it would be my aspiration that such a cave management plan would reflect the cave in an appropriate and constructive fashion.

You can't tell them mate……

It is my perception that to some cavers, cave conservation is used as an unnecessary excuse by 'others' to limit or restrict cavers from gaining access to certain caves or certain sections of cave. An example of this may be commercial cavers barred from taking parties into a particular system on the grounds that such use would be detrimental to the conservation of the cave.

In my opinion there will be continuing challenges made by commercial organisations to those who administer cave management policy and whilst such matters of cave conservation management are unclear we suspect that those left 'outside' will feel unnecessarily denied. It is clear that with current political moves both at regional and national level there is momentum to sweep aside current access controls to a good number of caves. This in turn would place those caves back into the non-caving public's domain which ultimately must by definition be detrimental to cave conservation. A tricky point for those who serve at council level to resolve.

The point of this article is to suggest that we could be putting cave surveys to another use, specifically that of cave conservation management. I believe that such a survey plan should be used as a means of engaging with visiting parties and actively involving them in some form of pre-meditated cave conservation even if all that it results in is the fact that they choose to take a more robust route. Even if they choose not to take a more robust route they will be more aware of the sensitivity of the route that they have chosen.

It is impossible to supervise every caver and every party that enters a cave. Cave conservation stands or falls on the active participation of everyone who enters a cave. If you want everyone to help you with something, barking orders at them and issuing threats is perhaps not the best way of engaging their respect and enthusiasm. We need to start thinking about educating and engaging cavers, making them a part of a team no matter how little their contribution to that team effort is. They need to feel valued, they need to know that they are able to help and play a role. In my view they need to know that there actually is a plan and that the best way to achieve this is to 'show them a plan!'

G. Vaughan 31st March 2015.

Compatible Connections

Gary Vaughan

'Determining whether two or more pieces of equipment are compatible requires consideration of the configuration in which the resulting system or subsystem will be used. It is possible for two components to be compatible with each other when properly configured and used, but to be incompatible when configured and/or used in a different manner." (American National Standards Institute)

Making connections in life can be important. The right employer, the right social club, the right soul mate. When practicing SRT it is also as well to make good connections. You need to load your descender onto the rope correctly. Your ascenders need to connect with the rope that you are intending to climb and when using your cows tails you need to ensure that they are in fact preventing you from falling down the pitch. This article is intended to make you think about the connections you make when you are practicing SRT and in particular the connections you make by way of your cows tails.

Why do we use certain types of carabiners for our cows tails? Is it because we have established beyond doubt that the carabiners we use are the strongest? Perhaps we choose certain carabiners because we believe they are the safest? Do we choose certain types of carabiners because we need speed of connection or, do we choose certain types of carabiners because that is the way we were originally shown or the ones we used when we learnt SRT? Let us stop for a minute and give the matter a little bit of thought and let us see if we can establish why we use a particular type of carabiner.

Firstly a little bit of history.

Mountaineering can be first traced back to the 16th century. Early 'climbs' like the first ascent of Mount Blanc in 1786, were accomplished by taking the line of least resistance or in other words by following the most obvious path to the summit taking the route that provided the easiest going. By the late 1800's there were a good number of mountaineering groups or clubs spread throughout Europe. The name carabiner dates back to the early 1800's and the Napoleonic Wars where it was corrupted from the German phrase 'karabinerhaken', which translates to 'snap hook.' These snap hooks were used to connect a leather strap to a rifleman's carbine rifle. In addition to rifles however the hooks were also used to hang various items to belts and straps. The first official patent for a snap hook was filed in 1868. It was a metal oval, most likely made of steel, that had a gate that could be opened outwards and then pushed closed. By 1897 a second patent followed, this time with an inward opening gate. The 1897 design consisted of two connected rings one with gate and one without, a little like a figure of 8 descender that has a gate cut into it. By the tail end of the 1890's, a further design was based upon a simple tear drop shaped snap hook that had a small piece of metal inserted over the gate arm. This piece of metal had threads on it that could be screwed up to block the gate from being opened. Thus the first locking carabiner dates from the very end of the 19th Century.

A German rock climber and mountaineer by the name of Otto Herzog is often credited as being the first person to use carabiners in a climbing system in the early part of the twentieth century. Herzog used carabiners to clip his rope to his pitons to protect against the event of fall. By 1921 a company based in Munich, Germany began to produce the first carabiner specifically for climbing. It was made of steel and weighed 130 grams. During the second World War the US government commissioned the production of aluminium carabiners. Many early American climbing legends started their climbing careers with military issue aluminium carabiners.

In 1957 Yvon Chouinard purchased a second-hand forge and began manufacturing a new line of forged aluminium carabiners, selling them out of the trunk of his car. These new lighter and stronger carabiners were an integral step in the development of the carabiner as we know it today. Over the next thirty or more years, carabiner development continued with many new manufacturers joining the market. Screw gate locking carabiners were introduced in the 1960's and in the late 1970s the first auto-locking carabiner was prototyped by Salewa. During more recent years there have been massive improvements in design and the types of metal alloys that carabiners are made from.

Today there is a veritable myriad of carabiners on the market. Vast choice for the experienced SRT caver looking for the right replacement carabiner for his kit. Overwhelmingly mind boggling choice for somebody just joining the sport and taking their first tentative steps in SRT.

Let us see if we can simplify the choices available.

Carabiners come in 3 basic shape styles

- Oval: These are symmetric in appearance. Mostly used for utilitarian functions. The load is theoretically carried equally by both sides of the carabiner. These are not really suitable for cows tails applications on account of the eclectic way the unit may be subject to load.
- D shaped: These are asymmetric in appearance. The asymmetry of the design aspires to transfer the majority of the load onto the side of the carabiner that does not have the gate in it. These are the style mostly used for cows tails.
- Pear shaped or HMS: These are specialized oversized D shaped carabiners used mostly in belaying. Because of the sheer size of the unit they tend to carry load through both sides of the carabiner. These are a style popular for people doing via ferrata on account of the larger gate opening aperture. They are occasionally used in SRT.

Carabiners come in 3 basic locking configurations

- Non-locking or 'snap gate': These have a sprung swinging gate which can be opened by pressing the gate inwards and closed by releasing the gate and allowing the spring to shut the gate. There are three basic designs to the gates: **Straight Gate** – typically a section of straight bar of similar cross section to the main carabiner; **Bent Gate** - typically a section of curved or kinked bar of similar cross section to the main carabiner; **Wire Gate** – typically a straight thin wire loop.

- Manual locking or 'screw gate': These have a threaded sleeve over the gate which has to be manually twisted to engage and disengage the lock. The gate itself is in basic design identical to a straight gate snap link carabiner but with the addition of the locking screw mounted bezel.
- Auto locking, or 'twist lock': These have a spring loaded sleeve over the gate which has to be manually twisted to disengage the lock but which will upon release automatically lock and make secure the gate. The gate itself is in basic design identical to a straight gate snap link carabiner but with the addition of the locking spring activated bezel.

There are many and diverse variations on the above and also configurations that do not fall typically into any of the above categories. The shape most suitable for cows tails application is the 'D' shaped carabiner. This article is concerned primarily with drawing a comparison between the basic locking configurations outlined above and their application as one of the major components of a personal SRT rig.

The fastest gun in the west

Let's start with snap gate carabiners. These are very popular with cavers for use as cows tails connectors. When I ask the owner of a snap gate cows tail why he or she chooses to use that particular type of carabiner the most common answer runs along the lines that 'if there are any sort of difficulties and I'm a long way above the ground I want to be able to clip in fast without a second's delay.' This conjures in my mind an image from a classic western movie about gunslingers and the like - Texas Joe (or Joanna), the fastest carabiner clipper inner in the west! We can all probably empathise to a certain extent with that sense of needing to protect one's self at short notice. However, is that really what happens when we are practicing SRT? I'm not sure what particular manoeuvre at what particular location Texas Joe has in mind but it does not fit well with my practical experience of SRT. For example, when I reach the head of a rather large pitch I am typically too out of breath to do anything in the blink of an eye. I find that while I sit just below the belay (gently steaming in my oversuit) I have rather ample time to reach up and clip both of my cows tails into the waiting traverse line. Perhaps the greatest need for a fast connection comes at an abseil re-belay. Having pendulumed over to the re-belay there is a need to clip your short cows tail into the belay. This often involves pulling yourself near to the belay with your left hand (if you are right handed) and then clipping in your short cows tail carabiner with your right hand. But even this manoeuvre does not require a fast draw technique. If for some reason you fumble clipping in the carabiner all that simply happens is that you swing back to where you started. You will not fall if your descender is properly locked off. Actually therefore this manoeuvre like so many in SRT boils down to the level of skill being exercised by the caver rather than a need to be able to clip into a belay in the blink of an eye. My point here is to suggest that actually the perception that you might suddenly need to clip in a cows tail so fast that the only carabiner fit for such a 'quick draw' exercise is a snap gate, is in fact a false perception. I know of at least one caver who have found themselves in exactly such a 'deadly urgent' situation, desperately in need of clipping in a cows tail as fast as was humanly possible. Being equipped with snap gate carabiners did not help one little bit. The reality therefore I would suggest is that there is a clear flaw in the perception that having snap gate carabiners will enable you to deal more effectively with a crisis.

There are of course many other reasons for using snap gate carabiners not least of which of course is that they are very simple and do not jam or get clogged with mud easily. If most of your SRT caving involves caves with sticky mud that make the use of locking carabiners difficult, then snap gate carabiners are probably a good choice. For my part however, I like my SRT to be in fine clean washed rock shafts well above the gloop and grime of the passage floor and free of mud coated SRT kit.

Bomb Proof Boris

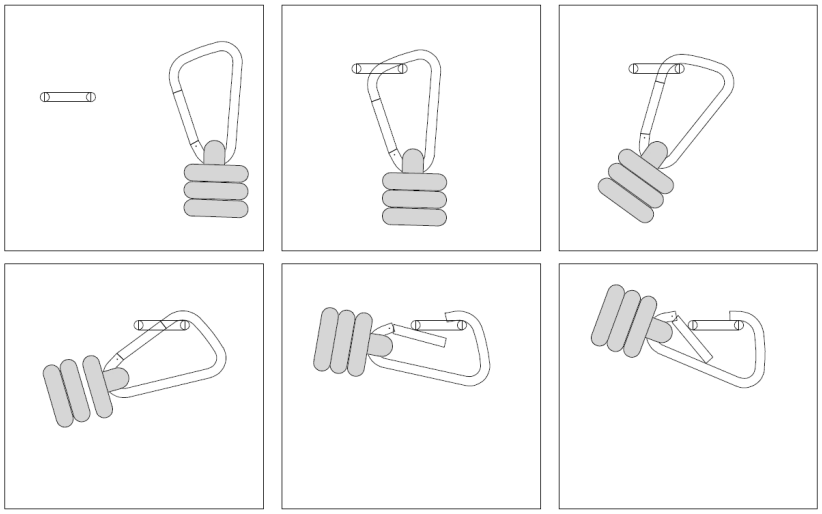
When I started practicing SRT some 37 years ago I decided that actually the carabiner for me was the screw gate. I wanted the sense of security of knowing that once my connection had been made and locked, there was no way of the connection being broken save for a mechanical failure of the system. This bomb proof approach is echoed back to me by others who use screw gate carabiners at the ends of their cows tails. The flaw in the plan (if indeed it is a flaw) is that to lock a screw gate takes at least three or four seconds of finger and thumb twisting of the screw bezel. It often takes people who are learning SRT much longer.

Moving along a traverse line with say ten belay points amounts to 36 screwing and unscrewing operations which equates to a minimum of two and half minutes of extra time spent doing up and undoing screw gate carabiners while moving along the traverse when compared to Texas Joe with his quick snap-and-go technique.

Now I'm not saying that everyone does this but I have found that eventually a lot of people using screw gate carabiners have a tendency not to do up the screw each and every time. It is sometimes said that familiarity breeds contempt. My experience of observing and caving with many different cavers is that as they become more confident with SRT and with their own abilities, the screw gate carabiner starts to become used more and more as a snap gate carabiner. This may be a crass over simplification but beginners typically start off with a 'Bomb Proof Boris' approach but trend with time towards becoming more of a 'Texas Joe' as their confidence, proficiency and speed grows. Perhaps you are somebody who started off using screw gate carabiners and has since progressed onto snap gates?

There are other downsides to screw gate carabiners. Sticky or gloopy mud can make the screw very hard to screw. I have seen numerous screw gates get gummed up in one way or another. I think there are more places for mud to creep into a screw gate carabiner than with snap gates so there is another point in favour of the snap gate users. If you cave with gloves on (which I tend not to do) then twisting the bezel of the carabiners is made much harder.

However, the biggest advantage that a screw gate has over a snap gate (if it is fastened correctly) is that the gate will not open of its own accord. This phenomenon is known as 'auto-disconnection'. If you have any doubts about how easy it is to open a snap gate carabiner here is a little experiment for you. Take your snap gate carabiner and grip it as it would be gripped by a cows tail. Hold out the palm of your hand and with the gate uppermost slap the palm of your hand with the carabiner. The click that you hear is the gate opening and closing. The flow sketch here shows a simple series of movements that will open a snap gate carabiner time and time again without the operator touching the gate of the carabiner.



Although the example here is of a typical eye bolt, the same can be achieved with a loop of rope. It is a simple fact that although snap gate carabiners are easy and fast to clip in, they can be just as easy and fast to auto-disconnect. If you fail to notice an auto disconnection you can find yourself in a very perilous situation. It is for this reason that many people choose locking carabiners over snap gate carabiners.

Let's Twist Again

Iain Miller first introduced me to auto locking carabiners many many years ago. Like the screw gate carabiner there is a locking bezel which when closed prevents the carabiner from auto-disconnecting. Unlike the screw gate however one quarter turn of the bezel is sufficient to release the gate and open the carabiner for attachment. Once the carabiner is engaged, you simply release the gate and bezel and with a snick sounding click the carabiner is locked in place. To my mind at least this design offers the very best of both worlds. I may not be the fastest draw in the west, but as my hand catches hold of the twist lock carabiner my thumb and forefinger intuitively grip each side of the twist lock bezel. In the time it takes to physically move the carabiner towards the belay, the bezel has already been quarter twisted and the gate has opened. Once placed, I release hold of the carabiner and bezel and the connection is automatically locked. I move on to the next task safe in the knowledge that I am securely clipped and locked to a point of safety. I have no fear that the carabiner will auto disconnect. I have not suffered the fuss and bother of having to screw the gate locked leaving me more time to concentrate on my next move and to enjoy the splendour of my surroundings. With a little practice I have become quite proficient at grasping my twist lock carabiners in the right fashion so as to allow almost seamless unlocking of the gate from a belay. I don't consider myself to have particularly unusual digit dexterity – I don't knit for example. I take the view that anyone can master a twist lock carabiner with a very small amount of practice. Having moved along numerous traverse lines in the company of those using snap gate carabiners I have not detected any quantifiable slowing of progress on account of being equipped with twist lock carabiners.

I would concede that on one trip I did indeed encounter a problem with mud making the bezel very slippery and difficult to twist. It was on a particular pitch part way through the Diau. The problem lasted for about five minutes as a result of a particularly unusual grade of mud. I would suggest however that one pitch in 37 years does not exactly point to a poor choice of carabiner. I have heard some cavers suggest that twist lock carabiners are an un-necessary 'faff' and that they are awkward to use and don't work if they get muddy. I disagree with those views. They do not stack up with my experiences.

Firstly they are not a 'faff', they are a critical link to an essential part of the system that protects your life. Ask yourself the question, is the security of your life worth a small amount of effort or 'faff'? I would say yes. I would argue that the subtle action of twisting the auto locking bezel through a quarter turn is one very small part of a person's SRT technique. If your position is that having to deal with the twist lock makes the manoeuvres and processes too hard then perhaps the whole discipline of SRT with its many fasteners, knots and procedures are not best for you.

Ask yourself how proficient at SRT do you want to be? Do you aspire to have a skill level that enables you to just about survive an SRT trip or do you want to be proficient or even expert at the technique and possibly thereby increasing your level of enjoyment of the whole experience? If the answer to that question is that you want to be proficient then do not dismiss twist lock carabiners because they require a small degree of operator skill to use. Instead I would advocate that you embrace the opportunity to master the technique and once mastered, revel in the additional security that you have achieved for yourself and let this be reflected in your self-confidence.

Yes if you cover any piece of equipment in mud you are going to make it difficult to use but in my view that is no excuse to throw safety out of the window. Caving is by its very nature a challenge of man against the environment. When the environment throws something difficult at us, we must use skill to overcome the obstacle in a safe fashion above all else. The very essence of modern SRT uses the approach of overcoming obstacles by skill and technique as its foundation. Anyone with sufficient physical strength can throw a rope down a hole and climb down and up that rope wherever it may run. SRT however is the use of skill to safely navigate a vertical shaft as opposed to simply struggling with whatever nature would choose to put in our way. To reduce safety on account of a very small level of technique is to miss the point about SRT.

When practicing SRT I am as acutely aware of the perils and the potential for serious injury and death as the next person. I like to think that my calmness has nothing to do with bravado or familiarity. I believe that I have been taught a system by those whom I trust. I practice a system that I trust and which has over the years proved reliable and trustworthy. I use personal equipment that in my opinion is the very best equipment that I could use for the purpose intended. I have complete trust in my equipment. Do you have complete trust in yours? Do you feel nervous at pitch heads because you have heard stories of auto-disconnecting carabiners? I have on occasions been on SRT trips with cavers who seem a little uneasy about pitch heads and traverses. Obviously there are a great number of factors at work in each individual, but if you doubt the level of skill that you have attained and therefore the security of your technique (and possibly your equipment) then it would be clearly obvious that you would feel a degree of trepidation at the head of a big pitch.

I hope I have inspired you to take a fresh look at the carabiners that you use for your cows tails and to think through why you use those particular carabiners. One final thought for those of you learning to do SRT using snap gate carabiners for cows tails. Given the choice would you sooner learn with equipment that offers better protection and the opportunity to learn better technique or alternatively would you sooner learn with equipment that is easier to use but ultimately teaches a more basic technique and offers less security?

G Vaughan 12th March 2015

In Praise of Snaplinks

Martin Hoff

"Right, if you step up onto here, I can get past beneath you..."

I stepped down to the lower level, reached for my cowstail and unclipped the karabiner from the traverse line to find I had made the schoolboy error of already grabbing and removing the one krab in the fraction of a second before I had re-attached the other. My feet now a foot below those of my caving companion, my whole perched on a ledge with eighty or ninety metres of air beneath and momentarily held to the ledge by nothing more than the force of gravity through the soles of my boots, a quick swipe of the hand instantly had me re-attached to the traverse and I spelled out what I was in the process of having just done. The idea of the right hand not knowing what the left hand is doing is far from a novel concept, especially when it comes to cavers, and the externalised observation served a couple of purposes here, making sure Dave knew what I was doing and, more importantly, refocusing my mind just a little harder on the more crucial part of what I was up to – busy not dying.

Concentrating on getting photos was an important consideration, indeed it was the main purpose of this trip but hardly the only consideration.

Having swapped places with Dave and directed him to the spot where I wanted him, I prussiked back up towards the next rebelay from where I expected that the photo I had in mind would work. Naturally it did not and after a few minutes of swinging around, the only option was to give up and head back down the rope to the ledge. The team that had rigged this pitch several days before had done the sensible thing and left an over-long loop which provided a good few metres of slack between the last rebelay above and the start of the traverse, enough slack that it was possible to drop down onto the main ledge itself a few metres below and then make progress independent of the rigging, completely detached from the ropes.

I had already explored most of this balcony a couple of days before, comfortable enough with moving around untethered on its uneven surface. It was hardly a small ledge, comprising almost enough area for a decent game of five a side football even if we were fifty metres below the top of the shaft, or roughly a third of the way down the thing. Unclipping my cowstails once again, I crossed the balcony to the other side of the shaft and placed yet another flashgun in what struck me as about the right position, then returned to the rope and headed back up once again. It took a couple more goes to produce results of roughly the expected standard and intended effect but soon enough that job was complete and Dave could stop posing and head back up to the head of the pitch.

During the period of waiting for the pitches above me to come free there was time for further consideration of my moment of excessive exposure on the traverse and other things that can go wrong on the ropes. It was not a long way from here that Rhys Williams had found himself short of lighting but long on perseverance, crouched on a rather smaller rebelay ledge (see p34, SWCC Newsletter 120) until a bit of improvisation had eventually got him out of a damp and tricky spot of trouble.

Inevitably my thoughts returned to Acapulco Jules Carter's efforts at testing the boundaries of mortality and not for the first time I examined my cowstails; any speculation about exactly how Jules had become detached was perhaps less relevant than the obvious difference between the scenarios, in that my version of operator error was with my cowstails under my active control, that is that I was in the process of doing something (stupid) with my cowstails at the time rather than doing something else and expecting the cowstails to stay where they were.

This contemplation was interrupted by the news that Dave was approaching the top of the ropes and It was time to for me to make a move, so I clipped in to the over-long loop, attached my jammers and started to prussik. The clanking of similar actions echoed down from above me and I started to gain height, rebelay after rebelay.

Sufficiently dampened by the small stream flowing over and down it, the topmost section of the wall was pretty uninspiring, even if it had been somewhere else, some way lower down the main shaft where another member of our group had been damaged enough by a falling rock to need a visit to the local hospital in the week before. All the same, I had watched Dave gradually making upwards progress and silently thanked whoever had bolted this sequence of pitches in such a way as to maximise the horizontal offset from one rebelay to the next, distancing the rope from the modest falling spray but also from the likely target zone of the odd piece of rock that would inevitably detach itself from the wall as cavers passed by. Diagonal progress is not without its drawbacks though, as I would soon find out.

The longer pitch sections were all behind me, beneath me as I approached the more technical, more fiddly section of the rigging which would carry me back along the wall to the compact muddy ledge where an awkward rift in the rear wall would in turn lead us back towards the surface. The perfect Y hang came within reach, one arm the loop of a doubled figure eight knot and the other a single rope leading up to the other bolt. Instead of the slack I had been expecting, the continuing rope ran taut above the bolt, the tension lifting the single rope arm of the Y hang at the knot. Hmm.

While the angle formed in the Y may have been perfect, the rope lengths required to enable this arrangement were just a little longer than convenient. Jammers up to the knot, though not hard against it, I clipped in the cheat knot in my footloop to give myself a little more reach then pulled myself up to attach both cowstails to the single arm of the Y. Not exactly textbook, though nor was having the next section of ascending rope pulled tight above the bolt; at least now I could swing around in space with the reassurance of more points of attachment, albeit without footholds, to see what happened when I tried to transfer my jammers.

I stood up again in my footloop, just able to grab the rope above the knot and yank. No amount of pulling or attempting to flick it would release it from whatever projection had presumably captured it and I slumped back onto my gear to catch my breath and relax my arms and legs.

"Is the rope snagged?" I yelled.

'Uhhhh?'

"IIIIIS. THHHHHHE. ROOOOOOPE. SNAAAAAGGED?"

Mumbled response and the distant sounds of activity ensued above.

Bracing my weight off the wall, I gained just enough purchase to move my hand jammer onto the single arm of the Y, stretching up to transfer my long cowstail to the tight almost-loop of the ongoing rope. There was a chance that a greater loading on this section of rope might pop it off whatever was holding it tight, worth a try, but nothing happened. My point of suspension was now switched to a high enough level in the rigging that a swift grab for a krab and a tape sling from my tackle sack made it possible to give myself an independent foothold, a stirrup to relieve the weight hanging on my jammers. I transferred my short cowstail once again, this time to the bolt itself.

'Can you take your weight off the loop?'

"WAIT!"

'There's no rush....'

"Oh yes there is" I yelped, using not quite those exact words, as I lunged for my long cowstail and stretched my leg to unweight the tight rope above me, enjoying the reassuring click as a different section of the rope instantly pulled through the curve of the bent gate of the krab, once again providing additional security as my weight came back onto the short cowstail.

Some short while later and from somewhere out of sight above me, a metre or so of slack appeared in the rope above, the loop dropping down to just within reach of my jammers. After a fairly strenuous few minutes, I rested a few moments longer before finally passing the Y hang and moving on to the section of rope above me.

One deviation done, I was high enough on the wall to see the big protruding flake and the second deviation brought me level with the base of it, a suitable position from which to see where the loop would naturally hang if not carefully managed on passing the further deviation and rebelay above. A quick look around found nothing natural that could be used as a further deviation, then I was watched up the remainder of the pitch to make sure I did not visit similar difficulties on the next person to follow me up it. Dave turned to apologise for giving me a slight problem, unnecessarily so in the circumstances as these things happen when you are three hundred metres down a cave which fewer than twenty people have seen the bottom of. This was hardly a trade route and it showed.

Truth be told, it needs at least one more deviation or more conveniently another rebelay in the middle – the sequence of a bolt with one deviation nearby and then a big loop dangling loose before another pair of deviations being a recipe for trouble when such a length of rope stretches diagonally along the wall. Once again I had had to work at making my own luck and once again my kit had served me well, the easy clipping snaplinks of my cowstails instantly, repeatedly, releasing and reattaching me wherever I needed them to as my leg and arm muscles strained to hold me in various inconvenient positions. With each krab held firm by a barrel knot, clipping in is reduced to the simple operation of one swing of the arm while holding the knot and pointing the gate towards the rope or bolt. It is not for no reason that this streamlined set-up is a design classic.

Juggling the loading of the various components of the system while I was waiting for the slack to be released above me, there was little chance of all of them somehow becoming unloaded at the same time and screwgate or twistlock krabs would have served no purpose here beyond introducing a further, unnecessary step in delaying the multiple transfers of cowstails back and forth between sections of the rope.

For easy progress on P-bolted pitches out of a guidebook, I can see the appeal in the additional belt and braces reassurance of locking krabs on cowstails but then again for straightforward progress in big clean-washed shafts, it probably makes very little difference either way. Not every pitch is a join-the-dots festival of resin anchors though, so it is for the obvious, significant benefit of flexibility in improvised manoeuvres when it really counts that I will be sticking with my snaplinks.

Object of the exercise

Waiting for the ropes to come free

White Water Rafting Claire Vivian

On a cold and murky Sunday at the end of January, 6 SWCC members decided to try out the White Water Rafting Centre in Cardiff Bay. I say 6, but what I really mean is 5 soon-to-be rafters, plus one supporter/photographer who lamely claimed that his Aussie blood prevented him from putting on a wetsuit whilst the temperature was still in single figures.

The drizzle arrived at about the same time we did but, knowing that a full immersion was highly likely, we didn't care, though our lone photographer might have had other thoughts on the matter. With helmets bobbing and paddles churning we set off on our practice run around the lower pool. Having successfully completed this without drowning or impaling a team member with a paddle, we progressed to the proper white water. Exciting! Apparently the water was set to flow at 8 cubic meters per second, which wasn't particularly fast by Olympic-standards, but was still enough to be good fun for us.

Round and round the 250m course we went – helped substantially by the provision of a raft lift to return us to the start each time – hitting and overcoming rapid after rapid, returning to do some back-paddling, dodging kayakers, colliding with other rafts and getting more confident with each lap. Even somehow managing to survive the cheese jokes constantly given by one of the instructors every time we went up the lift, which included the appalling: Q: What happened after an explosion at a French cheese factory? A: All that was left was de brie, and closely followed by Q: What Welsh cheese must you always eat with caution? A: Caerphilly. And then it all went wrong… On a rapid we had already been over about 4 times before the raft flipped to almost 90 degrees on its side emptying 6 of the 7 passengers into the fast flowing water. Yes, I was the one left in the raft. No, despite the rumours, I didn't push the rest out.

Collecting the 2 instructors first, we then went on to pick up the rest of the SWCC team who had been pulled out further down the flow. It was then back to the action with a couple more laps of the course and more collisions with other white water rafts. All too soon it was the end of our allotted time. I'd already seen the glint in the instructor's eye as he hauled himself back into the raft and knew I wasn't going to escape without a complete soaking myself. That then came in the lower pool with a complete inversion of the raft. Following this a great meal and drink was had at the Ocado Lounge in Penarth to warm us all up.

Fun was had. Where were you? Come and join in with your club. Caving across the UK and abroad, plus activity style meets, are happening throughout the year. Check your emails and the club calendar for further details.

SWCC members: Vaughan Budd, Catrin Davies, Chloe Francis, Helen Langford, Stuart Reedman, Claire Vivian. All photos by Stuart Reedman.

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