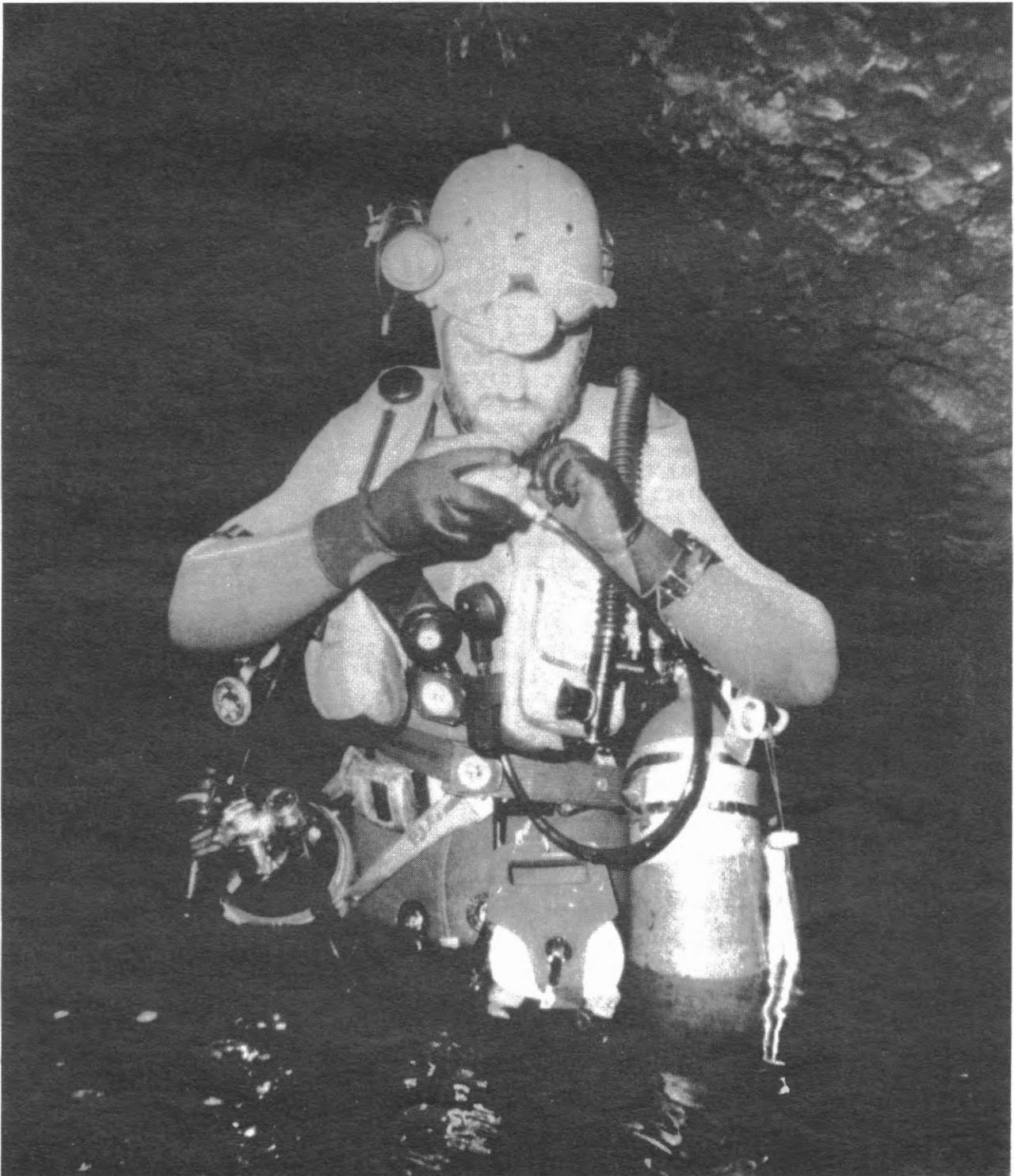


# AUSTRALIAN CAVER

THE AUSTRALIAN  
SPELEOLOGICAL QUARTERLY

**No.114**

**1987**



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**DEADLINE FOR COPY**

*All articles should be submitted to the editor by the end of:—*

*FEBRUARY  
MAY  
AUGUST  
NOVEMBER*

*If you find writing a chore, why not phone the editor directly???*

**COVER PHOTOGRAPH**

*Peter Ackroyd fully kitted up prior to Dalley's Extension Dive by G. Netherwood*

*The opinions expressed in this journal are not necessarily those of the A.S.F. Inc. or the Editor.*

# CAVE DIVING IN VICTORIA

by Peter Ackroyd

Cave diving began in Victoria when the Victorian Cave Exploration Society (VCES) invited some members of the dive club, Victorian Sub Aqua Group, to examine a drowned resurgence cave (later called Sub Aqua Cave).

In Easter 1958 Bill and Bob Kunert and Jim Palmer visited Buchan with VCES to look at Sub Aqua and to do some dry caving. On this trip the divers went through the short sump between Royal and Federal Caves in the Buchan Caves Reserve. The route is normally traversable only in prolonged dry spells.

Their report attracted several other members of the Sub Aqua Group, among them John Driscoll and Peter Matthews, to Sub Aqua Cave on 24th May 1958. Using oxygen rebreathing apparatus, rubber dry suits, fins and a base-fed guide rope, a push was made into the water of Sub Aqua. Unfortunately, the route chosen led the divers into the confusing left hand series and in zero visibility they returned to base.

The divers next visited Buchan in June 1959 when Dalley's Sinkhole (M-35) and the Murrindal River swallet were explored along with several of Buchan's best known 'dry' caves.

The group returned to Sub Aqua on 30th August 1959 when again the divers had difficulties with orientation and route finding in the silty conditions. After allowing the water to clear somewhat, John Driscoll followed the scour channel on the bottom. He was using twin back-mounted cylinders, a CIG regulator, a dry suit, fins and a navy disposal waterproof torch (a large rectangular affair). His back-up light consisted of a waterproofed 2 cell torch. The base crew fed him rope as he finned along the bottom, eventually surfacing in a large cavern, the roof of which was beyond his light. After tying off the rope he made an exit, after which several other divers (among them John Noonan, John Skipper and Peter Matthews) clipped on to the rope and dived into the cave.

During Easter 1960 a full assault on the cave was made by the newly emerging group. A generator was installed at the resurgence allowing two 240 watt aircraft landing lights to be used to illuminate the full extent of the cave. In essence the cave was a single chamber with the river gushing from a loose rockfall at one end. The soaring roof was pushed using tree trunks dragged into

the cave to stand as scaling poles. Although well decorated, the upper levels led nowhere.

In the words of Peter Matthews "It was about this time that we realised cave diving was a caving, not diving activity" and so the Sub Aqua Speleological Society (SASS) was formed.

Following their first success, SASS turned their attention to the resurgence of Scrubby Creek (M-49). Around Christmas 1960, after a slot leading down to the stream had been blasted by VCES, John Driscoll squeezed down into the water. He was using a hookah hose connected to an air cylinder on the surface. He encountered an underwater rockfall interspersed with a series of small chambers. The passage increased in size the further he went until at the limit of the hookah hose he could see "a view that made me want to cut the hookah hose and keep swimming" - clear spacious underwater passage to the limits of his light. On turning around John found the hookah hose had been tugged off route and had jumped into spots which he could not possibly penetrate. After a tense period of sorting out the route in low visibility, he finally emerged wreathed in loops of hookah hose and utterly wrung out.

In order to improve diving access, the entrance slot was blasted again on 2nd July 1961 by Serge Vercion, John Driscoll and Peter Matthews. While waiting for the fumes to clear, Peter Matthews potted around up the hill a little and poked into a small draughting hole he had found previously. After some rock removal and digging, it became obvious that no more diving would be necessary to enter Scrubby Creek Cave. The only other diving carried out in this cave was in the deep azure pools near the entrance series by John Driscoll using SCUBA. A dive to several metres depth showed a spacious deep underground river which was not pushed.

Monty Morgan managed to interest some divers in Grassmere Cave (W-6) during the weekend of 7-8 May 1960, but the size of the small siphon meant that their efforts to haul the cumbersome dive gear up the glutinously muddy passages of the cave had been wasted.

Peter Robertson of SASS set up a return trip to Sub Aqua during 1963, but nothing new was found. Diving gave way to caving as VCES and SASS set about finding and exploring some of Victoria's best

known caves. Following the 1967 ASF conference at Mirboo North, the two groups amalgamated to form VSA. Diving made a brief comeback in the latter part of 1976 when Peter Robertson and Lou Williams attempted to crack the main sump in Dukes Cave (B-4) only to be defeated after three metres by silt and tight passage, their back-mounted cylinders preventing progress.

In 1980 I was introduced to a small but lengthy stream cave, M-4, which ended in a sump. By 1982 I had gained a diving certificate and some caving experience but nowhere near enough to prepare me for the total silt-out in constricted cave passage at the bottom of M-4's five metre deep siphon (Netherwood, 1982; Ackroyd, 1983).

However the trips into M-4 were invaluable. The back-mounted cylinder was the first change - it was just not safe. There was no back-up in the event of a cylinder valve 'O' ring failure and the risk of a line entanglement around unreachable apparatus was always present. In tight sumps with zero visibility there is no means of correcting tangles of air supply problems.

Therefore a full duplication system was adopted - two cylinders (one hung off each hip), each with its own regulator and contents gauge and its own mounting system. A line reel was built by Glen Netherwood. It held 70m of 5mm "heavier than water" line, strong enough to haul on if necessary, heavier than water to make sure it stayed where it was put - no floating away for this line!

Lighting systems did not need to be very powerful (in zero visibility who cares what lights you have) and the M-4 experience showed that the system we had adopted was quite good. The main light is a depth-proofed Oldham caplamp backed up by two dive torches mounted on each side of the head gear (usually a canoe helmet or construction helmet with holes drilled in it - these allow exhaust air to pass through rather than be captured and cause buoyancy changes). A buoyancy compensator was considered optional until some of Buchan's sumps went over six metres deep. Wet suit compression at this depth makes buoyancy control desirable. Waterproof paper, compass and tape made up the balance of the specialised cave diving gear.

The downstream sump of Dalley's Sinkhole (M-35) (see Map) was the next target and also proving ground for our efforts. On 23rd April 1983 we took in weights and gear for a reconnaissance. A fourteen metre penetration dive to an airbell proved most systems except for the voice contact with base. The extra bulk added to the line was not worth the small gain. On the 24th, with buoyancy fine-tuned, Glen Netherwood and I went to

the limit of my earlier dive. Then Glen fed line and I went through a second airbell to a third - 30metres in. Because of the slow progress, groping through the half metre visibility, two of my lights were flat and each cylinder was down to a third. We high-tailed out along the guideline.

After some practise in a plunge pool of a local waterfall we next visited the cave on 21st May 1983. The earlier guideline was exchanged for a fixed line bolted in place, a slow task during which an underwater regulator change was practised - removing a valve from an exhausted cylinder and putting it on a fresh one, all the while breathing off the alternate system. After lunch a penetration dive extended the line to the fifth airbell (see map). Glen and I then surveyed to the fourth airbell when Glen's light failed. While we went out, I finished off the survey to the end of the line. After a 12hour trip, 3½ underwater we left the cave, again hauling out all the gear.

The next day Glen dived Sub Aqua Cave (M-26) to see what we were aiming for, while Paul Hodgson and I did a grade 6 surface survey between the entrances.

During June and July 1983, Glen and I carried out a grade 5 survey in Dalley's Sinkhole, then in October a survey of Sub Aqua. Paul Hodgson helped survey to VSA trig point "772" one hot day in December, so now the whole system was on the Australian Map Grid.

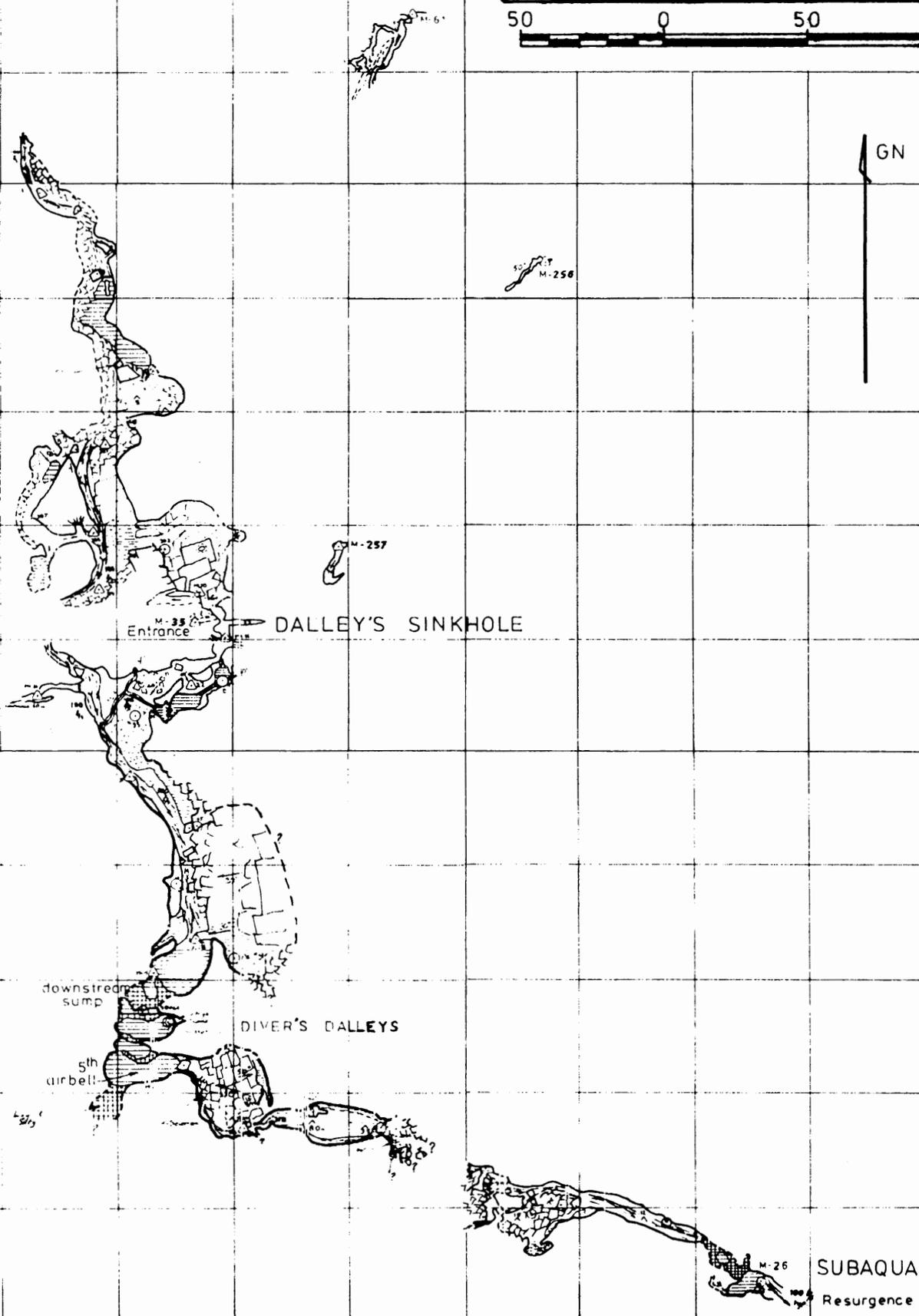
Alex Kariko assisted in the installation of more bolted tie-offs in Dalley's on 29th January 1984 when I took the opportunity to climb a high lead in the third airbell. This led to an impassable overhung climb six metres up. A retreat was made. Glen and I carried out a survey of the upstream section of Dalley's on 31st March. On this occasion the river flow was only 50 L/sec, providing an opportunity to reach this seldom visited section.

It was not until 26th January 1985, that Glen and I returned to Dalley's, this time with two sinkhole cave divers, Peter Grass and Scott Carpenter. It took a little longer to haul in the gear. Peter and Scott had about half as much again when compared to our cut-down survival gear. Making good time along the taut fixed line, I covered the 61 metres underwater length and 4 metres depth in a few minutes. I ran out only 13 more metres of line and bingo! sand bank, air space, rocks. So close all this time. Peter and Scott assisted in a grade 4 survey covering the 200 metres to the next sump - a nasty one gained only after a crawl in rockfall. The new section "Diver's Dalley's" is magnificent river cave, huge ceiling heights, monstrous talus blocks, fast deep water, sand banks, the whole bit. The total

ASF Map No	3 . VSA 60	Atlas	BUCHAN
Map ©	1986 VSA (Inc.)	Sub Area	PYRAMIDS
Covering Sheet Exists?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Cave	DALLEY'S SINKHOLE
Survey Data Held By		ASF Grade	6 AC
Project Manager	P G M	Cave Surv'r	P G M / P J A
Drafted By	P J A	Date	1967/83
Area Surv'r	P G M	Date	1968
Rev	By	Date	Details



GN



time spent beyond the sump was six hours.

On 24th February Glen and I revisited Diver's Dalley's to install a fixed line in a low section for times of high water, and to allow me to push a low water-filled passage off to the south. This was dived for 10-12 metres squeezing with my side-mounted cylinders between roof and floor. Finding a turn around point was difficult; visibility was poor.

Alex Kariko and I dived Sub Aqua Cave on 8-9th June 1985 to try and force a connection, but despite levering rocks out of the unstable rockfall at the end of this cave, and diving with only one cylinder, pushed ahead, a bare three metres was gained. The final connection over the remaining 35 metres between the caves is unlikely to be made without a lot of very careful work in the underwater rockfall.

Recent diving activity has been located in the main sump of Dukes Cave (B-4), where zero visibility and very tight passage made a dive of 18 metres penetration to a depth of 6 metres extremely arduous. It became obvious why the 1976 attempt did not do well. Even with side-mounted cylinders, my wet suit was nicked in the sharp squeezes.

Buchan sumps are much like British sumps. Hence similar techniques and equipment have evolved, allowing low risk exploration of our tight and murky underwater passages. Life support systems are duplicated throughout, and any one item of gear is within easy reach, able to be adjusted, untangled, or, in a really 'tight' situation, jettisoned completely. We, like the Brits, have found it to be far safer to dive solo, especially in the more constricted and silty passages. An additional person leads to stress, confusion, a much greater risk of entanglement, a much more serious silt problem and a large reduction in valuable manoeuvring space.

With improvements in equipment and technique, Buchan caves may be persuaded to reveal more of their secrets in the near future. Only time will tell.

**References:**

NEITHERWOOD, Glen. 1982 "Assault on M-4"  
Nargun 15 (4):29-31

ACKROYD, Peter. 1983 "The Emfour Strikes Back"  
Nargun 15 (8):65-69

# EDITORIAL

I must firstly apologize for the lateness of No.113 - all you tridecaphobics will understand why everything that could go wrong did go wrong. That has unfortunately put No.114 back but we hopefully should have caught up by No.115.

Australian Caver has had a lot of support while I have been editor and I am going to ask for further support on two areas. Firstly, we need articles for A.C. so the high standard achieved so far can be maintained. There have been a number of expeditions and other events happening and I would love to hear from all of you. The second way in which help could arrive is by all clubs paying their capitation fees on time. The lack of funds has led to a reduction in the size of the magazine, (we still have to pay the printer) and I'm sure Lloyd Mills, our fearless treasurer, would really enjoy hearing from you.

In this issue of A.C. I have finally published an article on cave diving - well worth the read.

Congratulations are in order for Chris Parr (one of the capable organizers of TROPICON '88) and his wife on the birth of their son, well done!

Yours in Caving,  
 Kerrie Bennett.

\* \* \* \* \*

S T O P      P R E S S

Don't forget SPELEOSPORTS

Macquarie University

24th October, 9.00a.m.

# The clean up of Weebubbie Cave

NORMAN POULTER

Weebubbie Cave 6N-2 is a large collapse doline located on the Hampton Tableland of the vast Nullarbor Plain some 14km north of Eucla near the Western Australian border. The region is arid with an average rainfall of 125mm per year, although it has been known to fall (all) in one day. With summer temperatures sometimes reaching 50° C, water is essential for survival. The predominating vegetation of saltbush and bluebush is well suited as stock feed.

## HISTORY

Although now an acknowledged Aboriginal Site Weebubbie was not sighted by European Australians until Clayer and Juncken, employees of the South Australia Telegraph Department, chanced upon it early in 1900 and lodged an application in June of that year for an 80,000 acre (32,375 hectares) grazing lease which included the cave. In their telegram of application they mentioned the discovery as a:

"large subterranean lake 200 or 300 feet below the surface near Eucla".

A deposit of five Pounds accompanied the application.

With a rare display of governmental speed and foresight, the Surveyor-General, on 2 August 1900 placed a temporary reserve of 5000 acres around the cave while at the same time granting Clayer and Juncken a lease of 40,000 acres that bordered the reserve.

Citing a South Australian graziers opinion that the cave's saline water was suitable for stock, Clayer and Juncken stated that their find would be of immense value for potential grazing in the region and with all the ornamental language of the period therefore asked (as compensation for the 'loss' of the cave) for a reward, the amount respectfully left to the Surveyor General's discretion.

Inter-departmental correspondence indicated that the Government favoured a reward for the discoverers and suggested to them that THEY nominate a suitable sum subject to a favourable report by a government appointed inspector as to the quality of the water.

Much gasping and eye rolling must have resulted

when Clayer and Juncken duly applied for a reward of 500 Pounds, approximately \$26,300 by today's value.

Not surprisingly, the well oiled wheels of government suddenly froze and despite much telegraphic prodding from Clayer and Juncken as to when a government inspector was going to visit the area to sample the water, no one was forthcoming. Not to be daunted by the government's un-explained apathy, Clayer and Juncken persisted, but to no avail, until circumstances placed a seemingly suitable government employee in the area.

From March 1901, John Muir (Inspector of Engineering Surveys FWD) led an expedition to examine the country between Kalgoorlie and Eucla in relation to either constructing a future trans-continental railroad direct to Eucla (from Kalgoorlie thence to Tarcoola SA) or sending a 50mile (80km) spur line south from the railroad to Eucla. The main reason behind such a plan would have been to carry supplies for the railroad construction utilising the already existing Eucla jetty.

The mind boggles as to what would have happened to the region (and the caves) if such a railroad came to fruition. Imagine though, going caving at Weebubbie by air-conditioned train.

Muir was persuaded by Clayer and Juncken to inspect the water and forward his opinion to his superiors. Muir duly inspected the cave, concluding the lake to be a:

"small underground reservoir" due to the "impervious character of the surrounding strata."

Much to the disgust of Clayer and Juncken, Muir's October 1901 report, accompanied by three interior photographs of the cave, claimed the estimated three million gallons of highly mineralized water not suitable for stock.

No doubt a much relieved Surveyor General telegraphed the luckless pair that on the strength of Muir's report - there would be no reward.

Despite protests from Clayer and Juncken that Muir's observations were no more than casual and that he was not qualified to pass judgement on such an important issue, the government remained deaf and shortly afterward Clayer and Juncken faded from the scene.

But the needs and attitudes of government are manyfold and change with time. On December 1927, a proposal was made that the temporary reserve be given permanent status and leased (for watering stock) in an effort to raise money from the resource.

Subsequently, on 4 January 1928, Water Reserve #19713 (2560 acres) was leased to JD and OD Jones for grazing purposes under section 41a of the Land Act 1898. The fee was 10 shillings per year subject that the general public have free access to the water.

The lease to Jones was cancelled on 24 December 1930 due to non-payment of one pound five shillings lease fees. The cave was re-leased to M. O'Sullivan of Kalgoorlie shortly afterwards. The period of this lease is not known.

During 1964, there was a minor panic when, on reference to Army 1:250 000 survey maps, it was discovered that the cave was no longer in the centre of the reserve that had been thrown around it. In fact - it was quite a respectable distance outside the boundary.

The pantomime that must have resulted from that revelation would have done justice no doubt to a latter-day 'Yes Minister' script before the error was rectified later in the year.

Before we leave this historical gem of comedy and for those who may be interested in PRECISION surveys, below is the official 1967 description of the cave reserve boundaries:

"All that portion of land (being about 2560 acres) with (Weebobby) cave as its centre bounded by lines starting from a point situated about 987 chains and 53 links west from north east corner of pastoral lease 393/512 (Moopina) and extending south about 160 chains thence west about 159 chains and 98 links thence north about 160 chains and thence east to starting point."

In July 1976 the reserve was metricated to APPROXIMATELY 1035.9952 hectares.

Up until 1964 the cave had been periodically referred to as Weebobby. The name Weebubbie did not appear in official correspondence until 15 February 1967 when F.E.B. Gurney sought permission to use the cave to water stock on his nearby Moopina Station property. Formal approval of the name Weebubbie was granted on 8 April 1968 following representation from David Lowry, then of the W.A. Geological Survey.

On 3 July 1967, the PWD Under Secretary for Lands advised the Lands and Survey Department that they

had no objection to Gurney leasing the Weebubbie reserve, provided that the public still had free access to the cave.

However, there is no record that Gurney took up the lease, suggesting that he utilised the water for the Eucla Roadhouse illegally. In April 1985 the Gurney lease at Moopina Station (valid to the year 2015 at \$283.99/year) was cancelled due to non-compliance of conditions and the Gurneys left the region.

### THE CLEANUP

Weebubbie Cave was in use supplying water to the nearby Eucla Roadhouse (legally or otherwise) until 1983-4 when the current owners sank a bore within the confines of the Eucla complex obtaining better quality water, thus enabling, with the aid of a \$30,000 reverse osmosis process to advertise fresh water - ordinary soap lathers in the 20c per minute showers. Presumably, at much the same time, the managers removed the pipe casing from the roof of the cave, casing that had long marred many a picture of Weebubbie's main lake.

The surface debris, in the form of water tanks, pump house, timbers and other miscellaneous junk still remain. Most, if not all of the rubbish actually in the cave is reputed to have been used and later dumped there by the Main Roads Board when they sealed the Eyre Highway during the 1960's

It had long been known that both lakes of Weebubbie Cave contained debris of past water pumping and tourist operations and it was this rubbish that SRGWA was concerned about when it became obvious during the SRG Nullarbor Expedition of Sept. 1985 that the cave was no longer used as a water resource. It was then speculated that a multi-society Christmas cleanup trip was possible.

Such a plan was put to the Dept. of Conservation & Environment Cave Working Group in mid-October along with the view that the status of the cave be changed so that it could be re-vested from the Lands Department to the Department of Conservation and Land Management (CALM). The cleanup proposal was endorsed and invitations for assistance sent out. The response, although not overwhelming, was sufficient to allow the project to proceed.

Material assistance was solicited from various government bodies and the management of the Eucla Roadhouse. The Western Australian Water Authority built and supplied a transportable tripod/sheer legs complete with guy ropes and a 3:1 block and tackle as well as some grappling hooks. The Eucla Roadhouse provided an additional hacksaw and pulley while the Eucla Police loaned a well worn length of rope.

The cave cleaners whose names appear elsewhere assembled at Weebubbie on 28 December 1985, spending most of that day setting up the sheer legs and lowering gear into the cave - the most important of which was the diving gear and Norm Poulter's 5m canoe. Preliminary dives later in the day revealed that there was much more debris beyond snorkel depth than first thought.

To make the canoe a stable platform from which to raise heavy objects from under water, the canoe had wooden spars lashed to it forming an outrigger frame. Two vehicle inner tubes were inflated and lashed to the outer framework, thus acting as pontoons.

The first priority with the underwater debris was to recover the unsightly lengths of pipe. Great difficulty was experienced in raising 60mm diameter steel pipes that were in some cases in excess of 20m long, extremely heavy and bent into crazy, pretzel-like shapes. It is suspected that a government department (or subcontractors) must be responsible for this dumping as no one in their right mind should willingly consume such vast quantities of time and energy bending the pipes and then dumping them in the lake - far from shore, rather than the obvious and much simpler task of dismantling the pipes and carrying them out of the cave. Such are the minds of men.

The amount of effort required to raise the long, bent lengths of pipes was incredible. Two to three people worked in the canoe with ropes attached to a pipe, part of which was then raised the 10m to the surface and cut into manageable lengths that were hauled ashore with much difficulty. To help raise the pipes to the canoe for cutting, the ropes were wrapped around canoe paddles for greater leverage. The strain exerted on these ropes was so great that they compressed the timber paddles leaving deep and permanent grooves. The amount of pipe removed, mainly because of the long lengths, would not have been possible without the aid of the modified canoe. Two shorter lengths of pipe remain to be recovered. This can be done with the aid of air bags.

One curious thing that amazed everyone was that although the pipes had been submerged in the lake for 20 years or more, they were in remarkably good condition with little rust, while 60 litre oil drums disintegrated on touch. In fact, where lengths of pipe had been joined using screwed sleeves, these joints, in most cases could be un-screwed with little difficulty. It did appear however, that most of the zinc coating had been dissolved from the outside of the pipes. Most pipes had air trapped inside.

The most distasteful part of the cleanup was the removal of timber debris from the lake. The timber

was extremely heavy and covered with slime. Most of the recovered timber was removed from the cave in polyester agricultural bags. The area where the timber was brought ashore, broken up and bagged was badly stained as a result of this activity but as it is where most people congregate for swimming and diving operations, the area should be eventually cleaned. This proved to be so, as the area was much cleaner when the author had the opportunity to re-visit the cave four months later.

A quantity of timber remains underwater for later removal. Unfortunately, it appears to be all below snorkel depth.

During the course of the cleanup, it was estimated that about 80% of the rubbish was removed from the cave. Time and depleted energy reserves did not permit completion of the project. That must be left for other like-minded people. Go to it....

### ACKNOWLEDGEMENTS

As with any major undertakings, assistance, both active and passive is required lest the project fail to materialize. The Weebubbie Cleanup was no exception and due to the tremendous physical effort involved, all participants have more than earned the right to have their names associated with this paper. No less a right goes to those who lent equipment. My grateful thanks to one and all for a tremendous job well done.

#### Participants - passive

Jim McKenzie - SRCWA	Datsun Truck
WA Water Authority	Custom tripod and lifting equipment
University of W.A. - Botany	Diving compressor (not used), wet suit
- Physics	Plumbers vice
Eucla Roadhouse	Hacksaw and pulley
Eucla Police	Additional rope

#### Participants - active

WAIT Outside Club	Alan Noonan - diver
Action Outdoors Association	Beverly Foden Julian Yates Steve Allen
Mofflyn Child & Family Care Services	Cecil Holmes Ivan Managhetti
SRCWA	Marjorie Sargeant Duncan Sargeant Nicholas Christodoulou
(at camp)	Robert Poulter Norman Poulter
(at camp)	



# The Acid Test

by STEVEN BROOKS

The Acid Test: Using diluted Hydrochloric Acid to clean vandalised cave formations.

The date: Weekend of 14/15 March 1987.

The Location: The south west of Western Australia.

The Caves: Giants, Nannup and Winjans.

The Personnel: Rauleigh Webb (Vice-President of W.A.S.G.) Steven Brooks (W.A.S.G. Committee member) Rob Foulds (W.A.S.G. Secretary) Rob Klok (C.A.L.M. Ranger).

The Aim: Both Giants and Nannup are open caves, Giants in particular being badly affected by vandalism of a gross nature, that is, most formations having been destroyed altogether. Nannup has suffered greatly from vandalism of a lesser, though no less distressing nature. It is mainly that of discolouration of some of its most impressive formations, chief of these being The Pulpit. Winjans is a locked cave of impressive beauty and delicacy that suffered some minor vandalism deep in the cave. The two open caves were used as test sites before the acid was to be used in Winjans, the final objective of the exercise.

## GIANTS

The procedures to be used in removing graffiti were established on Saturday 14 March in Giants and Nannup. In Giants the graffiti had been written on the wall using candle soot. A plastic spray bottle was used to spray the diluted acid, estimated at one part highly concentrated acid to ten parts water (1 molar), directly onto the graffiti. All present, including several spectators from T.C.C. (Tasmanian Caving Club), were gratified to see the graffiti start to dissolve at the first application. The acid was washed away by liberal dosages of water as each section was finished.

While Rauleigh, the two Robs and Eva Hart (an interested W.A.S.G. member) continued with the graffiti removal, the two Tasmanians, myself, a second C.A.L.M. Ranger and Barry Tibenham (both along to observe the procedures) delved further into the cave to show it to the visiting Tasmanians and observe route markers installed by the rangers during work improving the cave for casual visitors.

On our return we found that all of the graffiti, bar a few stubborn spots, had been removed and that they were waiting for Rob Foulds to return

from the surface with more water, the supply of which has proven to be the greatest problem in this activity. With the application of more acid, again sprayed directly onto the few remaining marks, and the use of scrubbing brushes, the party was satisfied that the marks were now all but invisible. We henceforth returned to the surface to lunch at the Lake Cave Kiosk.

## NANNUP

The second test of the acid was originally intended for Golgotha, where a particularly bad instance of candle soot graffiti had defaced that caves' most remarkable feature, The Sentinal. Due to unforeseen problems ie: a bushfire, we had to proceed without the assistance of Rob Klok, who was to supply the key to the said cave. Lacking the key to gain access to Golgotha, it was agreed to proceed to Nannup and test the acid on various formations in that cave.

Remembering the problem with water at Giants, we decided to carry a considerable supply into Nannup cave, consisting of a 20 litre backpack spray and two 20 litre containers. The difficulty of carrying these containers, even into an easily accessible cave such as Nannup, was prohibitive and an easier method will have to be found for future restorative projects.

Work proceeded inside the cave with tests firstly on a large area of defaced flowstone and thence to a pillar and several stalagmites. Much of the writing, obviously recently applied in many cases, was washed away easily with only a single application of acid. On one pillar however, we found that the dirt and soot had been present for so long, that it had become embedded in the calcite itself. Because of unacceptable damage to this particularly fine pillar, we decided to discontinue work there and moved to The Pulpit, where we worked for the rest of our underground sojourn.

The Pulpit had been badly affected by dirt and mud, it being particularly attractive to climbers. The once shining surface had been blackened almost completely and the formation hanging directly above The Pulpit had been the target for considerable name signing, since the late 1800s. It is quite possible that the original graffiti had encouraged further name signing, merely for the egotistic pleasure of having ones name associated with such early explorers. Considerable debate was conducted as to whether we should remove this

"Historic graffiti" in the hope of discouraging further defacement but the majority of the party, which included our two Tasmanian visitors and Eva Hart, decided that the issue was too controversial to be settled on the spot and these particular items of graffiti were left alone.

Attention was then turned to The Pulpit itself. After liberal applications of acid and water the surface was returned very close to its original colour. After further experimentation with water and scrubbing brush, it was discovered that much of the dirt could be removed without the aid of acid, that being reserved for only the stubborn and possibly calcified lower layers. The major problem was, as in Giants, a suitably large water supply to wash away and dilute the acid to a safe concentration. Well satisfied with the days work, the party returned to the W.A.S.G. hut for the night.

### WINJANS

Winjans was to prove both the easiest and most strenuous of all the caves cleaned. Because of the constriction and level of delicacy of the cave it was impossible to carry a large supply of water in with us. Two 2litre and two 2.5litre plastic bottles, one containing the acid, were all that we considered both safe and necessary. Considerable care was taken transporting the acid, it was passed from hand to hand across the more difficult stretches.

Finally, after an hours careful travel and some drama when one member of the party (who shall be forever unnamed), found himself clinging precariously above a dark chasm of unknown depth, we reached the scene of the vandalism only to find, to the surprise of all, that the graffiti was far less permanent than was supposed. The flowstone was only lightly scratched rather than being carved deeply, as was first thought. Most of the graffiti, which consisted mainly of calcite powder from whatever had been used to write the letters, was washed away using water. After a short scrub with a brush, the graffiti was effectively removed. The acid was taken back to the surface unused.

### CONCLUSIONS

That the use of Hydrochloric acid to restore vandalised cave formations is a viable possibility and, after a period of observation in Nannup to assure that no serious damage occurs to the cave, that further restorative work should be carried out wherever necessary.

#### Further notes:

1) The exact concentration of the acid was not considered to be vital, as long as the concentration

was kept reasonably low and the acid was washed away with copious amounts of water after each application.

2) A photographic record should be made before and after each restoration project both for the benefit of caving clubs and education of the public.

3) Guidelines should be established regarding so called 'Historic Graffiti' and its removal.

\* \* \* \* \*

## Rope from behind the Iron Curtain

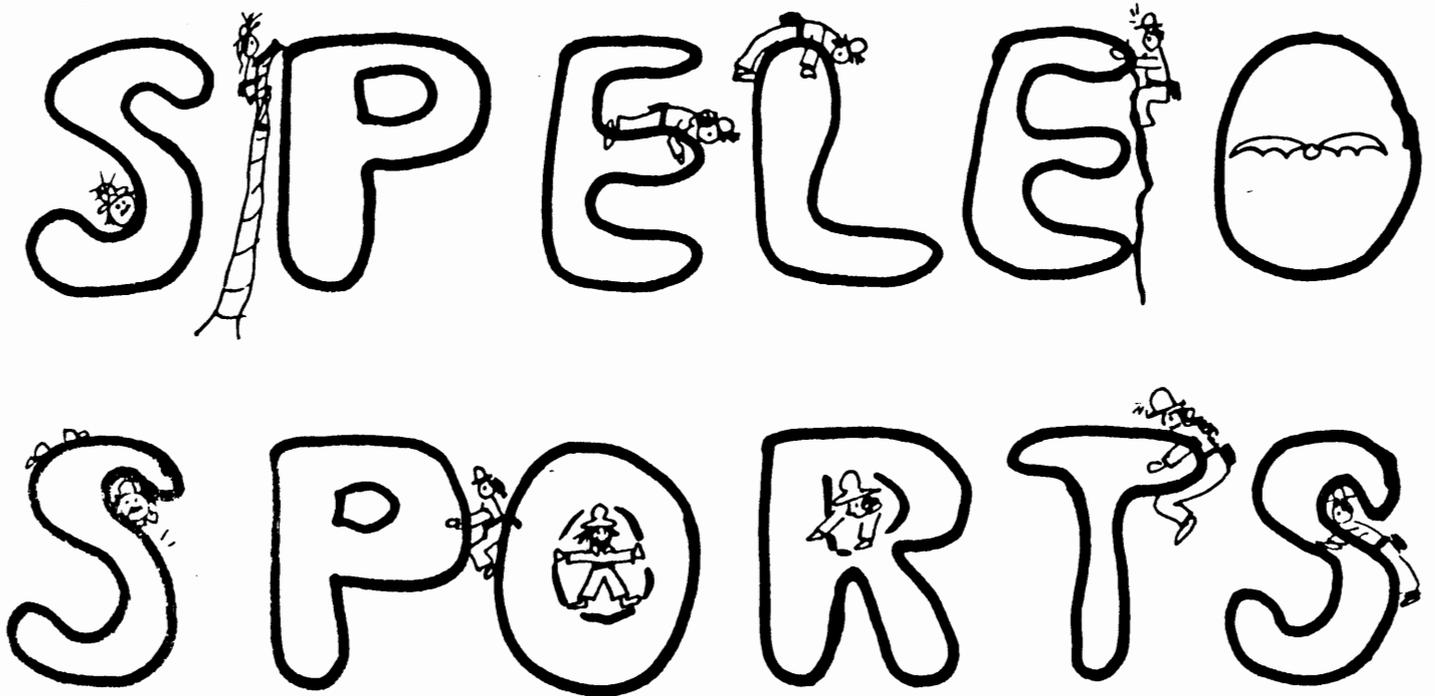
by Peter Ackroyd

During March and April 1987, seven members of Česká Speleologická Společnost (Czechoslovakia) suffered four weeks of pretty foul weather on top of Mt Anne's north-east ridge. At the end of this they crashed at Stuart Nicholas' place for a week of recovery and sight-seeing. They had half a kilometre of rope which they had brought all the way from Czechoslovakia and which they donated to TCC. I had an opportunity to examine this rope in late April 1987.

Specifications: 10mm diameter, kern mantle construction, made of nylon (?).

Description: The mantle is a very tight 22 strand plait. The kern is quite unusual. It consists of three separate elements. Two of these are loosely braided (12 strand) ropes taking up almost half the kern each. A single strand is squeezed in on one edge of the kern, at the meeting point of the two kern ropes. Presumably the single strand is to fill out the mantle to the full diameter.

Assessment: The rope is very rigid due to its very tight mantle, and is probably very good to prusik on. It maintains a very irregular diameter which could cause abseiling difficulties. The tight outer weave should give the rope good abrasion resistance but the trade-off is poor handling and knotability.



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