

Wessex Cave Club

Journal 333



Wessex Cave Club Journal

Volume 33: April 2015



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ISSN 0083-811X

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Editorial

Welcome to Journal 333. It's been a really busy time since the start of the year. There are many rumours, as well as some facts, about exciting happenings on Mendip

One of those rumours - that Home Close Hole had "gone" - has become fact. Tony Audsley shares with us the continuing saga of their dig, which has given them a very reasonable new piece of cave to explore. I'm sure that Tony will have more to tell us over the coming months. Let's also hope that some of the other rumours also come true.

As well as the exciting news from Home Close Hole, we also have a report of some new discoveries in Lechuguilla, New Mexico. Hazel Barton, a returning Wessex member, gives us a little insight into caving where one of the big concerns is over heating and dehydration! Hard to imagine that as we venture underground cold and wet Mendip.

As mentioned previously I need members to provide ideas, photos, stories and trip write ups. This is our Journal - and it needs your input. I can not produce our journal without your help. So, don't be shy put pen (or keyboard) to paper and share your caving.

Once again, a huge thank you to all contributors to this Journal. Without them, literally, there would be nothing to publish.

Happy Caving.

Pete

Cover

A lead out of the Chandelier Wallroom in the Neuland discovery, with Artur Hoffman (above) and Beth Cortright
(Photo by and with permission of Rainer Straub)

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Membership News

A warm welcome to Jack Ballard, George Acland-Shannon, Rory McSwiggan, Tracy Hookway, Andrew Pollard, Maria Lynch, Alex Gough, Jake Parish, Michael Kousiounis, Keith Biner, Mark Le Poidevin, Duncan Simey, Andrew Horecky, Anya Keatley, Nicola Dennis, Martin King and to rejoining members Gillian Acland, Jonathan Williams, Jane Whittaker, Paul Dold and Jonathan Cording.

Congratulations go to Andy Morse and Wendy Bollard who, after thinking about it for 17 years, are now engaged.

Diary

April 11 th	Swildon's Hole – Black Hole Series
April 11 th	Grange Rigg / Christmas Pot permit
April 12 th	Dihedral / Bar Pot permit
May 9 th	Fairy Quarry Caves – Hilliers/Fairy & Balch
May 10 th	Committee meeting
May 16 th	Top Sink / Lancaster Hole permit
May 17 th	Wretched Rabbit permit
June 6 th	Hut working weekend
June 13 th	Off Mendip for some Llangattock trips
June 13 th	Birks Fell permit

June 14 th	Hurnel Moss Pot permit
July 12 th	Committee meeting
July 18 th	Notts Pot permit
July 19 th	Rumbling Hole permit
Aug 1 st	Yorkshire Weekend at BPC
Aug 1 st	Stream Passage / Flood Entrance permit
Aug 2 nd	Marilyn / Bar Pot permit
Aug 14 th to 27 th	Summer Camp – Felix Trom
Sept 11 th	Try Caving weekend

Hut Bookings

April 10 th RDCC (5)
April 17 th CSCA (15)
April 24 th CDG (30)
May 8 th Essex Lorry Drivers (20)
May 8 th SUAS (10)
May 15 th WSG (10)
May 24 th Hazel Barton (6)
June 12 th CDG (20)
July 6 th to 27 th Archaeology Students (30)

Thanks to Ali Moody for all her work keeping the hut bookings well managed.

RECENT ADDITIONS TO THE LIBRARY

As of 1st April 2014

Bristol Exploration Club 'Belfry Bulletin'
59, 6 (551) Aug 2014
60, 2 (Feb 2015)
BCRA Cave and Karst Science 41, 3 (Dec 2014)
Chelsea S.S. N/L 56, 11/12 (Nov/Dec 2014)
57, 1/2 (Jan/Feb 2015)
Derbyshire Caver 136 (Spring 2015)
Annual Report for 2014, Minutes of AGM 28/2/15
Descent 241 (Dec 14 / Jan 15), 242 (Feb/Mar 2015)
Gloucester S.S. N/L 'The Journal' 3 (Oct 2014)
Grampian S.G. Bulletin 5 th Series, Vol. 1 No. 3 (March 2015)
MCG 'News' 376 (Jan 2015)
MNRC N/L 141 (Winter 2015)
Plymouth Mining & Mineral Club N/L 44, 1, 2 (Jun, Oct 2014)
Shepton Mallet Caving Club Journal Series 13 No. 3, 4 (Spring, Autumn 2013)
Speleological Union of Ireland 'Irish Speleology' 21 (Oct 2014)
White Rose P.C. N/L 33, 4 (Dec 2014), 34, 1 (March 2015)
NSS 'News' (USA) 72, 12 (Dec 2014), 73, 1, 2, 3 (Jan, Feb, March 2015)
Journal of Cave and Karst Studies 76, 3 (Dec 2014)

Home Close Hole –Events, Dear Boy, Events

(Tony Audsley)

... one may wonder if digging dry depressions in "Dolomitic Conglomerate" areas is a practical proposition. Whereas the solution of Carboniferous Limestone leaves very little residue, removal of the soluble carbonates from Triassic strata like those of Pounding Pot must leave something like half the mass behind as silt and clay. If there is no stream to wash this away, the passages are likely to stay largely plugged with choke material ... "Summer at Pounding Pot" W.I. Stanton. Wessex Cave Club J. 12(145), 1973.

Well, you must admit that he does have a point, there is an awful lot of silt and clay but, as is shown below, there can be open ways through the choking, it is just that they are very small. To dig such a site just requires a certain degree of bloody-mindedness on the part of the diggers. Given that, anything is possible.

Now, where were we? Back in November 2014, when the last Home Close article was written (WCC J. 332¹), we were digging happily away, blissfully ignorant of what lay before us. I had planned a whole series of articles, each more fascinating than the one before, culminating in an account of the current digging. However, we were overtaken by things the like of which former Prime Minister, Harold Macmillan, once famously described as "events, dear boy, events". Suddenly, we were staring into the abyss. A 25 metre pitch had appeared at the end of the dig with very little warning and not so much as a "by your leave". I wanted to call it "Ruination Rift" but was overruled.

So, for the write-ups, a change of plan is now required. However, it is still worth giving an outline sketch of the early days to give some context to the later works. However I'll leave out the technical details about shaft stabilisation, shuttering, concrete, rebar etc., for now and try to sneak them in past the Editor at a later date, when he is not looking.

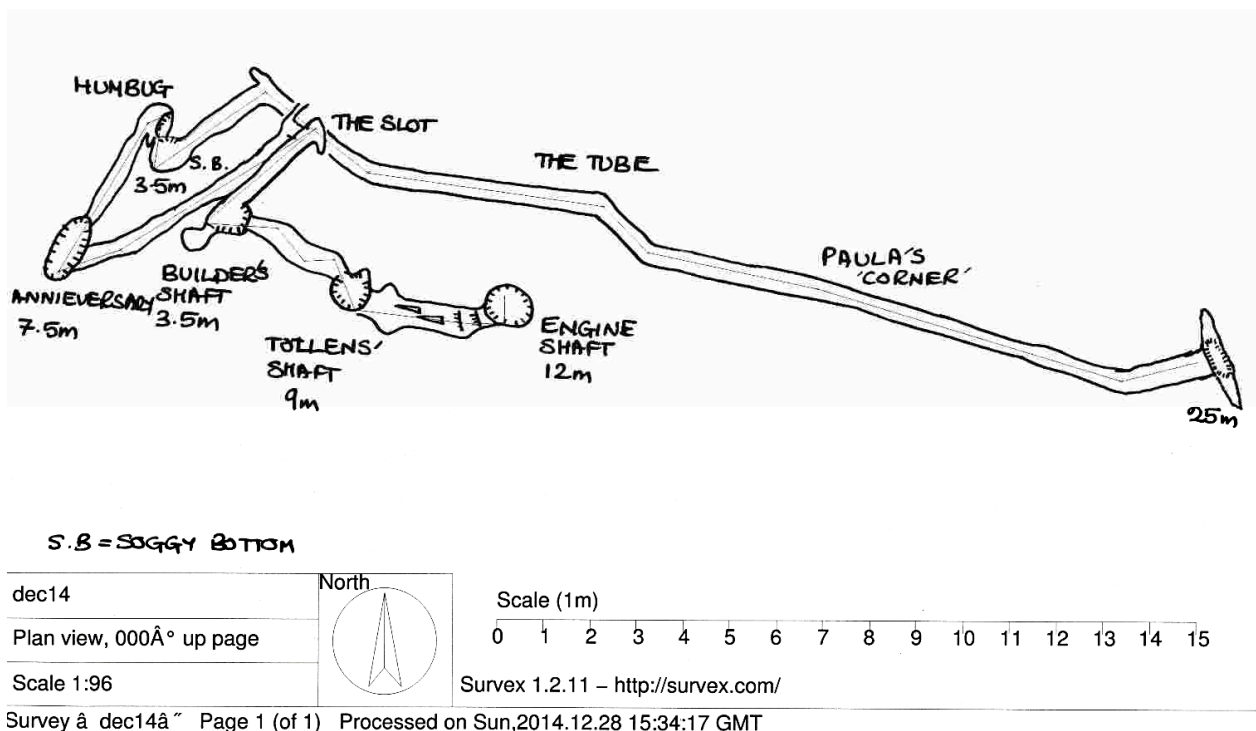
By October 2011 we had got these technical bits out of the way, we had a draught and were in solid; usually a bit too solid, but better than the mobile rubble fill of the entrance shaft. We had a short section of passage, "Rough Diamond Rift", so called from J-Rat's description of his mates. This ended in a cross rift, a mineral vein with massive calcite crystals, with a narrow descending rift in the floor. This was enlarged but stopped about 4.5 metres down having met a flat blank floor. However, working a bar into cracks in the south wall at floor level produced a black hole and an open void, another 4.5 metres deep.

Strictly speaking, these were two separate shafts as entry to the bottom half was made through the solid but we now treat them as one unit and have named it Tollens' Shaft, after Bernhardt Tollens, the German chemist who gave us the magic white fairy dust (PETN). Later in the course of the dig, we mounted a simple windlass, made from a length of telegraph pole and some bits of old iron, at the top of this pitch to aid hauling.

The lower part of Tollens' shaft is formed along the line of a mineral vein and this is visible at each end of the somewhat ovoid pitch bottom.

The vein is symmetrical viz:-

Rock | clay | baryte | calcite & clay | baryte | clay | Rock



This is consistent with a hydrothermally formed vein². The baryte bands contain occasional speckles of galena and there are pockets of earthy manganese dioxide (or "wad") in the calcite layers. When first entered, there was a narrow debris-filled trench in the floor which was excavated and enlarged, eventually revealing a small hole in the wall. After this had been sprinkled liberally with the magic fairy dust, we gained access to a circular cone-shaped shaft, some 3.5 metres deep. Despite many tries we have never found a decent name for this shaft, so it is Builder's Shaft, because we installed an aluminium builder's ladder in it. The bottom of this shaft is circular, not quite 2 metres diameter, with a flat mudstone floor. Again, large calcite crystals indicated the presence of a mineral vein. There was an open but too small passage leading off and fairy dust needed to be applied before it was get-alongable (that's a technical term).



Paul Brock in Annieversary

Mid June 2012 was the start of an unpleasant period, where I, for one, learned lessons about human behaviour that I would have preferred not to. The situation continued to deteriorate and on 1st October I shut the dig down and it remained closed until the end of December, when we started up again with a revamped team. It was a relief to have the festering malevolence behind us.

Nothing is perfect in this world and we soon realised that our passage beyond the Builder's Shaft ended in a blank wall with no apparent way on. The air also tended to be a bit on the thick side. However, if one lay face down at the end and twisted to the right, the gravel in the floor seemed cooler and fresher; all was not lost. The application of admittedly quite large amounts of fairy dust frightened the dig enough for it to come up with a low, small tube and a puddle. It required a lot of contortion but with head thrust into the puddle, it was possible to squint with one eye along a tube with an arched roof some 12 cm across, half full of water. It appeared that this tube had adopted a sort of cork-screw motion and dived under the approach passage into the rock beyond; strange.

What I have omitted to mention so far is "the slot in the floor". There was a small, rather pretty hole in the floor of the approach passage, about a metre back from the end. This was a slot about 10 x 5 cm - fag packet size and, say, 40

cm deep to gravel fill. After much furdling and poking of bars, we convinced ourselves that it and the little tube were connected and the best way on was to attack the slot. A pity as it was a rather nice feature.

(A lot) more fairy dust and the whole area of floor at the end of the passage was lowered and the slot, the little tube and the curious cork-screw gradually vanished in puffs of smoke. The passage under the left-hand wall could now be accessed directly. Sorry, I know that all this has been a lot of description for a small section of the dig, but it was an extraordinary formation.

The narrow way on continued under the wall, performing a series of right angle zig-zags as it went. These were removed one by one and placed carefully on the spoil-heap. Later on, we realised that we were heading towards a pitch and after some 6 metres of de-zig-zagging the passage, we were nearly in. Unfortunately, daughter Annie's birthday was approaching and we were invited up to Scotland for the celebration. What a choice. The dig was about to go. Sorry Annie.

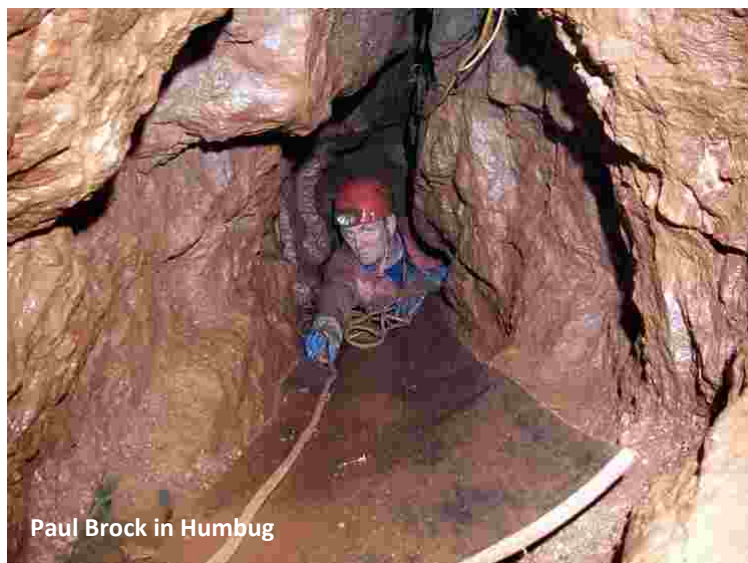
In the event, we didn't actually get in that weekend, which made it worse. When we did get in, the pitch was 7 metres deep, relatively roomy, with a couple of ledges, even a small amount of stal. My conscience woke up, named it "Annieversary" and then went back to sleep.

With the discovery of this pitch, we decided to install fixed ladders on Tollens' and Annieversary to aid the diggers. Thus aided, we continued digging. The bottom of Annieversary was floored with rubble and once this had been cleared there was revealed the familiar type of flat mudstone pavement with an incised meandering slot. This slot headed towards a narrow rift leading off to the north.



Rift at the bottom of Anniversary before The Tube

More drilling - it was unpleasantly wet now and I even had to resort to using an umbrella to protect the drill. This umbrella eventually met with an unfortunate accident; we kept finding bits of it for weeks after. It is amazing how many small, sharp bits of metal you can get from one umbrella.



Despite all such problems, by late December 2013 we were looking through the last of the narrows and into a large chamber with the black hole of a deep pitch in the floor and the sound of falling water rising from the depths. Exciting times. This is what it's all about after all.

2014 arrived and more fairy dust unlocked the door into the chamber. This immediately shrank, as is so often the case, into a miserable little void, but it was possible to turn round in it, so it could have been worse. Welcome to Humbug! In the floor, just as we suspected, there was a slot, which after a bit of enlargement gave access to a really useful ledge about a metre below. This was absolutely ideally placed for bag hauling; we could not have done it better if we had put it there ourselves. Below the ledge, a further 2.5 metre drop gave access to Soggy Bottom. This was another cone shaped feature with a flat mudstone floor, maybe just over 2 metres in diameter. Low down on one side was an inlet tube from which a small stream issued. This crossed the floor in a very slightly eroded channel and exited stage right along another low tube. The entrance was small but it was possible to get along, say 1.5 metres, to a sharp bend and then a little bit further but that was it. This tube (referred to henceforth as 'The Tube' to differentiate from the myriad other tubes in the dig) was home to some of the team for the rest of 2014 and we learned to love it dearly.

For hauling, there were two particular fun positions; firstly, Soggy Bottom, sitting in the stream (hence the name) with water falling from above; secondly, the bottom of Annieversary under a constant stream of water and the

occasional rock from above. Character building, those who have served their time in Soggy Bottom in particular have iron in their souls.

The Tube is an interesting structure, nearly horizontal, heading almost due east. The upper section is 'phreatic' in form with an arched roof and several phreatic hollows along its length; under this is a narrow clay-filled parting and the mudstone changes nature here. The bottom section is a vadose-like meandering trench some 15 cm wide.

Now for some details of the latest phase of digging. The next paragraph is dedicated to those who have a fascination for facts, figures and trivia. If you don't, you can always skip it.

In 2014, we made over 30 metres of passage, for which 128 shotholes were drilled to a total length of 69 metres. All spoil was removed to the surface, 1058 bags of it in total. As much of the horizontal sections of the dig as we could manage were carpeted with conveyor belting, which made the effort of shifting spoil almost pleasurable. As the digging face moved slowly along The Tube, skips of spoil were hauled back by the unfortunate in Soggy Bottom, who bagged it then passed the bag to the person on the ledge, who attached it to the drag line. The digger at the bottom of Annieversary then hauled it in and clipped it to the crab of the Annieversary rope. There was a pulley bolted in the roof of Annieversary to aid hauling for this section. Once on the top ledge, the bag was passed to a strong man perched at the top of the fixed ladder and he put it in the drag skip. This was hauled back to The Slot by a strong woman who passed the bag to the person who lurked at the bottom of the builder's ladder ... do I have to go on with this? Yes, of course you do, it all happened, so get on with it. Ok, the person at the



bottom of Tollens' hauled up the bag and crabbed it to the windlass rope and the windlass person wound it up and passed it to the bag-stacking monitor who stacked it with all



Start of The Tube

the others at the bottom of the Engine Shaft. Phew, that was tiring. Now comes the easy bit; for the last part of the journey, there was a power winch and bags were loaded into the kibble and whisked to the surface to be barrowed and then tipped on the heap. Although we never had a big enough team to do this all in one go as just described, the team worked its way back with the bags via intermediate dumps and spoil frequently came out fresh and sparkling the same day that it was dug.

And now we come to the tragic bit

For a long time, we had thought that we would be stuck with working in The Tube for months, it just seemed to go on and on. However, by November 2014 there was a definite change. We could hear the water gurgling ahead of us and it seemed to all that it was falling only a short distance, a few tens of cm., like water falling into a drain. Previously, the gradient of The Tube had been constant and the water flowed slowly and silently. Also the open lower section of The Tube, the 'vadose' section for want of a better description, became deeper and narrower. We rounded a slight bend and there, about two metres ahead, was a blank wall. In time-honoured fashion, stones were thrown at this wall (a catapult would have helped) and a few bounced off and fell with a series of clunks, then a final, faint, distant boom. We had reached a cross-rift (another mineral vein)

which extended a short distance to either side and above the axis of The Tube and a rather larger distance vertically downward. This was eventually plumbed to a depth of somewhat over 25 metres.

Working towards this cross-rift, I made one final effort to put off the evil day and dropped a large section of the left-hand wall directly into the rift, jammed like a cork in a bottle and blocking access. Couldn't get away with it forever, though, and by 27th December the way was open and a series of anchor points fixed around the pitch-head.

We returned on Sunday, 4th January 2015, all set for the descent of the 25 metre pitch. Sam Batstone was first, I followed, then Paul Brock and Nick Hawkes. The pitch head is quite tight, in Mercia Mudstone, but after a couple of metres, it enters Dolomitic Conglomerate and the walls swing away. The pitch bottom is in a roomy hall. The immediate pitch floor is rather saucer-shaped and floored with small gravel, rising slightly at the edges until dropping to a mass of metre-sized mud covered boulders on the western side. Here against the southern wall is a possible way down through the boulders, marked for later attention as Dig#1. Turning to the east and recrossing the pitch bottom, there is a rising mud slope and, after Paul had fixed a hand-line, we slithered 4 metres down the other side to reach the end of the cave.

Except that we didn't. It just kept going on, which we found difficult to believe and conversation seemed limited to "is that the end yet" and "no, it still goes on". You have to forgive us over this. Throughout the last year most of the dig has been either flat out crawl or, if we were able to sit upright, we were under falling water and the occasional falling rock. It was a bit of a culture shock to be able to stand up and move around freely.

Enough waffle, what is there to see? The main spine of the cave from beyond the pitch to the four-way junction in the south is a splendid phreatic passage, cut in Dolomitic Conglomerate, walls scalloped in places, between 1.5 and 2.5 metres high, with a dry sandy floor. There are side passages off on the west of this tunnel, namely a boulder choke, or what we christened 'Dig#2'; more of this later³. Further along the tunnel was the '60 metre tube' named after Nick's initial guesstimate of its length. It is actually 37 metres, but 60 sounds better so it stays and anyway, it will



The Cork in a bottle

get longer at some stage. It is a fairly comfortable size, no worse than The Tube, but it is blocked at the end by a boulder, which must have come in from above. Again, this can wait till later.

Even further along the tunnel there is a steep and slippery drop into the streamway. At this point, two inlet streams are met, one from the east and one from the west; they combine and flow out to the east through a low tunnel, a flat-out crawl. We have had enough of those for the time being, so it was noted for later investigation.

The eastern inlet passage ends in a flat-out, low gravelly crawl in the stream. Again, this would be diggable, but there are more promising sites. The western inlet ends in an angled rift, with a rather aggressive boulder ruckle at the end. Paul has exchanged insults with it; it won. This is an interesting area, but again not high on the list of priorities.

A couple of facts worthy of mention; firstly, in the stream-bed at this (southish) end of the tunnel there are many pebbles of blackened Harptree Bed chert and a few larger blocks, some the size of a loaf of bread. As these are Jurassic material, they must have come in from the surface, possibly via the depressions further to the south of the dig. Secondly, in both of the inlet passages, N/S trending mineral veins are visible, one with massive calcite crystals. Tectonics are still playing a part in defining the structure of the cave.

The Surveys:

Note: These are centreline surveys, the passage profiles are approximations. The approach dig was surveyed by Roger Galloway and Annie Audsley on 27/12/11, 23/12/12, 23/11/13, 27/12/14; it's a Christmas ritual for them.

The extension was surveyed by Nick Hawkes, Paul Brock and Sam Batstone on 11/01/15. The survey shows that the extension is a shade under 200 metres in length and is approximately level at an average depth of 70ish metres. The Tube is level at about 40 metres deep.

Names:

These are rather erratic. Because of the linear nature of the digging, working stances were important to us but the space between them was not. With the exception of The Tube, the horizontal sections are not named. So, we have lots of unnamed features but, perhaps uniquely, we do have Paula's Corner, a named unfeature! This originally consisted of two sharp bends in The Tube. Seven year old Paula Matthalm was very excited when she fired the charge which got us to the corner. Unfortunately, the corner itself vanished later in a series of puffs of smoke; but the name remains as fodder for the next edition of "Who Was Aveline?"

The Team (The Soggy Bottom Crew):

Alice Audsley, Caroline Allen, Chris Batstone, Nick Hawkes, Paul Brock, Paul Clayton, Rupert Fear, Sam Batstone, Tony Audsley.

With Support From:

Annie Audsley, Jeff Price, Ian Gregory (Slug), John Williams (Tangent), Mike Wilson, Roger Galloway.

Acknowledgements:

We are continually grateful to Penny Wiseman and the Waldegrave Estate for their continued support and tolerance and also to Tim Bailey at the farm for good company and conversations.

Health Warning:

Measurements quoted here may well be subject to revision at a later date, we are a rough and ready bunch after all.

Appendix 1: The Mineralisation - Nick Hawkes.

The vein at the bottom of Tollens' appeared as:-
rock | clay | baryte | calcite + clay | baryte | clay | rock

This is a classical symmetrical zonation pattern consistent with a hydrothermally formed vein, i.e. deposited from hot mineral rich fluids passing upwards through the rock. These fluids are often meteoric waters, often like the hot springs at Bath, they have been underground for a significant period and hence are concentrated with a variety of minerals.

Over-pressured hydrothermal fluids will rise and exploit any small crack or fissure in the rock. Paths of least resistance may be pre-existing cracks/faults/fissures, unconsolidated breccias, or porous rocks. Limestones are not typically



porous but do easily crack. The folding and stretching of Mendip would have caused no end of cracks with a dominant NW/SE direction, however also plenty of cracks roughly perpendicular to this with certain areas in other directions due to local fluctuations.

The hot fluids are typically highly acidic and as they rise they will react with carbonates (limestones) and the fractures will gradually increase in size. This is cave formation from the bottom up! If the cracks become big very quickly, pressure is released and the hydrothermal fluids will retreat, but if the fluids become suspended either permanently or even for a temporary basis this can trigger cooking of the adjacent rock which typically in the case of shaley rocks causes new clays to form (known as clay alteration; see the vein section above). Next minerals start to precipitate out. For this to occur there needs to be a pressure / temperature change ... when fluids are at depth, they are under pressure at high temperatures. As they rise, pressure is released, temperatures decrease and they will at some point reach boiling point and then cool down further. Different minerals will precipitate out at different levels depending on a whole

spectrum of different pressure-temperature conditions.

Within any one fracture through which the hydrothermal fluids flow, they will flow in pulses at different temperatures and pressures over time and so may deposit different minerals, zoned inwards (so you have had a baryte event and then a later calcite+clay event). Think of Geysers ... these are modern day hydrothermal fluids, continuously pulsating, ones where the pressure isn't completely released before breaking surface.

Appendix 2: The Chocolate Mine; a Curiosity - Tony Audsley.

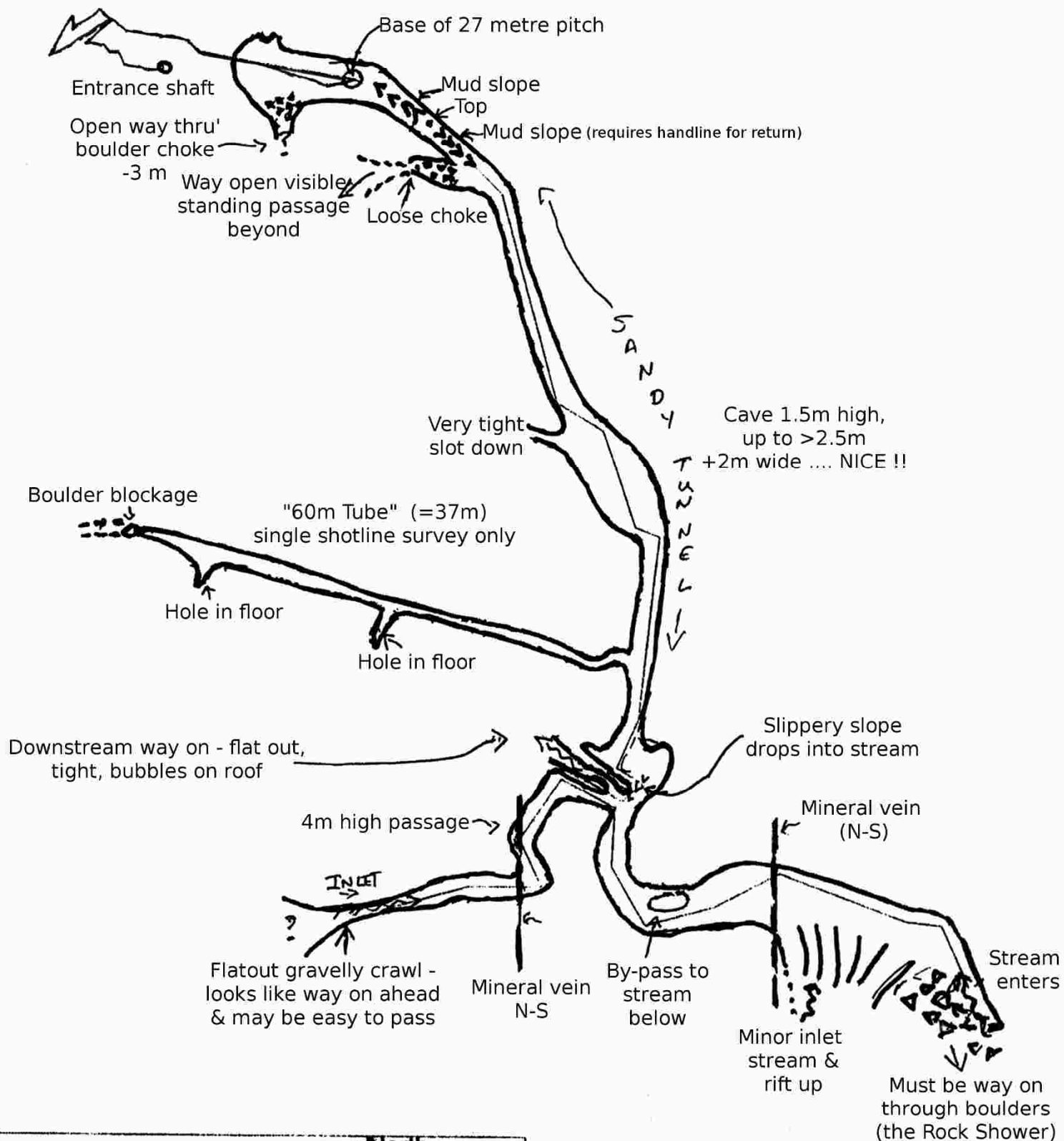
This is a bit of a conundrum, but is worth mentioning before it gets forgotten. Situated at the back of the Builder's Ladder pitch was a narrow vertical slot lined with large calcite crystals, behind which was a space about 2 metres high, three quarters filled with clay. Now, the air near here seemed cool and clear almost as if open space were concealed within. In March 2013, we thought that it might be worth having a prod at it, so we enlarged the entrance and started to remove the soft, buttery clay that lay inside. At the top, this clay was mixed with a certain amount of earthy manganese dioxide, lower down it was pure soft semi-melted chocolate - yum. However, near the bottom, it was reported that there were a certain amount of rocks in the fill. I did not see these at the time as I was playing enlarge-a-slot a short distance away. Anyway chocolate-coated rocks look like chocolate-coated rocks, nothing special, so everything got dumped on the spoil-heap. Sometime later, Chris Batstone, while tidying the heap, whacked one of these chocolate lumps with a spade. It broke in two and exposed crystalline stal, which I nicked, took home and washed off. Later, after rain had washed the heap, I collected many more pieces. Some show evidence of being formed over a flat clay floor; they have casts of drip pockets on their under-surface and several also show a second layering angled at some 50 degrees to the first. Obviously, they are the remains of a major stal floor that had suffered collapse at some stage in its life. However, these were isolated fragments and the walls, ceiling and floor of the now empty Chocolate Mine show no evidence of where they could have been attached. The mine now appears as a circular, dome shaped feature nearly 2 metres high and approximately a metre in diameter with a flat floor. The walls and floor are still coated thinly with clay. Work is in hand to wash out this area so that it can be examined in more detail, but at the moment I can offer no explanation, so merely float the questions - how - why - whence ?


¹ Correction: Nick Hawkes tells me that the entrance to the dig lies in Mercia Mudstone, not Dolomitic Conglomerate as I had thought. Therefore, the reference to Dolomitic Conglomerate in Figure 2, p 186 of Journal 332 should be deleted.

² For more information on the mineralisation, see Appendix 1.

³ Maybe in another article - this one is getting to be too long

HOME CLOSE HOLE - SURVEY 11/01/15



hch-all	<div style="text-align: center;"> <p>North</p>  </div>
Plan view, 000° up page	
Scale 1:430	

Scale (1m)

0 5 10 15 20 25 30 35

Survex 1.2.11 - <http://survex.com/>



Caves of Croatia – Part 1.

(Christine Grosart)

Croatia has been getting quite popular with wreck divers, with an abundance of un-dived wrecks scattering the Istria coastline and superb diving in the technical range attracting divers from around the world.

Rich Walker regularly frequents the tiny fishing village of Krnica, half an hour from the Roman city of Pula, complete with amphitheatre, to teach his technical diving classes and I often join up with him for some decent, deep wreck diving.

On my first trip to Croatia, it hadn't escaped my attention that it was cave country with the Dinaric karst stretching from Slovenia down to Albania. The Krnica Dive Centre had spent some time in negotiations with local government to secure access to caves which, until recently, were out of bounds to all divers.

Krnica Dive had concentrated on an area far away from Istria. The region is a couple of hours east of Split and the glacial valley runs parallel with the Bosnian border, conveniently divided by high mountains – still containing land mines.

Project Morpheus was set up and divers from Global Underwater Explorers (GUE) from around the world began exploring, documenting and surveying the caves.

In November 2014, Rich and I flew to Split via Zagreb, where we were intercepted by Maurizio, the owner of Krnica Dive; or the 'Godfather', as we had taken to calling him. We got off the plane and he met us with his usual larger than life greeting. He's a big guy, a good diver and serious about his food. He often wears pyjama trousers, which makes him easy to spot in airports if you don't know who you are looking for.

We were whisked away down the road and taken to a restaurant for lunch. We have so far failed to use a menu in Croatia. It doesn't really work like that. They put the menu on the table. You just say you would like lunch please and beer turns up. They take the menu away again. Then a big bowl of something made from an animal will show up, accompanied by something else amazing. We had a big dish of venison stew land on the table with gnocchi and all sorts of vegetables.

Then we met up with Zarko. From humble beginnings, he became a technical and cave diver and he works for Maurizio. Over the last few years has been given more and more responsibility at Krnica Dive Centre. He was our chaperone and driver for the week. His job was to generally look after us, drive us wherever we wanted to go and babysit us on the surface while we dived.



Cetina Springs

We were driven four hours to the town of Vrlika. It was dark and Rich and I slept for most of the journey. We arrived at what appeared to be a hunting lodge / hotel and settled into our room for the night.

Once morning broke, we were able to adjust to our surroundings. In the distance, as the Bosnian mountains picked up the orange morning sunlight a group of hunters, who were staying at the lodge, took their howling dogs out to shoot boar. It would have been a somewhat different scene a couple of decades ago, when this very restaurant oversaw the first of the shootings, which sparked the Bosnian – Croat war.

This morning it was frosty and crisp. We were fed breakfast of fried eggs, fresh bread, jam, juice and coffee. Then we headed all of two minutes to the gas station, which had been set up in a neighbouring abandoned hotel basement. It was quite impressive. There were several big J's of helium, oxygen and a booster and two compressors. It seemed strange to see such an organized set up in the middle of nowhere – but Maurizio was not one for doing things by halves.

Over the last couple of years, divers from Global Underwater Explorers (an organisation to which Rich and I both belong and he teaches for) had set up Project Morpheus. This project was to discover, survey and document by use of video and photos, the resurgences in the area.

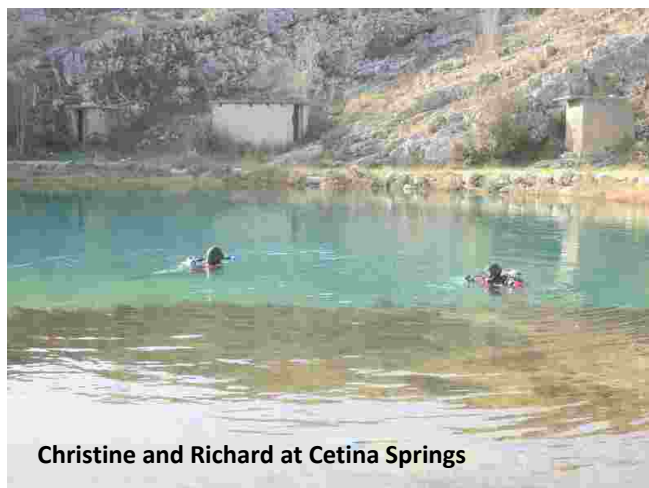
Some exploration was already underway and detailed surveys of the caves were starting to emerge. This pleased the Cetina Springs bottled water company, who operated close to one of the most impressive looking springs I have ever seen. They were keen to know where the water was coming from, how deep it was and what sediments it may contain. Project Morpheus were happy to help and our first visit was to Glavas, part of the Cetina Springs system.

Zarko drove us right to the water's edge. It was obvious that a month of non-stop rain had taken its toll and the crystal clear spring was a bit brown and murky and going at a rate of knots.

This will be a laugh, we thought, as we kitted up anyway. The entrance to the 'pit' is perfectly circular and the shade of blue darkens towards the middle, which has gained a depth of just over 100m and exploration is continuing upstream.

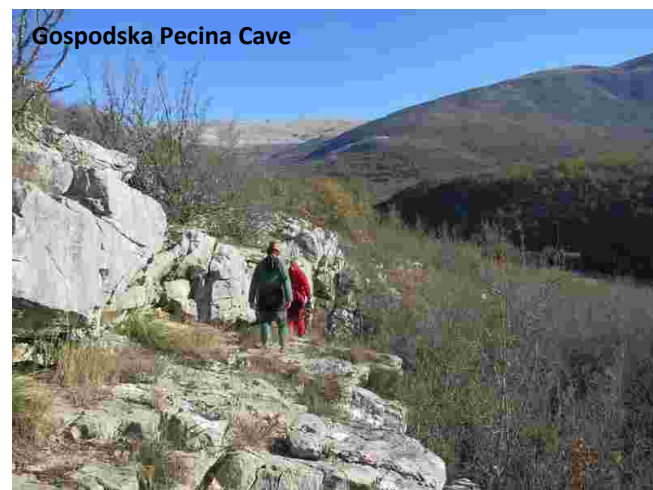
On the way down the entrance pit, two upstream passages at different depths head off into the hillside. We elected to dive the shallower one first. Dropping down to 28m, we spied a cosy spot to drop off our deco bottles and set off in quite high flow upstream. Carefully pulling and gliding, we eventually reached the end of the line and Rich went off into the boulder choke, hunting for a way on. It was definitely choked and water was howling through the large boulders. We figured there were easier sites to push and were unceremoniously spat out of the cave on the way home, during which time I encountered my first ever episode of vertigo underwater. One of my ears had stuck and the whole

cave swirled violently around me while I breathed deeply and slowly and waited for it to go away. That was not something I ever want to experience again.



Christine and Richard at Cetina Springs

In the afternoon, Zarko arranged to meet up with a local shepherd who knew the location of a dry cave, known as Gospodska Pecina or 'Gentleman's Cave'. It was a few hundred yards from the road but took quite a bit of bush-bashing to get to. Rich and I had brought dry caving kit and helmets for just this eventuality but weight restrictions on the plane prevented us from taking ropes and SRT gear on this occasion. We quickly entered a large, well decorated fossil passage and the head of a pitch, which was alleged to be 9m deep. We could hear the stream way crashing below and knew from research that the sump was 100m further on. What we didn't know was whether it had ever been dived before. There was certainly no record of it. This was definitely one we needed to come back to.



Gospodska Pecina Cave

Owing to my sticky ears, we decided to go cave hunting the next day. We spent the majority of the day poking around on a limestone plateau not finding very much. Then we decided resurgence-hunting was more fun. It didn't take long before we were upon a huge resurgence with phreatic shapes and large boulders blocking any progress upstream. Some Belgian divers had taken a look but were not the digging types, so left it alone. A huge volume of crystal clear water was pumping from within and we were sure that in calmer conditions, this site could be easily dug to open up an impressive cave entrance. Another one logged for next time.

Then we poked around in a few dry holes above the resurgence but they ended quite quickly and were written off. After more wandering about, we came across another resurgence. It was quite wide and low in nature and a few rocks needed moving to see if it was worth pursuing.

Zarko's eyes glazed over as Rich and I started poking about and between us we rolled back one big boulder. A clear, blue tinged pool began to emerge. Zarko suddenly became interested. We sent him back to the hotel with instructions to pick up my drysuit and gloves and to find 'digging tools'. He returned with my drysuit and a pickaxe, scaffold pole, crow bar and a shovel!

For the next 3 hours we shifted over 30 large rocks and boulders and the pool was getting deeper – so deep I could not reach down any further even in my drysuit to do any more work, as it would have meant putting my head underwater. It was 8 degrees and I didn't have a hood with me, so we vowed to come back the next day.

The following morning we were up and at it and, wanting to allow my ears to settle a while longer, we headed back to our 'resurgence dig' to take a look in a dry cave nestled in the hillside above it. Following a vague goat track – complete with bell-ringing goats – we stumbled across an entrance with 'L=02' daubed in blue spray paint over the entrance. To this day we can find no internet reference or literature for the cave. Intrigued, we went inside.

Cave entrances here seemed to be developing a bit of a theme. Most we had seen seemed to have been inhabited at some point. There were bits of rubbish, a few bits of clothing and a shoe. In one cave, a square trench had been dug out which would have been perfect for a sniper to hide behind should his cave ever be discovered. It seemed that these caves had been of more interest to the army than speleologists. It was therefore not surprising that they had not been mapped.

This one though, had seen cavers before. There was some easy crawling, with remains of small mammals quite a way into the cave, and we heard the sound of thundering water below us. We soon approached walking sized passage and a crude, awkward rope ladder, which dropped a few metres into a decent sized, decorated passageway. We turned upslope and soon came across the crashing streamway below us with no way of getting down to it. Above the river were some of the most sparkling, pristine and huge white curtains I had ever seen. There was clearly plenty of cave upstream but unable to climb down without a rope or a ladder, we headed downstream to try and find a downstream sump, which would almost certainly feed our 'resurgence dig'.

It wasn't long before we came across a large, crystal clear, blue tinted pool. We shone our torches into it and the sump looked to be worth diving. It had whirlpools in it though and in high water conditions, we were nervous about diving downstream. We decided to come back another time.

The rest of the afternoon was spent digging yet more rocks and stones out of the resurgence. We spent several hours of honest work, this time complete with hood and cylinder. As dusk began to fall, I took a look beyond our entrance pool and decided that this was a long-term project, probably not best suited to people who lived in the UK! We abandoned it and went in search of dinner.

The following day was a bit of a road trip to a town near Split, where we were promised a 30m, straightforward cave dive – with pretties! I had yet to dive in a cave where there are underwater formations. Rich had been spoilt in Mexico where his only dive there was significantly off the beaten path. His regulator almost fell out in awe. This wasn't quite the same but I enjoyed the variety. First of all, we began in brackish seawater, as the cave was on the coast. The top layer of brine was about 8 degrees and beneath that, a warm 16 degrees in salt water. The majority of the dive was spent in 16 degrees and we swam unto the large cave opening and along the passage with cathedral like dimensions. Stalactites hung down and we swam amongst them and around huge stalagmites, plus one huge column, which stretched the whole height of the passage, over 20m high. We spotted a strange eel with legs and Rich thought it resembled the Proteus Anguinus, which he had seen in Bosnian caves just over the border.

The cave gradually got shallower and at about 15m depth went all blurry. We entered the mixing zone, which was several metres thick and where the salt water mixed with the fresh water. It became hard to follow the line amongst the stalagmites and reading gauges was impossible so, knowing that we were not far away from our gas margins, turned the dive and enjoyed the swim out with a mild flow.

Our last day was back at Cetina Springs, this time to dive the deeper entrance which began at 38m. The visibility had improved and water levels were on their way down. The passage was smaller and very beautiful, with smooth scalloping and the flow got stronger as we dived further in. Pulling and gliding was getting harder as the handholds became more sparse and I sheltered behind Rich who ended up spread-eagled across the passage, unable to make further progress against the flow. We thumbed the dive a couple of hundred metres in and were violently spat out of the cave, hiding behind the main flow at the mouth of the cave to finish our decompression.

Croatia is a stunning country and the scenery is breathtaking. There is so much potential for discovery in the karst regions. Project Morpheus is still in its infancy and divers are still at the stage of scouting out new sites and seeing if they are worth pushing.

For an overview of the project and the region, visit this link for a beautiful film about Croatian caves.

<https://vimeo.com/116962515>

PSSremoving a pinch point

(Pete Buckley)

Saturday night, the cramp in my right bicep was agony – and it made my arm look like Schwarzenegger's. Obviously I did what any self-respecting man would do and had a couple of ibuprofen and tried to ignore it. Twelve hours later the pain and swelling haven't gone away, despite regular top ups of ibuprofen, so I had a quick trip to the local minor injuries unit for something stronger.

They couldn't figure out what was wrong with me but told me to go to the A&E at the Royal Devon and Exeter (RD&E) hospital. Clutching a letter explaining their observations I drove into Exeter. Because of the letter I was seen relatively quickly - only an hour or so waiting. However, the doctor couldn't really see anything wrong, so called for his consultant to help. They decided a quick blood test was needed.

An hour later I'm whisked into the A&E ward and a cannula is put into me – "you're having a CT scan". Quickly into CT, die injected into my vein and then the whirring of the X-ray scanner takes over. A few minutes later, I'm wheeled back into A&E and told that I was being admitted! The doctor finally caught up with me to tell me that my arm had a DVT (deep vein thrombosis) and that I had multiple bilateral pulmonary emboli (blood clots in my lungs).

Obviously this was a bit of a shock for me. What? Why? As my phone was just about out of battery I called my wife and then let work know I wasn't going to be in on Monday.

Admitted to the assessment ward I waited for another doctor to ask me the same set of questions. Again, they didn't have anything to say regarding a diagnosis. I was beginning to get a bit concerned and was trying to work out how soon I could go home!

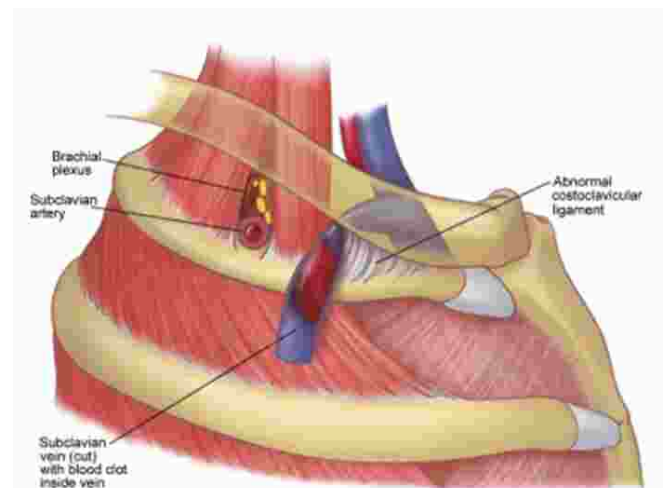
Just before 10pm, presumably on his last rounds for the night, the AU consultant came to see me with his junior doctor. The Prof was also unable to give me a diagnosis - but said I might be of interest to Mr John Thompson, and that he was going to text him. Being told that if I went home I'd have to come back as an outpatient tomorrow and this would delay any action by at least 24 hours and that if I stayed I would be treated, if necessary, from 8am made the decision easy. I stayed.

An overnight stay in an acute hospital ward is not restful. I was on hourly observations - so sleep was very interrupted. Eventually breakfast arrived to relieve the monotony. I'd spent my time researching all about pulmonary emboli and what treatment options I might expect. Consequently I was more than a little concerned. Doctors rounds at 9am ish - a different doctor, again hasn't got a diagnosis but tells me that I'd probably have to have blood tests to check my clotting and then be on warfarin. I was warned that this would make a big change to my lifestyle – I wouldn't be able to continue risky activities like caving (or using a knife).

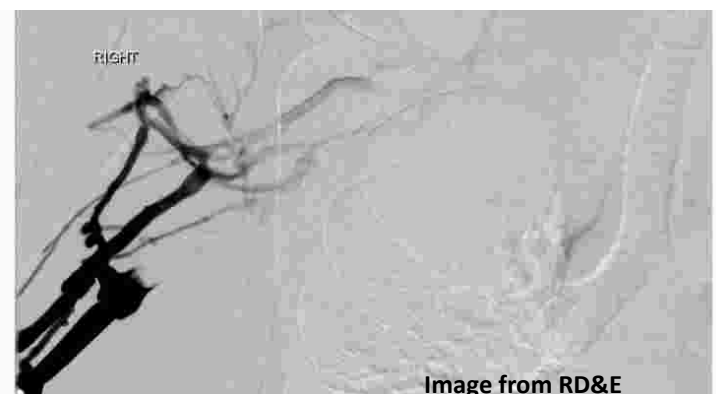
Bugger – things were not looking good.

Just before 11, a smartly dressed man walks over to my chair and introduces himself as Mr John Thompson and tells me that I have Paget Schroetter Syndrome (PSS). He describes what this is all about and it's obvious he knows his stuff!

There is a vein which drains blood from the arm back to the heart. This vein passes through a natural pinch point between your collar bone and your first rib. The muscles that move your arm up and down at your shoulder is connected to your first rib. If you overuse these muscles they can become enlarged and can pinch the vein and cause blood flow to stop enough to cause blood clots. I'd been having small clots break away and get lodged in my lungs for a few weeks making me feel really breathless. I was really lucky this was happening and not anything worse (which can happen with blood clots). Again, I was really lucky to have had a DVT which didn't cause anything more serious.



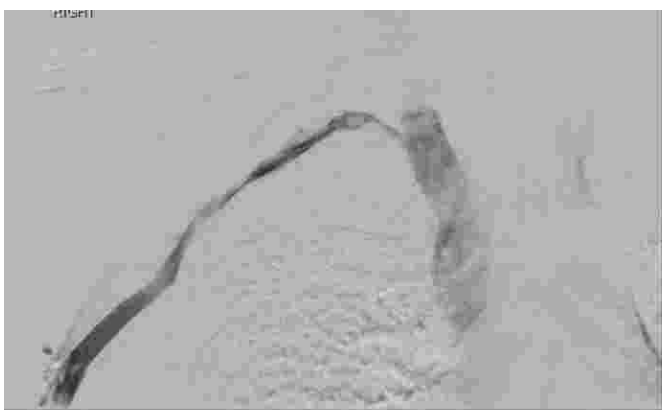
PSS is normally found in fit young adults, often sportsmen such as rowers, swimmers and triathletes. Obviously cavers use their upper body quite a bit moving around. Cave digging often means working above your head and is very often all about repeatedly hauling loads. Perfect aerobic exercise that can enlarge muscles in the crucial pinch point!



Within a couple of hours of my diagnosis I was down in Interventional X-ray with Prof Tony Watkinson operating on me to remove the thrombosis. This was fun to watch on the X-ray screens. Firstly to see a venogram highlighting a long section of vein not carrying the blood it should and then to see the catheter be inserted to allow the blot clot dissolving chemical to be pumped in over the next 24 hours.

Back on the recovery ward I got busy researching PSS. I very quickly found out that RD&E was probably the best place in the UK (if not Europe) to be for diagnosis and treatment for the condition. Mr Thompson and Prof Watkinson are the leading people in the field. In fact, their treatment regime, the Exeter Protocol, is regarded as the standard way to deal with PSS.

After 24 hours of drugs being pumped into me constantly I was back in Interventional X-ray for another venogram. This time showing that I had blood flow back through the vein. Success!



The second part of the treatment is to remove the pinch point. Literally. The first rib is cut out to prevent any further pinching of the vein. I was not sure if or when I was having this part of the treatment, so spent another day of hanging around waiting. A small clue was being woken just before midnight to be offered a biscuit because I wouldn't be allowed to eat anything afterwards. I was offered my last sip of water just before 6 am.

Mid morning I'm walked down to theatre and put under general anaesthetic. I come around after the op to be told it had all gone well.... and to be handed the rib that had been removed!

More hanging around waiting for my chest drain to stop filling with blood and for me to be able to move my arm "freely" meant I ended up spending a few more days in hospital. I finally escaped and made it home 180 hours after first going down to my local minor injuries unit.

I was off work for 3 weeks and returned part time for 2 weeks. I'm back full time now. I had 6 weekends off digging. I still ache a bit and my right arm / shoulder is not as strong as it was.

I am hugely impressed with the excellent care and treatment I received from RD&E. The NHS is simply brilliant! I feel

incredibly privileged to have been treated by the very best team in the UK for PSS - who knows what would have happened if I'd gone to a different hospital. I am also acutely aware of how lucky I am to not have any major issues due to blood clots.

So, be warned, even if you think you're keeping fit and active cave digging can cause you serious harm!

Wessex Journals – (John Cooper)

For some time the Wessex Cave Club Committee have been discussing whether it would be possible to get the old Journals loaded onto the Wessex web site but have made little progress.

At the end of February I received a telephone call at Upper Pitts from an ex-member, Andy McGregor, who was interested in scanning his old Journals and using OCR to produce document files rather than just images. I said the Club would be very interested to receive copies of these files so we could make our web-site more complete. Andy had most of his Journals bound without covers so I'm currently working through the files adding covers, checking rough pagination etc. To date he has sent me Volumes 10 (Journal 115, February 1968) to 18 (Number 210, September 1986) which, I believe, is when Andy's membership lapsed.

OCR is never reliable so at some stage these files need a thorough check against the originals. Decisions would have to be taken as to whether errors in the originals should be carried forward or corrected. This would be a very time consuming process so for the time being I am planning on loading them onto the web as they are.

The one task I have not started is converting from a Microsoft Word file format (docx) to pdf. I did try one file using the built in converter but it added a blank page in the middle of the document so I'm ignoring that task for the time being.

There is then the question of how to display the list on the web. At present we only have 39 Journals listed on our web site and that occupies a couple of screens. I'd like to see a much more condensed display, possibly using just the Journal Number and a "Hoover" or "Tap" to reveal more detail.

Any comments or help proof reading please contact John Cooper.



FROM THE LOGBOOK

Editor's note: Please record your trip in the logbook at Upper Pitts. There has been a lot of work in Spider Hole, Lime Kiln and Longwood Valley Sink – some of these log entries have been omitted. (Thanks to Noel Cleave for transcribing entries).

Thursday January 1 2015 **Eastwater Cavern** John Cooper & Barry Weaver. Upper Traverse, Baker's Chimney By-pass, looked down Dolphin Pot, looked at First Vertical, looked at end of Lower Traverse, then exit via Windpipe and Woggle Press. 1 ½ hours. **John.**

Thursday January 1 2015 **Axbridge Area.** Ali, Ade and Jude, Andrea, Pete Hann, Michael Marlow, Nigel Graham, Geoff Newton, Claire Cohen caving, plus Rich Carey who walked back over the hills to Upper Pitts. Original plan (Hutton Cave) had fallen through, but Ali managed to obtain permission for these:-

Axbridge Hill Cavern - once we'd exhumed the gate from collapsed bank - impressive chamber with some good formations and calcite spar. **Large Chamber Cave** - Smallish chamber! **Triple H Cave** - crawls to a collectors piece crawl.

Letterbox Cave - Smaller chamber still. **Axbridge Ochre Cavern** - lofty phreatic rift whose ochre infill has been mined. All except Jude and Nigel visited the upper levels, necessitating some involved rigging (ladder and line), preceded by strenuous free-climb by Ade. Then back for tea and cakes; an enjoyable start to the New Year. **Nigel.**

Thursday January 1 2015 **OFD** Les Williams, Andy Morse, Hatstand. Started with a lot of tea drinking at the SWCC but we finally set off for the cave at 13:45. Our target was Smith's Armoury, but we had already engineered that we would stop before the waist-deep streamway by excessive faffing. Into OFD Top Entrance, Big Chamber NTE, Middle Arête, Timo's Table to Chasm. Les wasn't happy with his boots - his climbing ability was reduced to that of mere mortals. We got most of the way along to the Shambles where it was time to turn back. Hatstand left a Galaxy Bar as a present for the next group of cavers. On the way back the water levels were up. Out down Salubrious and the Brickyard. 4 hours. A good start to the New Year. **Andy**

Friday January 2 2015 **Swildon's Hole** John Cooper, John Gisborne, Nigel Graham, Ali Moody, Philippa Whitaker & Chris Yalland. Philippa's first trip underground. Down Long Dry, looked down the 20 and out the Wet Way. 1 hour. **John Cooper.**

Friday January 9 2015 **North Hill Swallet** Geoff Newton.

Unusually, there was a good sized stream in the cave chattering away in fine style. I went in with dirty kit and came out almost as clean as I would have done from Swildon's. The end of the cave still looks like a good prospect, but the usual rose-coloured spectacles have under-estimated the difficulties of moving spoil and stacking. Perhaps that's why the original diggers gave up. So I will put it on the back-burner for a while. The water was draining away well at the end, without backing up. **Geoff.**

Wednesday December 10 2014 to Wednesday December 24 2014 **Mexico Cave Diving.** Fiona Crozier

We had an amazing time in Mexico diving in the Cenotes. It's hard to put into words the enormity of these. They're just massive. The entrances to one Cenote can be the size of a couple of big caves put together. Jaw-dropping beauty; like nothing I've seen in my whole life. Each Cenote is set with a backdrop of a beautiful Garden of Eden, with lush green vegetation and plants. Then it's crystal-clear, stunning, blue, warm water. One can see through the water... there is 100m vis in any direction, all with huge, beautiful formations and crystal-white floors. There are lots of thick, thick Haloclynes - quite amazing, and weird to go through. They look like split-levels and then everything goes blurry and the line distorts. It's fascinating. They have 2mm line and cookies and arrows instead of our lovely washing-line and pegs, over there! Being so amazing it was very challenging at time. It's so nice just to roll up in the truck and the water is right there. Wow, what a trip! It's shown me a completely new side of diving and I learned loads and have brought all sorts of new ways back to the UK. Wicked and Cool! **Mad Fi.**

Saturday January 10 2015 **Singing River Mine** Wayne, Abby, Keith, Nick, Sam, Cheryl and Andy.

In the grand tradition of being a chicken, I asked Wayne for a safety line on the entrance pitch even though it was very straightforward. Worried as it was the longest ladder that I had done, but no problem. Slight challenge route finding and did a couple of circles! Went both ways. The blue pools were mightily cold! I went in, but came back. Only Wayne and Keith went all the way through. Andy Sparrow had fun scaring me about the wobbly plank, but it was very easy. Marvelous views over the Stinking Gulf. Keith and Nick went down to Chocolate Canal. **Abby**

Saturday January 10 2015 **Cuckoo Cleaves.** Wayne, Abby, Nick, Sam.

Finally got to visit the famous Cuckoo Cleaves. A lovely cave right up to the nasty crawly bits! Wayne, Keith and Nick looked into Lake Passage as far as they could go. I got very short of breath, constantly yawing and light-headed. Became very "Calm" on the way out. Very hazed but still capable of following instructions. No problem as a great team supported me out! **Abby**

Saturday January 10 2015 **OFD** Will & Flos and Ali C-S.

Big Chamber Near the Entrance - Mini Traverses - Corkscrew - Timmo's Table - Poached Egg - Straw Gallery..... and back. 4.5 hours including lots of photos and snacks. **Will**

Sunday January 11 2015 **Hunters Lodge Inn Sink** Abby Cheverst, Wayne, Nick, Sam, Keith Biner.

Had heard much about this cave, so all excited to see it - we weren't disappointed! Pub Crawl was a slide down on our backs: someone was heard to comment: "Now I know what it's like to be buried alive". The decorated chambers were a very welcome

and pretty relief and the scenery only improved to the Bone Deposits. 20m ladder down Pewter Pot, through tight fitting long slot with a realisation that ½ way down that we were traversing a huge flowstone wall was a treat. The Slops caused a wide variety of gymnastics, but most people flopped: I fell in going in and going out! Wayne, Nick etc. continued up the tall canyon to large boulder choke. Way out through Pub Crawl was long and uneventful, thankful, as heavy rain was forecast as starting approximately 3 hrs before our eventual exit did not arrive! **Keith**.

Saturday January 17 2015 **Mangle Hole** Tim Rose, Sas Watson, Matt Wadler, Julie Fidge, Steve Dickinson, Gaynam Lock, Allan Kingshott. After considerable faffing, the 7 of us made our way to the cave entrance. A quick bit of rigging and down we went, using ladders on the left-hand route onto the balcony. Five of the group then continued to abseil directly down into Mud Bank Chamber, with Steve and Gaynam taking the more normal route. We then made our way to Aldermaston Chamber, leaving Sas and Steve at various points. Julie required a wee bit of encouragement (i.e. dragged) through the puddle. The "Lakes" were more or less level with the chamber floor. We then made our way out, enjoying a liberal splattering of "Mangle Syrup". At the pitches, Matt had a little paddy and maybe the odd bum wee wee and said some naughty words when we gave him a tackle bag to carry out. A fine trip.... and look forward to the cleaning! **Tim**

Saturday January 17 2015 **Spider Hole** Pete Hann, Ade VdP (The Spider Hole Investigation Team). Down to the dig face. Much larger boulders now in the floor along with calcite on the South side. 2 x 1M holes drilled in separate boulders and a ½ m hole drilled in the nose of one on the North wall. Charge fired from the bottom of 4 Ton Shaft; before we had finished packing up the exploder the fumes had caught up with us and were going up the shaft! A very foggy exit to the top of 4 Tonne Shaft! Bottom of 4 Tonne Shaft almost totally devoid of spoil; great effort put in by Thursday's team. Hope we made you some more! **Ade**

Sunday January 18 2015 **Swildon's Hole** Will & Flos and Ali C-S.

Average winter water levels, snow on the ground! Ali's first trip to Sump 1. Through the sump to Swildon's 2. 4 hours. **Will**

Tuesday January 20 2015 **North Hill Swallet**. Terry Waller, Derek Sanderson. Down to the bitter end, but clean air all the way - almost a delight! Stream flowing. Something like 5 years since my last visit! 1 hr 35.

Sunday January 18 2015 **Darren Cilau** Fiona, Sarah Payne, Mark Vaughan, Dave and Tony.

We I had an amazing trip into Darren today. I've not been in for 2 to 3 years so it was just so nice to be back. The entrance was as good as ever..... all those lovely memories rekindled, the place is just lush. It was lovely to introduce Darren to some of my new friends. It was their first visit and they absolutely loved it in a big way - and cannot wait to go back there soon. What a cracking little jolly into the Darren for a Sunday afternoon. (Dave, Oh man, you missed a wicked trip!). **Mad Fi**.

Sunday February 8 2015 **Priddy Green Sink** Claire Cohen, Kevin Hilton, Aiden Harrison.

Not sure if mixing a hangover with the slime from Priddy Green Sink was such a great idea but Kev did a fine job of rigging and route-finding. Actually PGS seems to get slightly cleaner with every trip, Aiden's first trip and only few expletives could be heard. We all made good time. Claire accidentally knocked two rocks down the fourth pitch..... naughty! **Claire**

Saturday February 7 2015 **Vobster Quarry** Somerset CDG rescue practice. Claire Cohen, John Beal, Kev Hilton, Malc Foyle, Mike Thomas, Sarah Payne, Charlie Read-Henry, Mark Vaughan, Jason Franks, Andy Judd, Jonathan Williams.

A great turn-out for the practice at Vobster Quarry. The scenario was that a diver had fallen and fractured a lower leg, beyond a sump. Comms were set up in a quiet corner of Vobster, close to the casualty with the first response team. Once comms were established, a rescue team dived through to the casualty with the required first aid/ splints/ stretcher etc. The casualty was monitored, splinted and stretchered to the water's edge. He then dived himself out with his leg splinted, with the assistance of three divers. The remaining divers then brought the equipment back through the sump. All in all a very good session, lessons learned, problems solved! **Claire**

Tuesday February 10 2015 **Brimble Pit & Lockes** John Cooper, Emma Gisborne. Went into Brimble Pit and retrieved boulder net and caving belt. Had a look down at Lockes and rescued a toad and a Palmate Newt. Repatriated into pond by the wall. **Emma**

Thursday February 12 2015 **Eastwater Cavern** Christian Richards, Michael Kousiounis

To Unlucky Strike. Upper Traverse, through the Canyon, looked down Dolphin Pot, and Twin Verticals, to Unlucky Strike. Then on return a peek into the Technical Masterpiece. 2 ½ hours. Christian held up well. **Michael**

Saturday February 14 2015 **Eastwater Cavern** Abby, Keith, Wayne, Andy.

Had done Eastwater before but only to the bottom of Dolphin Pot. F*****g unrelenting! Eastwater gives nothing up easily. Quote of the trip: "It's all one f*****g bedding plane!" Very hard work, got very tired. Got stuck (temporarily) in first bedding plane & the pinch point after the First Vertical - arms burning like hell on the Second Vertical. Did 13 Pots and Muddy Oxbow. Down via Dolphin Pot and Pitch. Out (exchange trip) via the Twin Verticals and Woggle Press. Amazing supportive team. **Abby**

Sunday February 15 2015 **Hunters Hole** Abby, Keith, Gordon, Stuart, Lucas (CCCC)

How we managed to take 4 ½ hours to rig and de-rig God only knows. I slowed the party down lots, being fairly new to SRT and not having done rebelay before (except in training and easier circumstances!). Struggled to get back up first pitch because my foot-loop was too long. Stuart had excellent idea, to move hand-jammer to traverse line, and between us (me pulling myself up, him pulling the hand-jammer up) got me high enough to climb out. Due to our rather ambiguous call-out time "3 + 2" (not my fault) by the time we exited the cave at 4 pm the Cave Rescue had arrived..... but not as bad as it sounds as they were around at the hut for training and a couple of nice guys popped over in 'civvies' - "Just to make sure" on their way home. 4 ¼ hrs. **Abby**

Monday February 16 2015 **Sludge Pit** Terry Waller, Derek and Keith Sanderson.

Keith's first trip here since 1971 - he didn't remember any of it! Good romp around. 1 1/4 hours. **Derek**

Thursday February 19 2015 **Swildon's** John Cooper, Rory McSwiggan, George, Gill and Neville Acland.

Went down to Sump 2. Thank God for neoprene socks! Great experience, very helpful guide. The sump was fun and exciting. Mother and Grandad did the Upper Series of Swildon's. Superb amount of water. Due to taking a wrong turning back found ourselves exploring the Upper Series. Finally, the trip was a bit strenuous for Grandad, who despite caving since his youth, was feeling his age. - his hip went! (Thank God we didn't go down to the sump!) We didn't have to call out the Cave Rescue and Grandad managed to hobble back, shortly followed by the group led by John Cooper (Thanks loads, John). All well with a cup of tea and a pastry. A great day all round. **Gill & Neville Acland**

Thursday February 19 2015 **Charterhouse** Jake Parrish, Ali Moody

The entrance squeeze was the furthest in that I had yet managed! Took detours to Midsummer Chamber, Splatter Chamber and the Citadel. Headed down to Portal Pool; the water levels were high, but managed to get through and into Sand Dig. At Portal, air not great; the water level had risen visibly; back through U Bend, the ladder climb was very wet and the water levels were even higher on the return loop. Thoroughly enjoyable trip. Cleaned some muddied Stal and moved some unsightly sandbags. **Jake**

Sunday February 22 2015 **Swildon's** Emma Gisborne, Barry Weaver.

Went in the Short Dry. At the 8 foot drop we had a look at the squeeze above the eye-hole which exits on the old 40. We then went back up the streamway to the Water Rift and climbed up to the top of the old 40 to look down at the tube-like rift. Then back to the 8 foot drop and on down to the 20. At Tratman's Temple we observed considerable water entering from overhead on the right, falling down the climb up. Then in St. Paul's Grotto I found a sock and a chocolate bar. These later turned out to be the property of Geoff Ballard's party - the sock to cover a Go-Pro. We reunited these items to their owners on the way up the streamway later. In Southeast Inlets we spent some time looking at the Spike Pitch in Keith's Chamber and the 42 foot Rift. This was to be the turning point, but Barry is up for having a go at the Rift soon. **Emma**

Saturday February 28 2015 **Goatchurch** Allan Kingshott, Ethan Pople (age 13).

Met up with Laura and a group of four of her Scuba ladies. Spend a nice day exploring using survey and description. Ethan's first trip down to the Drainpipe and around all the passages. Great introduction to caving for him. **Allan**

Saturday February 28 2015 **GB** Tim Rose, Tracey Hookway, Sas Watson.

The trip started with Tracey being rather concerned about the size of the entrance passage which initially appeared to be a badger's hole.... Once the actual entrance was located we proceeded with the usual trip, down the Oxbows, up Ladder Dig. Both Great Chamber and Bat Passage were visited during which Tracey got "Stuck" in a gap at least one metre wide. We exited by climbing up the waterfall and out the normal way. **Tim** ps: unconvincing injuries were obtained en route.

Saturday February 28 2015 **Swildon's** Bean, Jacob and Mark.

Took Jacob to Sump 1, though the young racing snake tends to let go and let gravity lend a hand to the floor. A good trip in wet conditions. **Bean**

Saturday February 28 2015 **Fester Hole** Jon Williams, Tommo, Barry Wilkinson.

Two pleasant hours moving gloopy mud from one spot to another. Tidied the entrance passage ready to get back to the dig face (Valentines). **Barry**

Tuesday March 3 2015 **GB** Derek Sanderson & Terry Waller.

In via a wet Devil's Elbow. Visited Eastern Extensions. To get into this area requires a delicate climb up the right hand wall of the approach passage, not quite as the guide books would have you believe. 1 ½ hrs. **Derek**

Friday March 6 2015 **Fester Hole** B Company (i.e. Judy and Maurice) filling plastic sand-bags and building a wall to protect the drain hole (aka Kevin's Crack). A Company (Jon and Jim) go on the attack tonight. **Maurice**

Saturday March 7 2015 **LVS** Ali Moody, John Cooper, John Gisborne, Claire Cohen, Mike Kousiounis, Pete Buckley, Aidan Harrison, Geoff Newton. 70 loads shifted from the bottom of the 6.5m shaft - lots more progress than when I last saw the dig at the end of January. Plenty of large rocks to haul out and lots of opportunity to hit rocks! It's just a pity that I was carrying an injury. (*Editor's note: the author had just returned from 6 weeks off - see earlier article*). The way on is, as ever, obvious. We just need to get through a little bit before we enter an enormous, large passage. Ali was happy - we found some mud, and I also managed to chuck a few rocks at her. Out, got back to Upper Pitts just as the mains water supply was restored. 4 ½ hrs. **Pete**

Lechuguilla

(Hazel Barton)

As a returning member of the Wessex, Noel Cleave asked me to elaborate a bit on some of the content in my 're-application' form.

The first caving club I joined was the BSSS. You might not have heard of it, which isn't much of a surprise. The only people who would have heard of it were the teenagers who were the founding, only and terminal members of the Brislington School Speleological Society. Nestling up as it does between the A4 and A37 heading out of Bristol, Briz School was in the perfect location for any teacher deciding to take the 6th Formers on caving adventures. Jim Moon was an active caver and just such a teacher. Somehow he managed to convince the school administration that it would be fun to offer 'caving' as a sport's elective to the only group that had a choice (i.e. us). Given the usual options of standing in sideways rain holding either a tennis racket or hockey stick, caving sounded a lot dryer and warmer. I signed up. Two years later I had discovered that: A) caving is rarely dry or warm; and B) caving is a lot more fun than studying for 'A' levels.

There were 5 students that followed Jim on caving adventures that first year, with myself as the only female student. We would all jump in the Briz school minibus on a Wednesday afternoon, swing by and pilfer the Wessex gear store, then head on to Mendip. Inevitably, our very first trip was to Goatchurch and within the first 30 minutes I'd fallen down the 'Coal Shute.' Already the boys were taking bets on how long I would last caving - the longest anyone gave me was 6 weeks.



At that point in my life I had never really climbed anything, and certainly nothing as smooth as boy scout-bottom polished flowstone. I'd also never used a rope, and certainly had no idea about arm-wraps or body abseils. So when I grabbed the rope and immediately lost my footing, my first instinct was to let go of the rope (I didn't want to burn my hands!). Luckily for me, Jim was standing at the bottom and I learnt that teachers are soft. Despite a bruised ego (and teacher), Goatchurch had me hooked on caving.

That first year, every Wednesday afternoon, we caved all over Mendip; I don't remember half the caves we visited. In the second year we weren't required to take a sport's elective, but we had cars and with Jim's help we joined the Wessex. Thus armed, we headed out onto Mendip, and tried to do every cave listed in *Mendip Underground*. There were more caving adventures that year, including adventurous trips over to Wales. We even managed to get into Reservoir Hole with Willie Stanton. I can still remember his bemusement at our clueless teenage antics.

As we finished our A-levels and headed on to University, the caving became less frequent and other 'social' concerns become much more important, I even let my short-lived Wessex membership expire. But even as caving became less frequent, and trip regulars came and went, we managed the odd trip to stay in touch. Eventually even that came to a close as I headed off to America to study for a PhD. As a last 'hurrah', we got as many of the old Briz School team as we could round up (i.e. two) and did the classic short-round trip in Swildon's. It was glorious and sad; I was heading to one of the most limestone poor regions in the US, the granite-rich Colorado. I thought my caving was about to end.



Eric Weaver takes a break after climbing out the entrance of Lechuguilla Cave following a week-long expedition
(Photo: Hazel Barton)

When I arrived in Colorado in 1993, I did the usual tourist thing before classes started – went to the Mall (blurrghhh...shopping), saw the Capitol Building (covered in gold), and went to the Natural History Museum. In the car park of the museum I saw a license plate that said 'National Speleological Society' (in Colorado you can put any random thing you want on the front of the car, as long as the registration is on the back). I wrote my phone number on a piece of paper and put it under the windshield wiper. Luckily for me the owner was a very pleasant lady who invited me to a meeting of the caving club that next evening. I'd arrived in Colorado on a Tuesday, was attending my first 'grotto' meeting on Thursday, and quickly learnt that Colorado had significant limestone deposits.

My experience in graduate school was the opposite of my Uni experience in the UK. Caving became a significant part of my life, where I could explore Colorado's 700+ caves amongst some of the most beautiful mountain scenery in the world. Three of the longest caves in the world (over 200 km in length) were also within driving distance and it was within these caves that I learnt to survey caves. With many of Colorado's caves needing maps, I also learnt how to make cave maps and generated dozens while I was studying for my degree. These caving habits became too much for my PhD advisor, and he would bring me to tears by telling me that I

had to pick between caving and a career in science. Nonetheless, I graduated with a PhD in Medical Microbiology and decided that ‘medicine’ trapped me in the lab, when I really wanted to be outside.

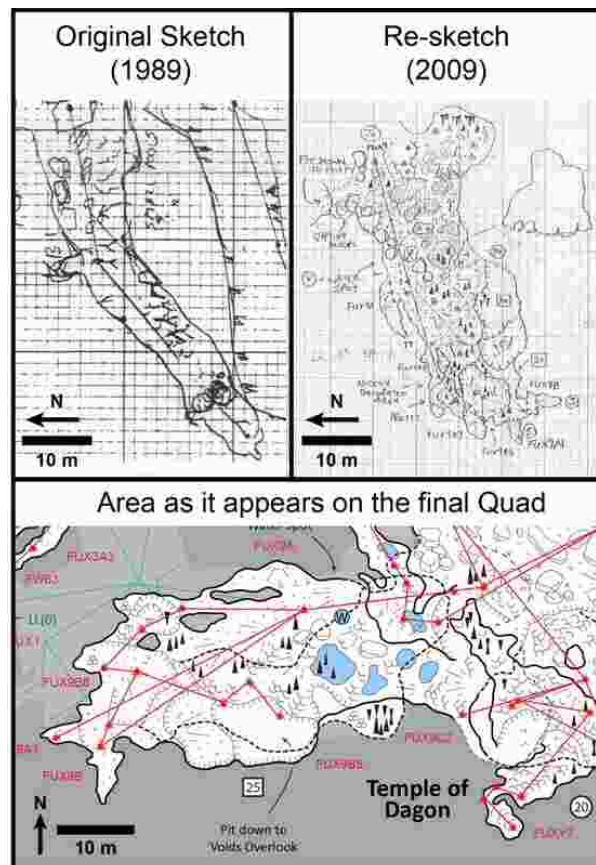
In the end I solved both the ‘lab’ and ‘advisor’ issues in the environmental microbiology lab of Norm Pace, who is a legend both as a scientist (he’s a MacArthur Fellow who’s been nominated for the Nobel Prize twice) and as a caver. Norm has done some crazy caving in his time, including some epic adventures in Mexico (if you want to do some armchair caving that scares you silly, read Bill Steele’s excellent book, *Yochib: The River Cave*). Norm liked to hire other cavers because he said they were ‘interesting’. Having Norm as a boss further flamed my caving passion, with conversations sometimes going like this:

“Hey Norm, I found a cheap airline ticket, which means I can go cave diving in Mexico, but I have to leave in about 4 hours.”

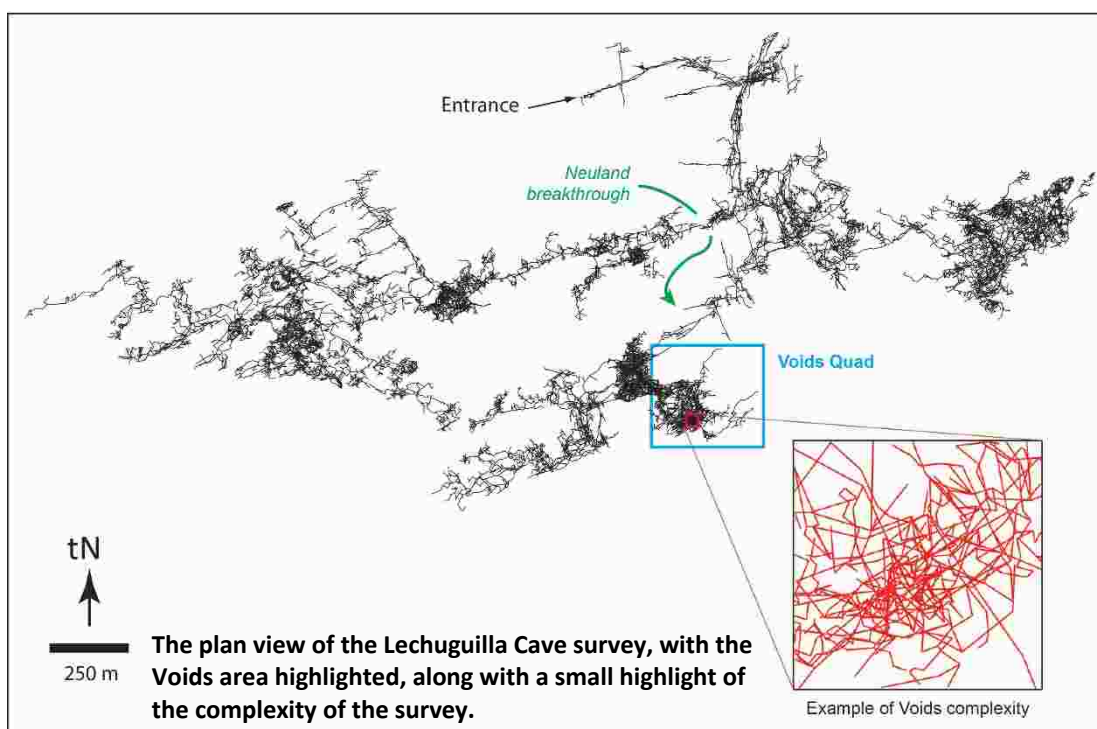
“Go for it!”

Pursuing research in environmental microbiology, it was inevitable that at some point I would look at microbes in caves. It began as a completely random project where a cave sample proved useful. The results were fascinating, revealing that rather than simple and uninteresting, caves had a unique microbiology. At the time I was reluctant to pursue microbiology into caves. As my PhD advisor had warned, hobby-science meant you weren’t serious about your research. It was Norm who changed that. One evening, over a beer I lamented on how interesting it would be to pursue the cave microbiology at the cost of my scientific career. To which Norm’s responded:

“**** it! None of those other folks have the interest or the experience. Go and see what’s there.”



Norm turned out to be correct and my PhD advisor wrong; research into cave microbiology has allowed me to build an important research career in the US, and help reveal the profound influence microbes have on every aspect of the cave environment: from the formation of soda straws to the dimensions of the caves themselves. My lab now has cave research sites all over the world, from China to Brazil and Venezuela. Yet the cave where we carry out most of our research is the one that Noel asked me to write about.



It was mapping caves in Colorado that first took me into Lechuguilla Cave. After generating my first cave map, I was cartographer fresh-meat: too naïve to understand what ‘difficult’ meant when someone told me a cave was difficult to map. The thought of mapping Lechuguilla had its obvious benefits, not least being the opportunity to visit the cave. Lechuguilla is such a massive cave that any map on a single sheet would be unreadable and un-navigable, so it’s broken down into map- sized portions

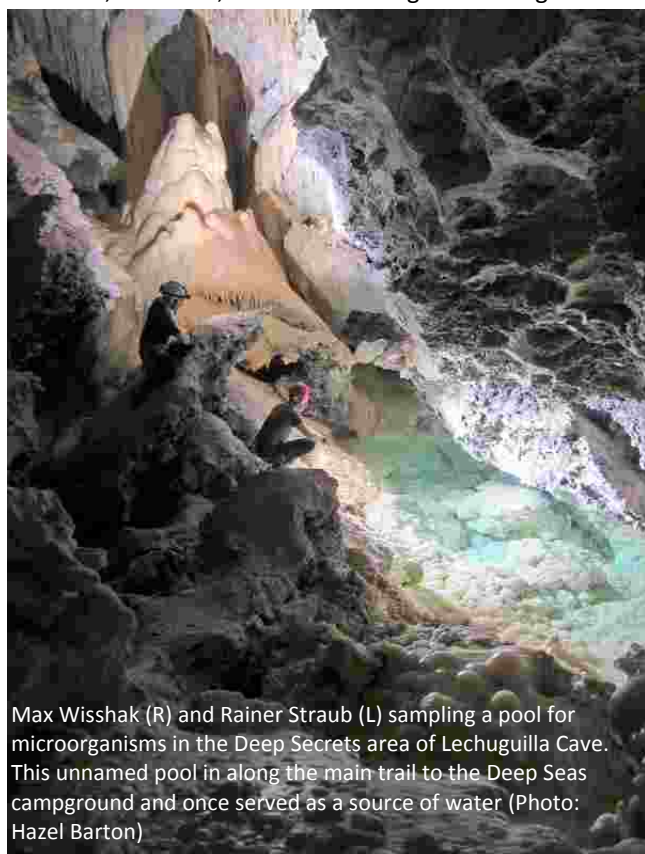
(quadrangles or quads) given to different cartographers. Each section is about 200 m by 500 m. Such a quad might seem like a small area, but Lechuguilla is a vertical maze over 500 m deep, with passages layered upon passages. The region within a single quad might contain 20 km of cave. I was designated a quad and a pile of survey notes (literally a pile, it stood over 30 cm tall) and told to “Have fun.” The line plot looked like a dumped bowl of spaghetti. Nonetheless, I was young and keen, and worked on my map for 3 years before I was finally invited into Lechuguilla to field-check my data.

The complexity of Lechuguilla is due to the way it forms; rather than rainwater flowing into the limestone, as caves form on Mendip, Lechuguilla is a hypogenic cave created by groundwater. The dissolving power of this groundwater comes from hydrogen sulfide gas, present in the groundwater, being converted by microbes into highly aggressive sulfuric acid. Without any kind of specific flow direction to the groundwater, it just kind of sits there and dissolves out huge passages. When the groundwater drains (by the uplift of the surrounding mountains), the result is a deep, vertical maze-like cave. Standing in Lechuguilla Cave you have the sensation of standing inside a piece of Swiss cheese. It's not impossible to walk into one room, see 30 passages heading off, only to follow one and have it lead into another room with 30 passages – complicated to navigate, but it gives you the potential for a really big cave. It's also a nightmare to survey, and even harder to map.

In addition to complexity, caving in Lechuguilla is different, mostly because of the scale of the cave, but also because of its temperature. When I left the UK, to me caving was everything about not getting hypothermic: fuzzy suits, nylon oversuits, wetsuits, etc. In Lechuguilla caving is about

staying cool. Located in the middle of a desert, Lechuguilla is a warm cave, averaging 20°C. The high humidity also makes it difficult to cool down via sweating; despite the vertical and exposed nature of the cave, the most dangerous part of Lechuguilla is heat exhaustion and dehydration. European cavers generally haven't had experience in such warm caves, and usually suffer during their first trip. On my first trip into the cave I wore a jumper. I only lasted about 30 minutes, before I became dizzy and had to strip down to my underwear and lie on the ground to cool off. I spent the rest of the trip in my underwear (my kit now comprises shorts, tights and a running T-shirt). Other people have not been so lucky. I've seen people reduced by the heat to a zombie-like state, unable to obey the simplest commands, and requiring each hand and foot be placed before they can move. In 2014 one caver became so dehydrated he lapsed into a coma; it took a paramedic traveling into the cave with 3 litres of IV fluids for him to be able to exit. When people say the 'heat's gonna get you' in Lechuguilla, it's not typical American hyperbole.

Lechuguilla is now too big for day trips, so most teams camp in the cave. The closest camp to the entrance takes about 3 hours for a fast, experienced team to reach; the average time is about 5 hours. The furthest camp is 9 hours from the entrance for an experienced team (17 hours for newbies). These days the average expedition stays underground for 7 nights, requiring you to carry enough food and equipment for 8 days, with most packs averaging anywhere from 15 – 22 kg, not including climbing gear (fortunately the cave is permanently rigged with almost 10 km of rope). The heavy pack can also take a toll on folks unused to traveling with weight, doubling or tripling travel times. Camp itself can be pretty comfortable, with large flat areas to set up your



Max Wisshak (R) and Rainer Straub (L) sampling a pool for microorganisms in the Deep Secrets area of Lechuguilla Cave. This unnamed pool is along the main trail to the Deep Seas campground and once served as a source of water (Photo: Hazel Barton)



Steve Gladieux checks his survey notes at the Big Sky Camp in the Voids, Lechuguilla Cave (Photo: Hazel Barton)

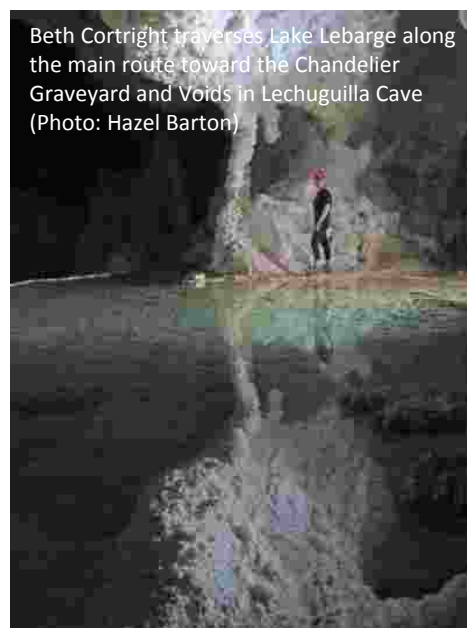
sleeping bag. The only issue is the almost complete lack of water in the cave. The 3 established camps are set up near the few water sources. While there is sufficient water for drinking and re-hydrating meals, there isn't enough for washing (nor is there anywhere to dump the water in the bone-dry cave). With no water for washing, the camp is comfortable, but your only options for hygiene are baby wipes and alcohol hand sanitizer, no matter how dirty you get.

Once camp is established, you spend the remainder of the time on survey day trips. Depending on the area we are working, some of my expeditions have involved sitting in camp on my thermarest and sketching while the team surveys around me. Other times it's 6 hours of hard, fast travel to the beginning of the survey. During these longer trips we only bring a day-pack, yet the sweat still drips off of you, to the point that we carry small electric fans to help cool ourselves during breaks. This level of activity means, as with all expeditions, you start to obsess about food. At the entrance of the cave, most people get paranoid about the weight of their pack, leaving food behind rather than carrying the extra weight it into the cave. Of course, in the cave with all the hard travel you're constantly hungry and regret not having carried that extra weight. It's a difficult balance to get right. On one expedition, I hadn't realized just how hard the days were going to be and I lost 5 kg in weight during the week. The following expedition, most of the survey was close to camp. That expedition I had to force myself to eat, so I wouldn't have to carry out 3 kg of food.

On my very first trip into Lechuguilla, to field-check the map I'd created, I travelled about 20m onto my quad before realizing that my map bore no actual resemblance to the

cave I was in. The problem wasn't with my map; it was with the exploration history of the cave.

Beth Cortright traverses Lake Lebarge along the main route toward the Chandelier Graveyard and Voids in Lechuguilla Cave (Photo: Hazel Barton)



Lechuguilla Cave is as fabulous a cave as anyone can imagine. That imagination sparked a rush of cave exploration when the cave was discovered in 1986, going from a few metres in length to over 10 km in the first year. Within 4 years, expeditions

were happening almost every month with as many as 200 people attending. Yet only a certain number of people were allowed in the cave at any one time, while each in-cave team was limited to a 24-hour trip. This resulted in people hiking the 2 miles to the cave entrance and just hanging about, waiting for a team to exit so they could enter. At the bunkhouse, which could only sleep 24 people, cavers were regulated to sleeping in 8-hour shifts before being dumped on the floor amongst the accumulated gear and dirty clothing. Yet, despite these problems, people would still leave the cave with stories of remarkable formations, booming passage and leads, leads, leads: the sheer pressure to map the cave and score as much glory as possible overwhelmed any efforts to establish or maintain quality standards for the data. The majority of the survey data obtained before 1991 is so poor as to be unusable, while the remainder was highly variable and dependent on the skill and attention to detail of the individual teams.

The situation changed in the late 1990s when exploration and survey became much more regulated. There are now strict guidelines for all teams entering the cave; all sketchers have to be certified based on submitted materials, and all trips (and trip members) are evaluated for experience and likelihood of a productive expedition. In 2014 only 3 exploration permits were granted, with only 17 cavers in total attending. I won't go into the details of the political machinations between the cavers and the managers who oversee the cave that transformed the prior expedition ethos to the one in place now; however, for a detailed arm-chair read of some enviable exploration and outrageous American personalities, I recommend *Deep Secrets: The Discovery and Exploration of Lechuguilla Cave*. Despite these restrictions, as a cartographer and someone willing to fix the map, I've been exceptionally lucky, attending (and leading or co-leading) over a dozen expeditions since 2003.



Tim Williams stops to look at a small number of the gypsum chandeliers in the Chandelier Ballroom, en route to the Big Sky Campsite in Lechuguilla Cave (Photo: Hazel Barton)



The author sketching in a small passage off of the Chandelier Wallroom in the recent Neuland discovery in Lechuguilla Cave (Photo by and with permission of Rainer Straub)

m total survey. When I was preparing this article, I would say that was my experience of exploration in Lechuguilla until our most recent expedition in 2014.

While Lechuguilla has gradually been creeping up in size over the last couple of decades, with the odd breakthrough, there hadn't been anything substantive until, in 2013, Derek Bristol and James Hunter carried out a 200 m technical climb into an attic-level of the cave, finding almost 5,000 m virgin of cave. In addition to high-end, technical climbing, Derek and James, along with German caver Max Wisshak, began to establish a method of systematic lead-checking; rather than just fixing problems as you work through the surveys, you find a particular area and work it closed – map the area, fix the problems, re-map, find the leads and push each one until it closes down. And when I say closes down, I mean the bitter end. When cavers think of Lechuguilla they may imagine strolling down enormous borehole, and there is indeed a lot of that. But in the last 6 years or so, since I've been caving with Max and James, pushing Lechuguilla has involved grovelling around in tight passages, often exiting returning to camp covered in rock dust and blood!

Most of the expeditions approved to go into Lechuguilla these days are to fix problems with the current quads, which mainly consist of identifying issues with the data or quality of the sketch (it's really hard to map a cave when the two arms of a passage don't appear to connect). Re-surveying large sections of cave might not sound like a lot of fun, but it gives me the opportunity to generate a more accurate map, which has its intellectual rewards. The chaotic exploration history also gives us the opportunity to more systematically push leads – with an accurate map it's possible for the first time to determine the limit of past exploration and go past it.

We've had some reasonable successes, with small breakthroughs into virgin cave here and there, with an average of 30% virgin cave on a typical expedition of 2000+

As a hypogenic cave, Lechuguilla doesn't behave the way caves generally do. Just because a passage becomes tighter, it doesn't mean its ending. In fact, due to its maze-like nature, you can't guarantee the cave ends until you go to the very end and look up and down. On our most recent expedition we followed just such a lead, which was becoming tighter and tighter. At one point it became so tight



The Chandelier Wallroom borehole in the Neuland discovery with (front to back) Artur Hoffman, Beth Cortright and James Hunter (Photo by and with permission of Rainer Straub)

that the previous explorers had placed a piece of flagging tape from the 1990s that read “*No going leads above or ahead*”. Members of our expedition ignored the tape and continued pushing the passage, until it took a sharp bend to the right, which couldn’t be seen until you were right upon it. Pushing around this bend led to a squeeze, followed by hands-and-knees crawl, stooping passage, and then... BOOM! Cave! We found ourselves in walking passage, with a dome to the left and a big, sloping pit to the right. The breakthrough team luckily had 60 m of 8 mm push rope with them and were able to cobble-together a series of three pitches to the bottom, even if the lowest pitch required the tallest team member standing on a tackle sack to reach the rope to get out.

Our expedition co-leader, Max Wisshak, on whose quad the breakthrough had occurred, was unable to attend due to an injury that prevented him from joining us 2 days before we were due to enter the cave. So, despite putting in all the work to map the cave and identifying the tight passage that led to the breakthrough, he wasn’t with us. The dome to the left of the breakthrough was blowing some nice air and went up about 12 m. James and Derek were able to bring some additional rope from camp and climb it. At the top they broke into a passage that was 3 m x 7 m, heading off into blackness. We agreed that we’d leave this lead for Max’s next expedition and called the climb the “*Professional Courtesy*”. We found almost 3,000 m of new cave during the 2014 expedition, including the pit series, which dropped down 100 m into a new level. Two moments stand out for me during this expedition and both involve a German caver, Artur Hoffman, who was on his first trip into the cave.

During the breakthrough we were standing at the top of a climb, looking into passage that had to be 20 m wide and 10 m tall, heading into blackness. With no good English to understand our chatter, Artur was confused, turned to the other German on the expedition and asked “*Ist diese neuland?*” The cave was so big it was almost impossible to imagine that this part of the cave wasn’t already known. We named the region ‘Neuland’, after the German for virgin cave – new land! The other memorable moment occurred not long after, when we began surveying down the borehole, banging out 30 m shots. We’d gone a fair distance into the passage when I saw Artur just stop and stare at the wall. I was behind most of the group sketching and wandered up to see what he was staring at. I looked past him and saw gypsum chandeliers. We’d been so excited about surveying our way down the borehole, we’d somehow failed to notice that we were standing in almost 100 m of passage lined with dozens of chandeliers. We followed the passage up a climb into another enormous room (almost 100 m in diameter) with a 70 m ceiling lead and booming air.

A successful expedition in Lechuguilla not only includes making breakthroughs and surveying, it also includes completing all the tasks listed in the expedition proposal needed to get the permit. So, while we had a breakthrough, I still had passages deep on my quad that needed to be re-sketches. If we failed to complete the tasks we’d promised when applying for our permit, we jeopardised our ability to

obtain future permits. So despite a breakthrough that teased our imaginations with thoughts of virgin cave, we would trade between trips to the breakthrough and completing other assigned tasks. This isn’t as bad as it sounds. It was a long way to the breakthrough and the assigned tasks were closer to camp, sometimes in really pretty areas, providing an excuse to rest from the more tiring trips.

Caving in Lechuguilla may seem like a whole bunch of rules, restrictions and difficult permits. It is all those things. It is also a deep, athletically challenging and a beautiful cave. If you like those things, it’s well worth the effort of negotiating entry. The most obvious route into the cave is the one that I took, learning how to make maps and then volunteering to map the cave. Other routes involve getting invited on trips, which is a process that is difficult to define. All of the leaders try to bring one or two newbies on each expedition (that was how I introduced Max to the cave); however, the teams are small, which means that only 2 or 3 new people enter the cave per year. Increasing the likelihood of you being one of this group, it is worth establishing a broad, international network of caving friends, particularly in the US caving community. Alternatively, many people have been able to get into the cave for the first time by being able to drop everything with 2 days notice, pack an expedition bag and fly to Carlsbad, New Mexico - as was the case when Max was replaced by Derek on the most recent expedition.

While Lechuguilla is an amazing cave, it has definitely made me soft; my original thoughts that caving was a warmer, dryer option have been reinforced by caving there; there is something very relaxing in the ability to lie down in a cave and have a snooze while someone checks a lead. Wearing shorts and a T-shirt is also quite pleasant. Nonetheless, I think your formative years define the person you are, and I still thoroughly enjoy the caves of Mendip. With aging parents and more visits to Bristol, along with step-kids who really enjoy caving, it made sense to re-join the Wessex and cave more on Mendip. This summer (in May), I’ll even be introducing a bunch of my US friends (many who are also active Lechuguilla cavers) to Mendip, with a mini-camp at the Wessex to celebrate my wedding in Bristol. I’d love to meet as many Wessex members as possible, so if you’re around and feel like doing a much better job than me of showing the *Septic Tanks* some Mendip caves are, come join us.

While surveyors are required to wear clean clothes and clean deck-shoes when crossing flowstone areas, drinking water without park permission is strictly prohibited. Phil Cunningham contemplates the edge of the enormous Lake Castrovalva before heading up to survey a lead (top left; Photo: Hazel Barton)

