

## C O C K L E B I D D Y



> IN SEPTEMBER 1982 AFTER AN ALMOST 4 KILOMETRE UNDERWATER SWIM IN COCKLEBIDDY CAVE, THREE AUSTRALIAN CAVE DIVERS SURFACED INTO A HUGE UNDERGROUND LAKE AND A SERIES OF DRY ROCK CHAMBERS, THE LIKES OF WHICH HAD NEVER BEFORE BEEN SEEN IN AUSTRALIA. THIS SPACE WAS 10 METRES HIGH AND 250 METRES LONG. THEY NAMED IT 'TOAD HALL'. THEY ALSO SET A WORLD RECORD FOR THE LONGEST SUBMERGED CAVE PASSAGE DIVE. THOUGH THEIR RECORD HAS LONG BEEN SURPASSED DUE TO THE DISCOVERY OF LONGER UNDERWATER SYSTEMS AROUND THE WORLD, A SWIM TO TOAD HALL IS STILL REGARDED AS A LONG DISTANCE CAVE PENETRATION.

: LEIGH BISHOP

As Hugh Morrison, Ron Allum and Peter Rogers had done 27 years before, I emerged into Toad Hall after a spectacular underwater journey through an amazing underwater cave. As excited as I was to travel this distance in the cave dive, I was equally excited to find out why this place was called Toad Hall! I surfaced with my partner Agnes Milowka, a young diver from Adelaide who was born the year before Toad Hall was discovered! Keen to remove our dive equipment, we scrambled out of the water and climbed into the dry chambers to be confronted by a hard plastic slate bearing many names. For 27 years those who made this journey have added their name to the who's-who of cave explorers in the southern hemisphere. Before this expedition, less than 50 people, including one female,

had signed on! We added our names and, despite the high levels of CO<sub>2</sub>, went off to discover Toad Hall ourselves.

At the far end of the chambers the cave breaks down in typical Cocklebidy fashion – a pile of rocks leads down to yet another sump (submerged passage). Three days later, Agnes would gear up to dive almost the entire swimmable length of the sump and set an Australian record for the longest underwater cave penetration by a female diver. After exploring Toad Hall we spent two hours photographing the various chambers before preparing to return. After more photography on the way back and a round trip of nearly eight kilometres, mostly underwater, we reached the entrance lake and emerged from the cave 14 hours later. Despite

*Inset, left to right*

*Equipment is prepared ready to be lowered  
The entrance to the cave which at one point in time had collapsed now providing a way in for the divers  
The divers lower equipment into the cave system from the camp  
Agnes Milowka adds her name to the Toad Hall visitors slate*

*Main - A diver is dwarfed by the expanse of Sump Two  
Dr Richard Harris returns from his attempt to extend the cave*



# TOADHALL ANDBEYOND

T E N M I L L I O N Y E A R S I N T H E M A K I N G



a small scooter malfunction which meant Agnes had to swim 2.5 kilometres of it unassisted!

This expedition was a full assault on the cave using the latest technology available to divers and underwater explorers, and an extension of the 2008 attempts by the same team to find the upstream limit of this submerged cave. Our small imaging trip into Toad Hall felt insignificant compared to the full-on attacks planned for Sump Three and beyond Toad Hall, all of which was being set up around us. The lead divers were Australians Dr Craig Challen, Dr Richard Harris and Rick Stanton, who'd travelled from the UK with me. A highly experienced team of divers supported the expedition and each man's attempt to explore the physical end of the cave system. The key to the expedition's success would be the closed circuit rebreathers and long-range diver propulsion vehicles (DPV's) with the latest lithium battery technology.

**The Nullarbor** This is a Mecca for cavers who travel long distances to camp out and explore the region's many caves. We came specifically to explore Cocklebidy, which offers the greatest underwater penetration of any Australian cave system.

This expedition of 14 divers from different sides of Australia arrived at the cave on 24 March soon after the Oztek Technical Diving Conference in Sydney. We planned to set up our operations base camp directly outside the cave entrance. Large generators would power both the camp and powerful lights in the cave to illuminate the lake where diving operations began. Everything had to be brought in including showers, toilets, and water! Tons of diving equipment would be lowered from the desert camp vertically 90 metres to the cave using an 'A' frame, then heaved 200 metres down a boulder pile in the dark. Once the equipment was at the lake deep underground, the dives would be set up. Safety cylinders would be dropped strategically along the cave in Sump Two ready for the big dives; then all equipment required for dives beyond Toad Hall had to be moved to the far side of Toad Hall itself. It would be several days before the big dives could begin, then we'd have to clean the cave out in reverse.

Cocklebidy is regarded as the Mount Everest of cave dives in the southern

hemisphere and only a handful of experienced and trained cave divers venture into the magnificent Sump Two. The cave is broken down into three dives; Sump One is 1.2km long and runs from the lake to a rock pile air chamber. Divers then remove all their equipment and carry it over 100 metres of collapsed rocks down to spectacular Sump Two which stretches 2.5km before reaching Toad Hall. Here divers again remove all gear and carry it over to Sump Three, a distance of 220 metres through varying chambers.

Sump Three is around 1.7km in explored distance, of which 1.2km is reasonably large and easy before it closes down but is still large enough to swim through with back-mounted equipment. Approximately 1.5km in the passage becomes too small and tight, so side-mount equipment is used. After about another 100m the passage shrinks to allow only a diver through. Now it's a 'No Mount' dive – divers have to push their breathing supply in front of them! If you reach this point its likely that after 5.7km into the cave you're not using conventional scuba. The push divers on this expedition used a variation of their own homemade rebreather configurations, which are considerably smaller in size than a standard manufactured unit. These were transported to the far end of the cave before being used for the final pushes.

**Rebreather Technology arrives** The latest man to explore the far reaches of the cave is Perth-based Dr Craig Challen. In 2008 he reached a new point after laying an additional 100 metres of line beyond his predecessor Chris Brown. Challen found himself in a very low bedding plain, against the flow of water and in little if any visibility. Forced to retreat due to low gas levels, he's back to see if he can push on further. With him is Adelaide based technical diver Dr Richard Harris, who holds the record for the deepest dive in Australia and New Zealand. After both men have had their attempt, well known cave diver Rick Stanton from the UK will go in. Each explorer will make a separate attempt on different days; the nature of the cave suggests there's only room down there for one man at a time!

Until now, no one has reached the end of the system and they've brought rebreather technology to Cocklebidy. This allows them to recycle the gas quantities carried



*Left - The divers lower equipment into the cave system from the camp; Divers begin their journey into the cave; Author Leigh Bishop in Sump One with a large scooter and Death Ray light (Photo Mick Green); Rick Stanton leaving for a long dive into the cave*

*Above - Wonderful crystal calcite formations on the cave floor in Sump Two (Photo Ken Smith); Formations deep in Sump Two (Photo Ken Smith)*

*Top right - Agnes Milowka in one of the massive Toad Hall chambers*  
*Below - Charging the expedition scooters deep inside the cave system*

**Dive Exploration History** Cocklebidy was first dived in 1961, but due to lack of available equipment the divers couldn't penetrate any distance into the newly-discovered submerged tunnel. Serious dives began in the early 1970s and several hundred metres of line were laid. By mid 1970s a joint SA team pushed the cave distance to 1.5km and found the first air chamber known as the 'Rock Pile', a long lake with a 20 metre high 80 metre long pile of rocks. The divers found the cave continued on with a second submerged passage, Sump Two. Except for 1978, almost every year during the mid to late 70s saw full-on expeditions do more dives into Sump Two, hoping for yet another exciting air chamber. As the



in order to push further. Another team member, Melbourne-based John Dalla-Zuanna, has developed the very latest in lithium battery technology for the DPV's, which will transport the men to the end and back and saving them from swimming the entire 11.5km underwater.

Cocklebidy, especially within Sump Two, has a breath-taking underground passage on a world scale. The day after his first dive in Sump Two, Rick Stanton, veteran of cave dives around the world, declared it was the best sump he'd ever dived. This passage, unlike the other two, is extraordinarily large, big enough to drive two double-decker buses down side by side. As it begins to wind slightly, DPVs transport divers through a beautifully decorated passage of calcite and white flowstone in crystal clear vis! This was one of the best dives I've ever made in my life, and looking back now on this

treasured memory, I almost wonder if it was real or not!

**The end of the Cave** Unfortunately, equipment problems meant Challen and Harris couldn't reach the end of Challen's line laid in 2008. Disappointed as they were, they waited for the results of Rick Stanton's attempt. On the surface, the progress of each exploration dive was monitored using radiolocation pingers, which also helped to map the cave system. Below the surface my task was to see Rick safely off from the lake then meet him later that night at the Rock Pile between Sump One and Two. From the Rock Pile I was able to radio the surface and let those above know when Rick arrived back safely.

Rick acknowledged Agnes Milowka in passing in Sump Three just before the Waiting Room. Eventually reaching the

submerged passage grew longer, divers began pushing underwater sleds of multiple cylinders that they could breathe from. In 1983, a year after Toad Hall was discovered, a French five-person team headed by brothers Frances and Eric Le Guen set a new world record for underwater penetration. Eric dived first



and managed a 1460 metre penetration into Sump Three from Toad Hall. Frances, on a later dive, pushed the cave another 90 metres by squeezing through a restriction, but was stopped by a second restriction too tight for him with his back-mounted cylinders. A total of 1550 metres of line were laid in Sump Three. After their second dive, the brothers broke the entrance lake surface of the first sump 47 hours after their initial departure. Soon after the French left, in typical style Australian divers took back what was rightly theirs and numerous leading edge divers have pushed Sump Three to its current distance.

**Cocklebidy Geology** The Nullarbor is the world's largest single piece of limestone, and covers about 200,000 km<sup>2</sup>. At its widest it's about 1,200 km from east to west between South Australia (SA) and Western Australia (WA). The prevailing desert climate is arid to semi-arid, with maximum daytime temperatures up to 48.5 °C (119.3 °F). Night brings freezing conditions plus creatures; thousands of kangaroos roam the Nullarbor and the odd deadly spider may visit – keeping your tent protected is a high priority. The cave system was formed some 10 million years ago. Current theory claims that freshwater from rainfall permeated the limestone and met the existing saline groundwater; this mixing resulted in a corrosive action which dissolved the limestone and created a horizontal cave system at depth.

The entrance to Cocklebidy, as with many Nullarbor caves, was created by a surface collapse at a particular point. The cave eventually became too large to support the remaining rock above, which collapsed, opening up the cave as it is now. There's a theory that there's a southern passage, but no one has yet



found an entry, so modern explorers concentrate on the upstream section. There may be other caves under the Nullarbor even bigger than Cocklebidy which are unknown because a collapse hasn't occurred.



A Nullarbor desert lizard visiting the team camp  
Among other spiders, the huntsman was a regular visitor to the expedition camp  
Ken Smith with radio location pingers on the surface above Toad Hall  
The 2009 team members at Cocklebidy

end of Craig Challen's line, Rick tied his own line off to the end of it before progressing only a few metres. Here the cave took on the nature of wide bedding plane possibly 20-30 metres wide, only big enough for a diver to navigate by passing through rock erosion features and channels in the floor. Rick had little if anything to belay his line to and found the going was elbow-deep in mud with zero visibility. As this is a percolation cave it appears that the point reached by Challen in 2008 could well be the source of the water intake.

Rick reeled in the few metres of line he ran out and retreated, claiming no more passage to be found and that Challen had officially reached the most remote part of the cave the year before. Quite possibly more progress could be made, but at this point in the cave there's little chance of it opening up again and it would certainly become too small for a human to progress beyond this. Agnes Milowka and Ken Smith were back at Toad Hall to video Rick's comments on his push dive, before exiting themselves with a haul of cylinders which began the big 'after-push' clean up.

I'd waited in darkness at the Rock Pile for Rick for five hours, providing radio updates on the hour to the surface. As a storm was passing through the camp above, the powerful lights of

Rick's torches arrived at the Rock Pile and I helped him with his heavy equipment over the rocks to Sump One. Rick explained to me what he had seen as well as his theory on the geology of the furthest reaches of the cave before we both dived out a few hours after my last update to the camp above.

Our expedition was over; we'd taken 11 people to Toad Hall, the more than any previous expedition, as well as putting the first two female divers into Sump Three; one of whom set an all-new distance record for an underwater Australian cave. We also now have a clearer understanding of the Cocklebidy geology beyond Toad Hall. The naming of Toad Hall, even today, is a secret kept by those who have ventured there, as the saying goes, 'Many will wonder, but few will know'!

*The Cocklebidy expedition team were, Dr Craig Challen and Dr Richard Harris (expedition leaders), Ken Smith, Geoff Paynter, Leigh Bishop, John Dalla-Zuanna, Rick Stanton, Doug Friday, Mark Brown, Mick Green, Agnes Milowka, David Bardi, Sandy Varin and Jamie Brisbane.*

*To dive in Cocklebidy cave all divers have to be penetration qualified cave divers and permits to dive at the cave are required through the CDAA (Cave divers association of Australia)  
[www.cavedivers.com.au](http://www.cavedivers.com.au)*