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## 20 YEARS OF THE SOUTHERN LIMESTONE PARADOX

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BARRALONG 1988 - 2008

BY KEIR VAUGHAN-TAYLOR

The 1988 diving at Barralong consolidated our knowledge of the upstream waterway. In those years Ron Allum, Simon and Judi McCartney, Patrick Larkin and I established an extended exploration point a long way to the South. It was obviously within cooee of the Great Southern Master Cave.

Setting our far exploration point close to the end we are exploring in 2008, the dives in 1988 were difficult for us physically, mentally and an endurance with the cold. After the 1988 pushes, I thought we would never go back because it was all too hard and there were other easier places to explore. Since then, we all have reflected on how much there is to learn from the southern reaches of Jenolan. The allure of possible caves in the Southern Limestone accessed by the waters coming out of Barralong's paradoxical end lake dwells at the back of our minds and we would at times speak about it over a beer and ponder the possibility. The lake should we hope be the beginning of a journey to near Paradox Cave in the Southern Limestone region of Jenolan. I do not think the lake has been named so I will take the liberty of referring to it in this article as Paradoxical Lake.

One of the few known caves in the Southern limestone is Bottomless Pit with an entrance high on the bluff and known for an excellent sequence of vertical abseils ending in a vaulted room strewn with truck sized fallen blocks. There is no apparent way on from the bottom, however out from cracks and fissures in the floor continuous breezes issue forth from something big and tantalisingly unaccessible.

With so much to do at Jenolan, the South is largely overlooked. A small creek sinks three kilometers further south outside a cave suitably called Paradox. The sink may mark the source of the underground river; however after its disappearance there is no trace of its course until it appears in Barralong. The few known caves in the South often breathe promises there is something good to find.

The survey of the southernmost point of our cave diving plots its position under a cave called Hobbit Hole that lies at creek level on the snub nose of a ridge. It has a difficult squeeze entrance and just inside is a signature of Wiburd and a few other identities. The cave, if you can call it that, has enough room for two people with an unlikely geological relationship with the underground river. Its importance is really as an interesting marker. Irony and entertainment may be had reading opinions of the caving experts of the past whose campfire predictions were sometimes right on and sometimes amusing. I conjecture at this time that after Hobbit Hole, the underground river turns right away from the Lucas Rocks Mountain under the right hand ridge, facing up valley, and then under Bottomless Pit.

Time mellows the memories of hardship. Twenty years on from 1988 we are returning again to the back of Barralong to learn more but this time armed with improved experience and methodology. We ran many trips, each time finding more about this incredible place. Many of our dives during the intervening years have been about joining the mysterious puddles that dot the route along River Cave and seemed in some way to mark the path of underlying river.

The water course from the sump in the Mud Tunnels starts at a part of the underground river we called Lethe but appears in the tourists caves as Styx. We spent many trips recording survey data and finding a diver route that led all the way to the resurgence in the Blue Lake. In an act of closure I wanted to do one dive the full length of our years of labor and sketch sections that didn't seem correct on the map. As is the way with finalising surveys, the survey is never finished. Pottering around in the Cerberus I found a side passage. It was off the line on the left (facing downstream) just before the squeeze that connects via the creek into the Pool of Cerberus. The side passage revealed a room and further diving passage.

Sadly it didn't break out into long stretches of caverns but instead a room from where you could climb out, drop the dive gear and go exploring. On later dives we found it also connected back above the Pool of Cerberus. The trogging in this back passage shows that for years people had searched for a new bit in there and all had missed a small way through the rocks which led to the lake in which I had surfaced.

The dive continuing beyond the room also connects to the Pool of Cerberus along a tiny passage that trickles water into the Cerberus Pool. The trickle was shown to me by Ernie Holland years ago as a possible lead. Perhaps Ernie had seen a more interesting inflow during a big flood. At the time Ernie showed me this, I dutifully lay in the damp, crawled some way up the stream and mentally assigned a likelihood prospect of one out of ten. It just goes to show that you can never be sure a lead is a dead lead. To this day this part of the cave has not been tied into the Lethe Survey although it is on our list of things to do for this year.

The Barralong River has the potential to join the water in the Mud Tunnels and in between would be a completely unknown cave stretching from somewhere under the huge chambers of Baal to where the water is next seen at the beginning of Barralong at Bluetongue Lake. Here the Limestone is a beautiful dark blue colour. Part of the river flows underneath, probably through gravel and some dribbles out of a fissure at the bottom of a pitch. It bubbles over gravels through a short passage and into a small sump.

Above this minor resurgence a curved aven rises through dark blue rock. Perhaps, once in the past, this was a waterfall that fell from the upper level. To rig a ladder one person has to execute a few dodgy climbing moves to scale the pitch. All very good for impressing beginners, so long as no trip leader falls. It is possible to bypass the climb by threading a way back, through and up a rock pile prior to the lake. A few squeezes along the way but mostly straight forward.

We usually rig a ladder up the Bluetongue Pitch because we can then haul dive gear up the tube saving a lot of time compared to passing it through the tiny squeezes of the bypass. Above the ladder pitch, the cave changes dramatically from dark solid rock with no formation to instead displaying the decoration for which Barralong has become famous among cavers.

Our survey shows that the level of the river at the back of the cave is about the level of the top of the pitch. That could mean that along the river somewhere between Bluetongue and the back of the cave, there is a waterfall equal in height to the pitch. Bluetongue marks where the river is seen traveling downstream from Paradoxical Lake and then it must travel through some undiscovered section in the tourist caves to connect in at the



*Steve Roy at the Bluetongue pitch  
photo Paul Lewis*

Mud Tunnels. Both the upstream and downstream from Bluetongue are of enormous interest to us.

Heading into the cave after the pitch it is possible to climb into upper sections near the formation that looks like a ballerina's foot. These areas are muddy with lots of fragmented boulders, loose breakdown perched on dangerous edges high above the main passage. There is a conjecture that somewhere up there may be the continuation of the Ribbon Cave. Ribbon – a passage off the magnificent Orient Cave is mostly a single southern-bound tunnel with many crystals and dogs tooth spar, indicating a geological period of still water. Water marks on the wall are tracked with crystal formations indicating the level of a dormant lake now long evaporated. The cave suddenly terminates without so much as a rock pile to suggest its continuation.

To the north is an area where the finest formation and cavern development exists at Jenolan. This is in the area of Ribbon, Temple of Baal, the Orient – all with high vaulted chambers festooned with formation. The river would however be deep under these caverns and being geologically new may not possess the same quality of formation. Nevertheless you just don't know what other caverns may exist to which this river may be a gateway.

Bluetongue Lake is fairly unattractive. Its position doesn't give it the same blue scattered hue of mystery that is evident in the Pool of Cerberus. Unfair to say, since Cerberus has the tourist lights to help with the translucent blue mystery and the Bluetongue Puddle readily silts an opaque brown. It also has a poor previous report. Ron Allum had dived it in the early 80s and found it silted quickly. His guideline marked his efforts for years and seemed to say "been looked at". Ron has in recent years built submarines having been involved in filming of the Titanic. I see him occasionally when he is in Sydney but perhaps the unassuming puddle in Barralong seemed for him one of the lesser leads. When I asked him about it he didn't seem to think there was much there to find. Because this puddle is right at the start of the Barralong it makes it an easy trip compared to the full journey to Paradoxical Lake. One weekend, Rod O'Brien chose to have a shorter diving day by having a quick look in the puddle to eliminate this possibility at least in his own mind.

The sump descends into a slot where Rod slipped down and into a phreatic loop squeeze. With some judicious scooping of floor to one side he eased through the constriction then up the other side to surface into a high canyon waist-deep in water. The bottom of the loop squeeze was choked with gravels and the push through at the bottom created the usual silt-out mess and created the usual psychological anxiety about how easy the return trip would be. Water in the canyon was browned out and the way on could not be found, at least on that day. The prospect awaits further consultation by our intrepid group and as I write this, I can only explain that our reason for not yet having gone back is that it's temporarily postponed because of other finds once again at the back of Barralong

Paradoxical Lake is fed from a tunnel in the bottom of the lake. The lake overflows with the stream percolating over gravels through a tunnel through which cavers must walk in stooped fashion to see the lake. The lake can only be properly viewed if you get wet or wear a tractor tire. Downstream from the lake the river drops through a few slots and into some low crawling passages where you must in place elbows along in the water to follow where it goes. It is not very far to the sump.

With all the trips and all the effort to find that Southern Master Connection exploration had only ever gone as far as this downstream sump. You would think someone with a tank must have explored this obvious lead but apparently not. Preliminary inspections downstream encountered the remains of a large tractor tire washed down in high waters. It was the inner tube used in the 1960s by visitors to cross the Paradoxical Lake to a pitch on the other side of the lake where there used to be an ancient caving ladder hanging from the pitch. We removed the perished tube from the cave but someone should have put it on display in the museum.

Downstream a crawling tunnel gradually sinks waist deep and then underwater the river bed drops into a pot hole. This sump is about seven meters long. The guide line is tied off on a rock half way and twists to the left. rising into a canyon along which you can walk knee deep and waist deep in water. There are more sumps and canyons. Later dives by Michael Collins and Phil Maynard pushed the tunnels to Captain Cook's Cavern where they surveyed the passages to perhaps a mere 30 meters shy of Bluetongue Lake. No sign yet of that waterfall however in Captain Cook's Cavern there are still leads waiting for me.

In late 80s we took forever to do everything. Organising gear checks, assembling equipment or even forgetting keys was a lengthy process. While we were all very fit and caving on most weekends the dive in Barralong took a lot of energy. Of the Barralong dive Patrick Larkin wrote in 1988 "It was the most extreme dive I have done to date". That trip in particular took about 12 hours starting from the Binomea Tunnel and back again. After the caving trip packing and cleaning up we would relive our achievements over a good meal at a good eating venue. In the early hours of the morning I would return to my Erskineville home in Sydney completely stuffed to fall on my bed thinking "I should really first have a shower before getting into bed", whereby I would drift into sleep. The next day I would walk to work extremely stiff, hardly able to walk.

Now we containerise gear and cavers seem more interested to help port and be in the project. After all fame is a mere discovery away. Gear, contained into cave packs makes passing gear along people chains quicker and helps protect the cave by reducing the need to drag gear. In some places we lay foam protection on the ground to keep erosion of pathways to a minimum. Today diving through to the bottom of the lake and along the rift lines is less difficult and now we can go further. It used to be that the passages at the bottom of the beginning lake were extremely tight. Even with side mounted tanks there was no space. To get through a diver had to push into the gravel forcing our backs against the flat roof and the gravel would slide back in behind you filling the void temporarily created by your body. Bit of worry that. I wanted to spend one trip managing this. Trips are precious – part of you wants to push on and find more cave but this squeezing business was not for me at all. There is nothing quite so off-putting as floating in an air bell further into the cave and considering the perils of the return journey.

Michael Collins seemed to support my views and we spent one trip diving back and forth to the passage in bottom of the first lake. We took turns entering the tunnel to where it first became narrow where we would scoop the gravel fines into every available corner creating a wide section in the middle. One of us would enter and scoop the spoil out from behind the lead diver. We wanted the route to be a straight forward highway. This single operation transformed the journey into the back from a horror trip achievable by only the claustrophobic heroes to a straight forward dive and now actually quite pleasant.

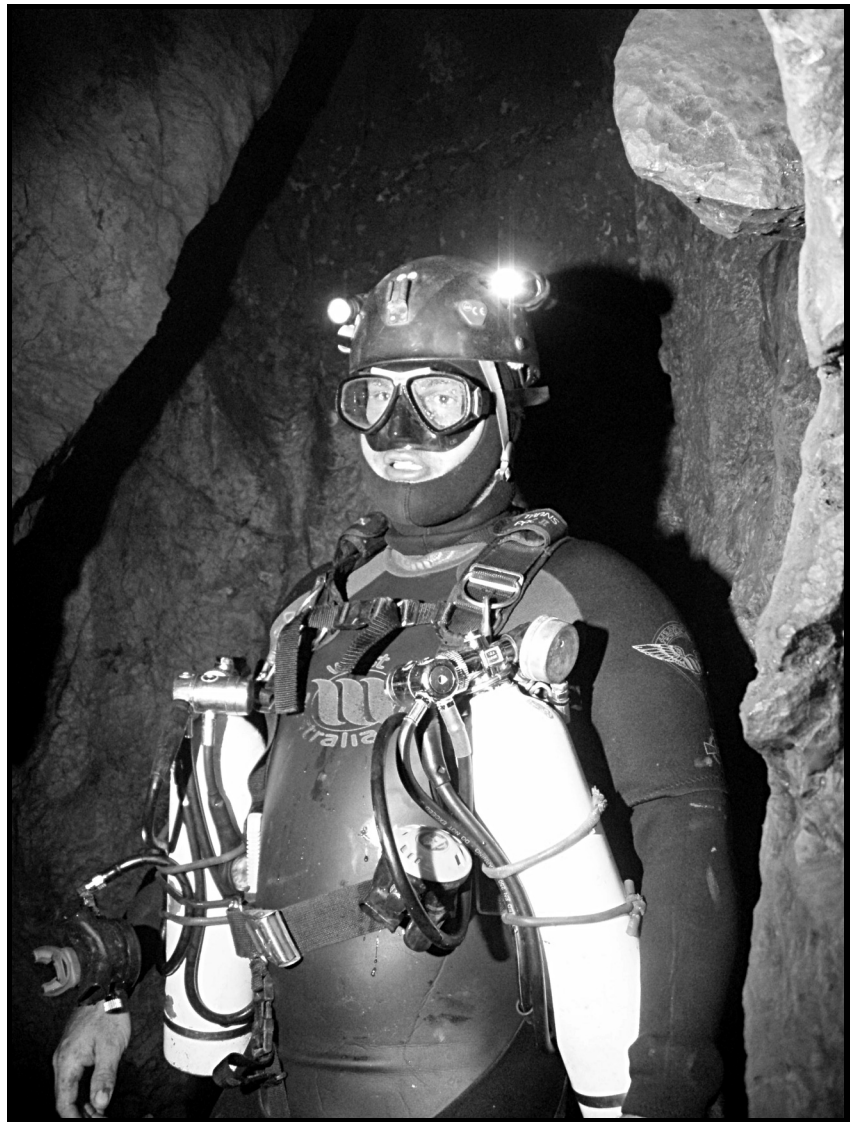
The tunnel in the lake's bottom is smooth and flattened but where it drops into a blind room is a joint passage to the right. The line zig zags back and forth through one jointed rift to the next. On the left is a rift with a corroding caving ladder lost by caves from somewhere above. This is the access from the other end of a tunnel at the top of Paradoxical Lake. The joint passages are shallow in general sometimes assuming a characteristic key hole shape with many scallops patch working the walls .

At one point it opens up into a cylindrical pit in 1988 dubbed 'The Well' and dives to about 12 meters, the deepest part of the journey. At least we don't have depth as a compounding problem. From somewhere in the bottom of The Well, a rift with the space of a wall cavity, rises straight up and this section on is the nastiest part of the dive. In our early dives we used slim line back mounts and getting up that vertical rift was harassing because just getting up the rift required moving left and right to find points that were wide enough to pass a body and a tank.

The side mounts we use now are better suited to this and while there is enough space to pass without duress, it is still a small space where our equipment often snags on rock nodules and the guideline tries all kinds of tricks to catch on rocks or bits of equipment. On one occasion my buoyancy compensator inflator valve wedged open filling the bladders, opening the pressure release valve spilling air up the Wall Cavity. I inflated like the Michelin Man firmly wedged in the rift. This was an unsettling annoyance that was finally alleviated by physically clicking off the inflating hose completely disconnecting the problem from the air tank.

Sitting in the surface lake and river passage at the top of the rift the inflator valve works perfectly. Sharp limestone blades line the floor of the narrow onward tunnel. Crawling while wearing dive gear down the 15 meter passage struggling over and under under limestone blades soon drives away the cold. There are a few more very short sumps and one devilish squeeze in 50 cm of water. Our final point of exploration surfaces in a rift room maybe a meter wide with a surface and roof maybe one to two meters high.

I spent one trip with Paul Boler in this room taking turns to feel the way down a rift to a sandy floor without much space to find the way and digging away at the sand. One of us descended while the other waited treading water in the slotted room getting cold. What seems to be the main passageway is constricted by a sandy floor collected at the bottom of a descending rift. Rob Obrien and Paul Boler have done a couple of dives in 2007 to the sandy rift but were hampered by flood conditions. After the last trip it was said that the best leads are downstream towards Bluetongue but I can still hear that Southern Master Cave calling and I think that given the incredible sports-beauty of this dive, I and a few others have a few more trips to the very back of Barralong yet to come.



*It's easier with side mounts – Michael Collins  
photo Paul Lewis*

## **The Barralong Map**

Since diving restarted in Barralong, there have been several trips to each of the three dive leads. The upstream and downstream dives at the end of the system have been surveyed, while the dive downstream from the Bluetongue pitch has unsurveyed passage and a going lead. Combining the original 1972 survey with the current surveys of the side passages, plus the dive surveys, we have the following stats for Barralong:

Total survey length – 1037 m

Total dive survey length – 225 m

North-south range – 325 m

There are prospective leads in all three dives, while there is a hole at the southern end of the cave which has a strong breeze to interest the dry cavers. From the southern end of the tourist track, the 325 m north-south range of Barralong places the end of the dive survey well south of the carpark and the workshop. The track along the gorge is close to the end of the survey – we tried to locate the exact position with Ken Smith and his Pingers in December 2007, but the terrain on the eastern side of the gorge is too steep and the electrical interference in the tourist precinct was too strong.

*Phil Maynard*

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## PHOTO GALLERY – BARRALONG

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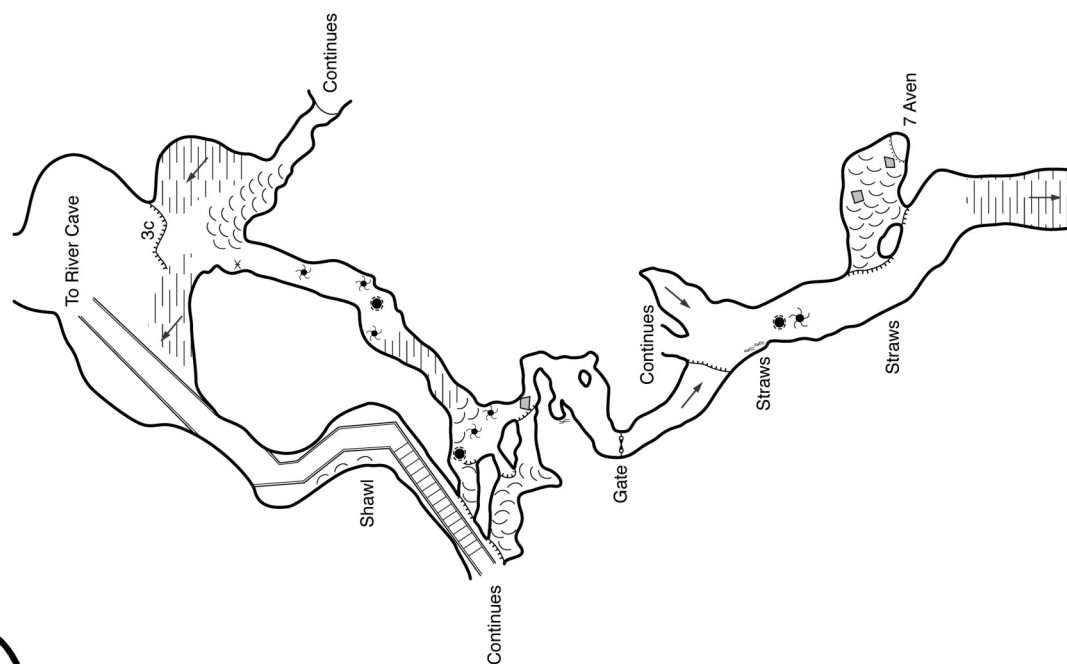
Photos Tina Willmore



*Rod O'Brien at the upstream dive*



# Barralong cave J10 Jenolan, NSW



## Plan View

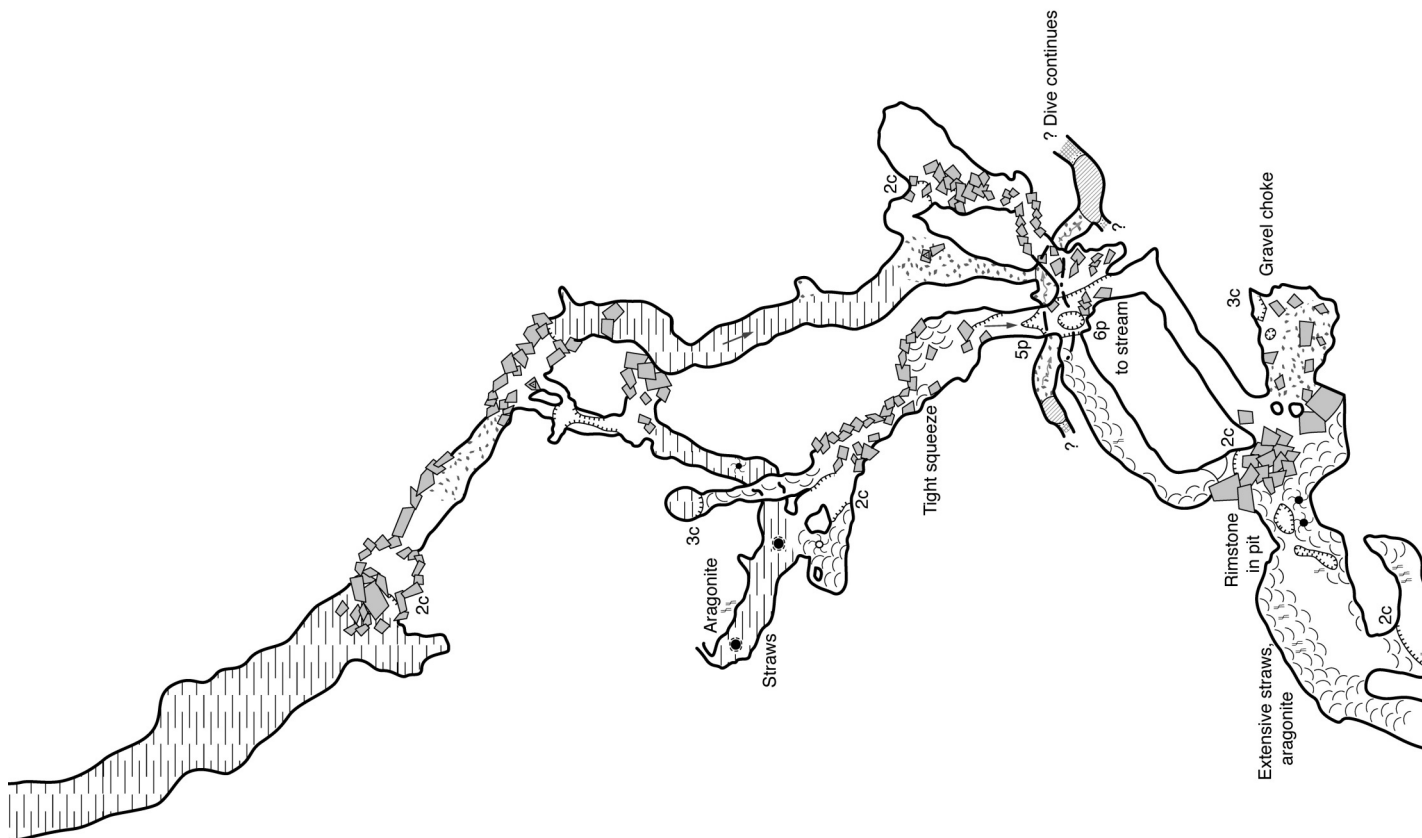


Scale 1:200

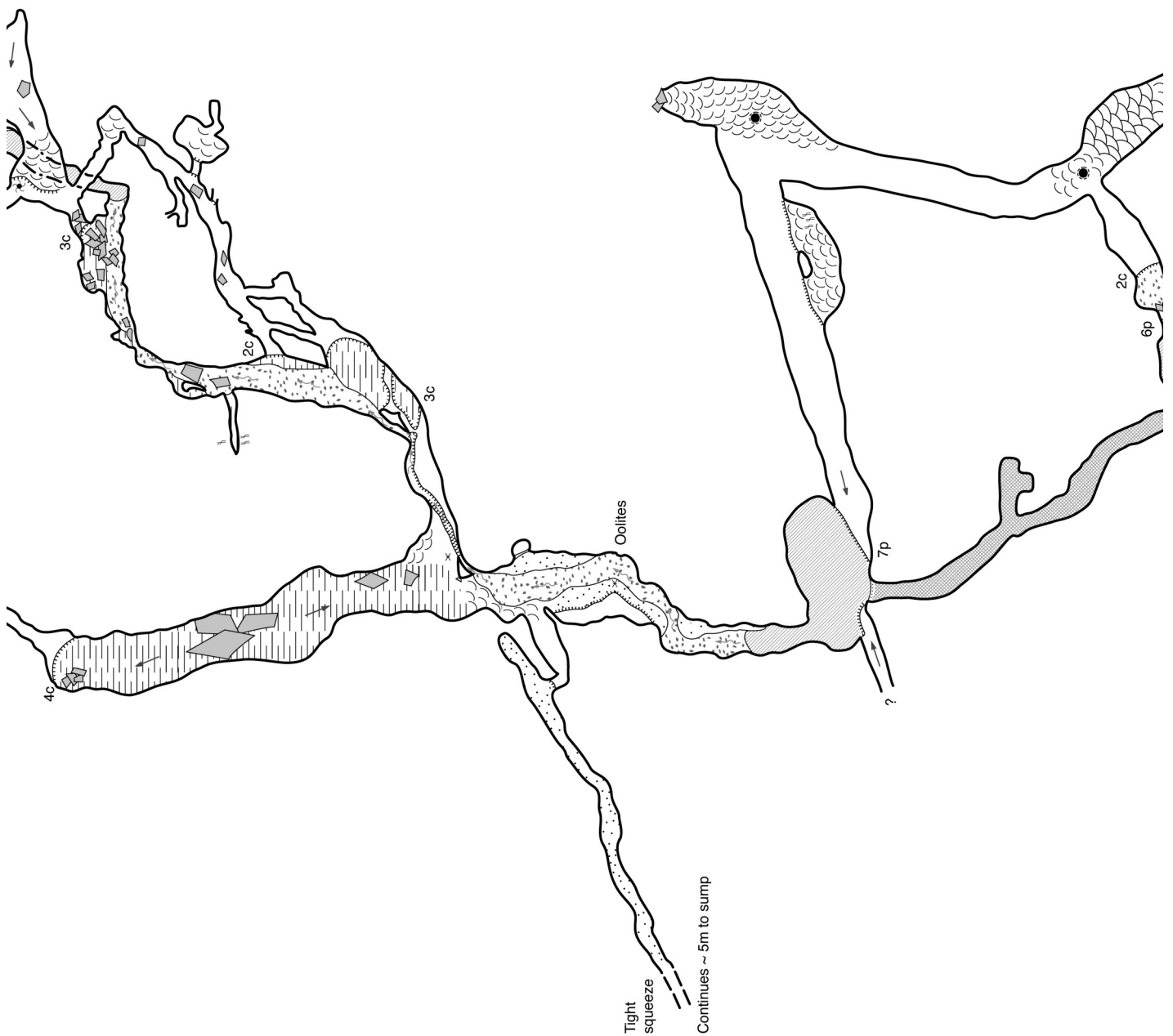


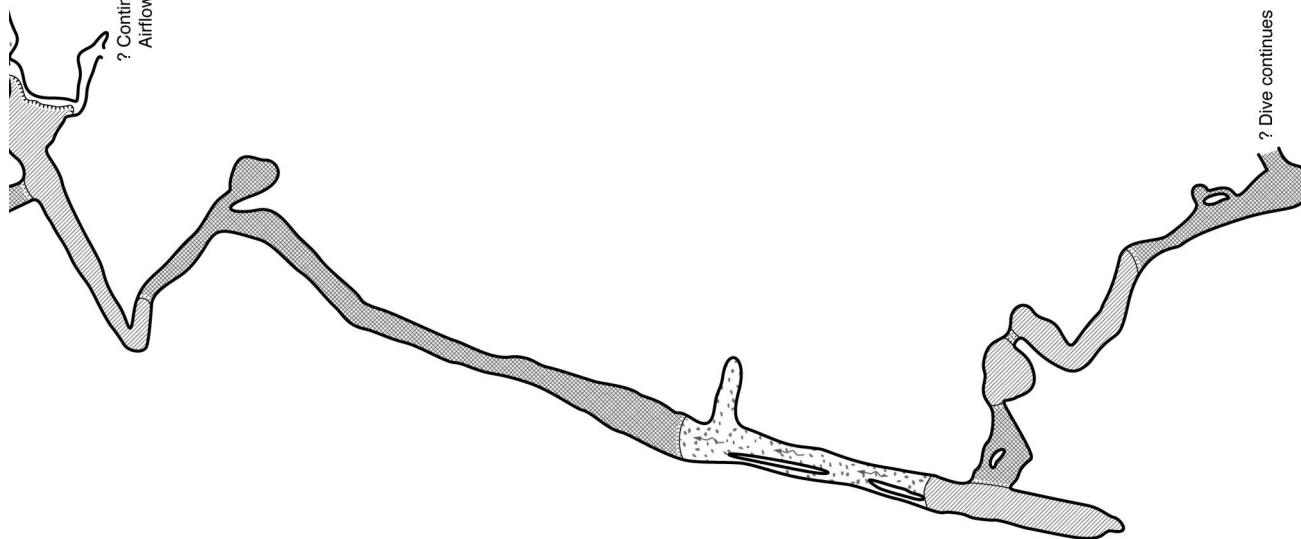
Surveyed by SUSS 1972 - 2008 to ASF 65/55/44AC

Surveyors: Ted Anderson Paul Boler Jason Cockayne  
Michael Collins Ian Cooper Darren Dowler  
Janette Dunkley John Dunkley Damien Grindley  
Graham Kates Phil Maynard Paul Nelson  
Rod O'Brien Jodie Rutledge Greg Ryan  
Keir Vaughan-Taylor Jenny Whitby









Legend	
Formed track, stairs	
Flowstone, rimstone	
Stalactite, stalagmite	
Column	
Helictite, crystals	
Soil, gravel, mud	
Flowing water	
Lake, sump	
Down slope	