

# Cocklebidy: *The world's longest cave dive*

by Peter Rogers



The entrance to Cocklebidy cave, West Australia.



A diver carrying two tanks up the steep slope at the start of the first rockpile.



A time exposure photograph taken inside Cocklebidy using lights powered by a 240 volt surface generator. The enormous scale of Cocklebidy can be gauged by the size of the people seen in this photograph standing at the lakes edge.

To many people the vast arid Nullarbor plain may seem an unlikely place for a major diving expedition. However, in the southern regions of this limestone plateau are found a number of caves, many with huge passageways and caverns, and several of which continue deep enough underground to meet the water table some 80 to 90 metres below the desert surface. The first cave diving attempts on the Nullarbor were made in 1972 in Cocklebidy and Weebubbie caves. Since this time at least 8 of the major caves have been dived, and many kilo-metres of spectacular underwater passageways discovered. As cave diving equipment and techniques improved from 1972, divers pushed further and further into the Nullarbor cave sumps, with one cave in particular becoming the focus of attention. Five major trips to Cocklebidy cave between 1972 and 1979 saw divers discover 3 kilometres of passageway, all but 300 metres of which was fully submerged. The logistics and expense of this type of dive exploration delayed the next attempt until September 1982, when a West Australian team lead by Hugh Morrison, and including New Zealand

and South Australian divers, assembled at Cocklebidy. Access to the underground lake in Cocklebidy is through a large cavern, the floor of which drops 90 metres vertically over a distance of little more than 200 metres horizontally. The task of moving equipment down to the lake began on Sunday September 5, and during the next two days more than 40 88 cu/ft aluminium scuba tanks, a dozen sets of personal diving gear, torches, regulators, food, photographic equipment and even an emergency oxygen cylinder were hauled over the difficult terrain to the lakes edge. 240 volt electricity was run from a surface generator to the lakeside for lighting, and a 100 metres of high pressure copper tubing was connected from a surface compressor down through the initial steepest part of the cave so that scuba tanks could be filled without having to be hauled all the way out to the surface. Communication from the surface to the air filling station in the cave was via a two way intercom system. On the Monday a "fixed" guideline of 3mm diameter polypropylene cord was run from the entrance lake through the rockpile (see map); a 900 metre dive in which the roof of the passageway reaches a maximum depth of ten metres below the water table. With the large numbers of divers due to pass along this first section of the cave, a good reliable guideline was essential, both because of the silt that can be stirred up in the first part of the tunnel (visibility reduced from perfect to less than ten metres during the week of operations!), and to enable divers to take the shortest route through the large underwater caverns whilst remaining at a relatively constant depth. (In places the passageway is up to 30 metres wide and 100 metres deep). The rockpile was first discovered in 1976, and is a point where the roof of the underwater cave has collapsed, forming a short section of dry passageway, with steep 20 metre climbs at either end leading down to the waters edge. The rockpile is treated as first base for push dive attempts in Cocklebidy; all equipment to be used on a push dive must be hauled along the initial 900 metre dive, disassembled, carted over the rockpile, and reassembled in the lake on the far side. Tuesday the 7th saw the major movement of equipment for the push dive from the entrance lake to the rockpile. A team of three divers



Some of the equipment used during the weeks diving is assembled at the lakes edge.

wearing triple 88 cu/ft tanks on their backs, and supported by numerous other divers, pushed an underwater sled comprising of 15 88 cu/ft tanks out to the rockpile. Here it was taken apart, each tank was carried over the rockpile, and the sled was rebuilt in the lake the far side of the rockpile. Sets of triple tanks for the push divers to wear on their backs were also transported over the rockpile, as was the oxygen cylinder and various containers of food and spare parts. A certain tardiness the following morning possibly indicated the apprehension with which many of the party viewed the task ahead. From a group of 5 potential push divers (Hugh Morrison, Simon Jones, Keith Dekkers, Ron Allum and Peter Rogers), the three who felt fittest and most ready to go on the day were chosen, these being Morrison, Allum and Rogers. The party, comprising the three push divers, four backup divers who would assist at the rockpile and await the push divers return, and nearly everyone else involved in the expedition, left the surface at 3.15 p.m., to make their way down to the entrance lake. After a leisurely and relaxed dive to the rockpile, the push divers assembled their equipment on the far side of the rockpile and were ready to leave at about 8 p.m. The dive plan was for the three push divers to swim the sled along the guideline left in by previous expeditions until one of the divers had used a third of his air supply contained in his five tanks on the sled. At this point the divers would park the sled and continue using the triple tanks on their backs, again until one of the

three had used a third of his air, at which point the divers would turn around and start for home. In the 1979 expedition Morrison, Jones and Dekkers has pushed two kilometres from the rockpile, at which point the tunnel appeared to be deepening, but showed no signs of stopping. The increase in depth meant that decompression problems could arise if the tunnel continued to deepen, as the discovery of a new air chamber further along the tunnel would mean the divers would most probably be forced to decompress before they could surface, which might not be possible on the limited air supplies available at the extreme range of such a dive. It was hoped to add at least 500 metres to the existing record, even though the triple sets and sled had been used in 1979, the 72 cu/ft steel tanks used previously had been replaced by aluminium tanks, each slightly overfilled to hold about 112 cu/ft of air. So, with the prospect of a six hour dive ahead of them, and the four people waiting in the gloom at the rockpile knowing that the push divers had an absolute total of nine hours supply of air if they didn't find an air chamber (which even if they did, they might well not be able to surface into due to decompression problems), the push dive began. The first 500 metres were by far the most eventful of the whole dive. Buoyancy control of the sled proved more difficult than anticipated, with the sled and divers careering from roof to floor on more than one occasion. The buoyancy control of the sled was by three scuba diver life



3 support divers wearing triple tanks on their backs pushing the sled of 15 tanks through the first kilometre of submerged passageway in Cocklebidy to the first rockpile.

vests, attached to the front middle and back, each being scuba fed from tanks of the sled. These vests were necessary to compensate for the estimated 30 kg of air that would be consumed during the dive. However, because air filled life vests were present on the otherwise constant volume sled, depth changes during the dive, from 0 to 14 metres, also resulted in buoyancy changes, and required constant attention. Other excitement during the first 500 metres of the dive included a blown high pressure hose on one of Morrison's regulators and an extruded o-ring from the first stage attachment of a scuba feed line on one of Roger's regulators. (These problems were subsequently put down to the over pressurized tanks). On the dive itself a regulator from a tank off the sled was used to replace Morrison's regulator, while the extruded o-ring on one of Roger's regulators was successfully replaced. Both these operations took place underwater! Keith Dekkers and Graham Morrison from the back-up diver team followed the push divers for the first few hundred metres of the dive using twin tanks, when these two turned back the silent immensity of Cocklebidy slowly enveloped the three push divers.

With buoyancy now well under control the three divers slowly pushed the sled through the crystal clear waters of Cocklebidy, following the line laid down by previous expeditions. The history of previous push dives came to light as at a point one kilometre from the rockpile the three divers discovered a slate left by Morrison and Jones in 1977 to mark the limits of that dive. At this point the three

divers took a five minute rest, floating gently on the underside of the roof. Around 1650 metres from the rockpile a coil of 500 metres of guideline was found, left in 1979 by a South Australian push dive that had failed to break new ground. At the 1800 metre mark Hugh Morrison indicated that he had used a third of his air from the sled, and so as arranged the sled was "parked" against the roof and the three divers moved on into the clear waters ahead. 200 metres after leaving the sled, the guideline which had been a constant companion since leaving the rockpile, Two kilometres previously, ended. A new record was being established, and the thrill of breaking new ground was experienced by all three divers. Morrison tied on new guideline to the end of the old, and the three divers continued. About 100 metres into new

ground a side tunnel off to the left was discovered, the first branch in the entire length of Cocklebidy. A smaller second such branch was discovered at the 2250 metre mark, and it was with great expectation that the divers realised the form of the tunnel was changing. From the two kilometre mark, at 14 metres depth, Cocklebidy gets steadily shallower, with a more uneven floor and the two previously mentioned side tunnels. At the 2400 metre mark an air pocket was discovered, but after some brief underwater signalling it was decided to push on. By this stage the cave was only three to five metres deep, and showing every sign of surfacing. 2500 metres from the rockpile, with a large air chamber above them, the divers were unable to continue underwater due to a collapsed rockfall. After a five minute wait, in deference for decompression sickness, the three surfaced into a large chamber with a rockpile leading up out of it. Diving equipment was left at the water's edge and exploration of the new cave started. After an initial steep 15 to 25 metre climb, the rockpile levelled off and the cave continued above water in much the same fashion as it had underneath. After about 500 metres, Toad Hall (as it was named) ended in yet another lake, and Cocklebidy headed off once more into the unknown.

The three divers rested for about an hour in Toad Hall before commencing the return journey, anxious not to stay too long for fear of unduly worrying those waiting at the first rockpile. The outward dive from the rockpile had taken 3¼ hours, and so it was well

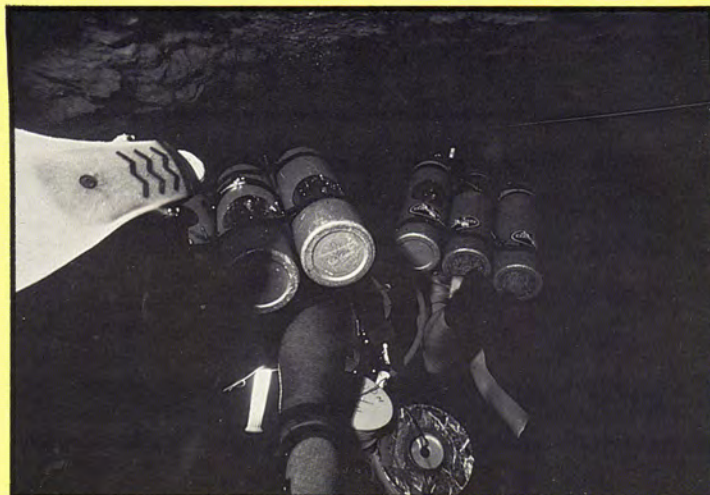
The start of the push dive. The sled of 15 tanks, now adorned with regulators, floats in the lake the far side of the rockpile ready to go.



after midnight by the time the return journey commenced. On arriving back at the sled the divers paused to drink a fruit box apiece, to counter the effects of the dry compressed air they had been breathing, before getting underway on the slow return journey. The divers returned from Toad Hall to the rockpile in 2¼ hours, a total push dive time of 7 hours. By this time fatigue, both mental and physical, was becoming an appreciable problem, and so the push divers and backup divers left most of the equipment at the rockpile for retrieval the next day, and headed for home.

The party finally emerged tired but triumphant at 6.30 a.m. the next morning, to huddle around the campfire in the cold splendour of a Nullarbor dawn. The whole journey had taken over 15 hours, and each diver had swum seven kilometres. Despite these incredible statistics, the memory that lingered was one of the magnificent size and splendid stillness of an underwater world that began to fade from reality with the approaching dawn. Cocklebiddy, the worlds longest cave dive.

Footnote: A further trip to Cocklebiddy is planned for 1983 during which the three push divers plan to spend two nights at Toad Hall in an attempt to extend the length of Cocklebiddy. Sponsorship for this record attempt has been offered by Perth Diving Academy and Adelaide Skin Diving Centre.



Push divers Ron Allum and Hugh Morrison follow the line left by Morrison, Dekkers and Jones in 1979 as they push on before discovering another 500 metres of submerged passageway and a new air chamber in Cocklebiddy.



The team that made it all possible.  
 Back row: Robert Galliot, Ron Allum, Peter Rogers, Simon Jones, Hugh Morrison, John Clarke, Ross Williams, Keith Cook, Martin Jones, Graham Morrison, Justin Burman, Lee Burman.  
 Front row: Simon Groves, Lyndall Jones, Tim Williams, Keith Dekkers.

