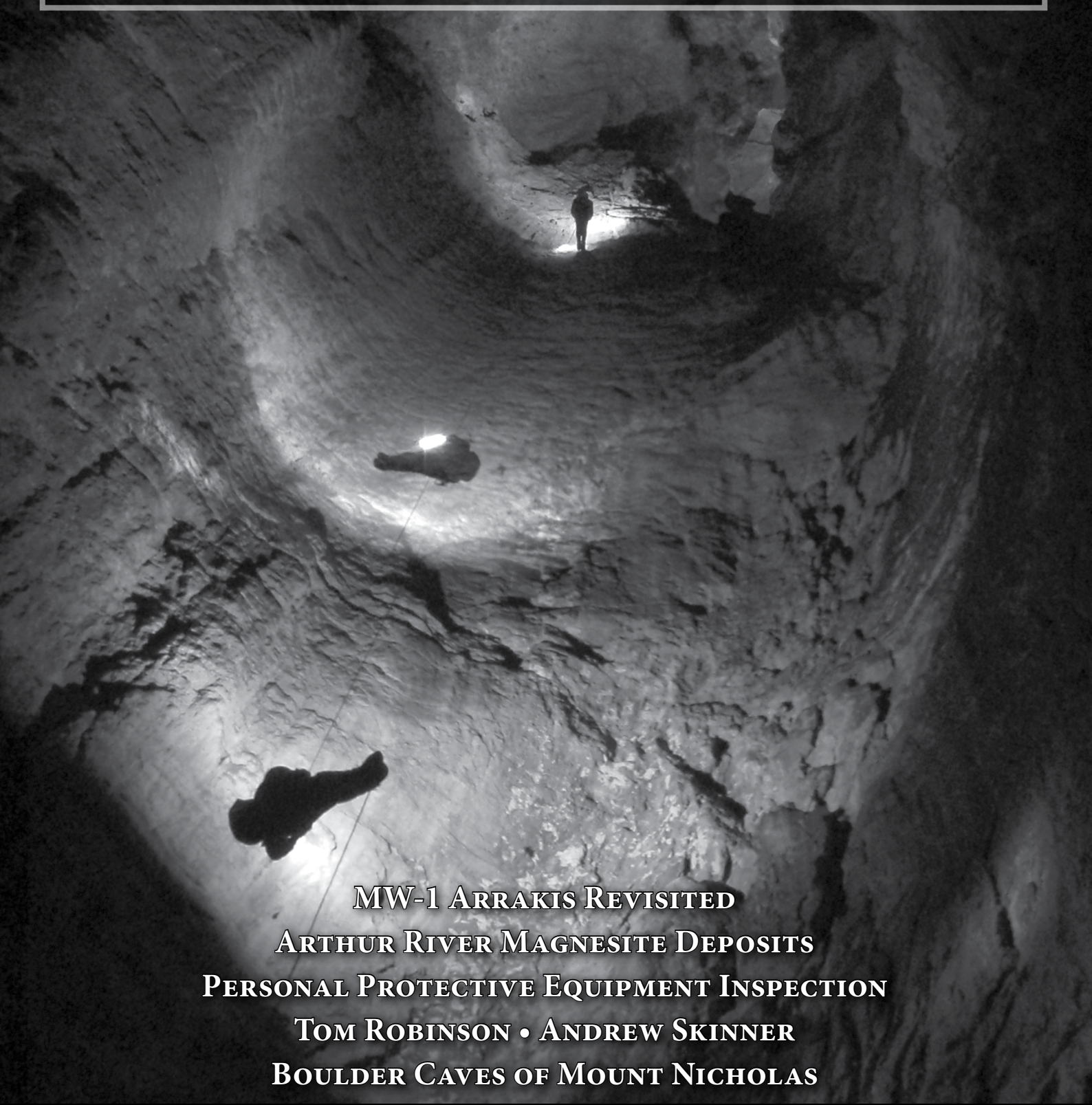
CAVES AUSTRALIA

The Journal of the Australian Speleological Federation



MW-1 Arrakis Revisited

Arthur River Magnesite Deposits

Personal Protective Equipment Inspection

Tom Robinson • Andrew Skinner

Boulder Caves of Mount Nicholas

No. 186 • SEPTEMBER 2011

New editor for *e-speleo*

IAN CURTIS

MEET Ian Binnie, the new editor of *e-speleo.* **Ian caves with Highland Caving Group (HCG) and was previously a member of the Macquarie University Caving Group (MUCG) for some years. Ian is now retired but in a former life was a telecommunications planner, working for Optus. He was a planner for the 3G phone network.**

Caving and computers seem a good match for Ian who, under interrogation, confessed to Tuglow being his favourite cave and to '… just like being in caves … the magic takes over.'

Ian foresees little change in *e-speleo,* and is planning to bring out four issues a year, to come out between the *Caves Australia* issues. Contact Ian by email at speleo@binnie.id.au

Cliefden Caving

CLIEFDEN CAVES are located on the picturesque Belubula River between Orange and Cowra. The area contains the first limestone discovered in colonial NSW.

The Cliefden Caves are on private property (three properties) and have been accessed through the Orange Speleological Society (OSS) since the late 1950s. There are well over 100 numbered features. The caves, mostly horizontal, range from the straightforward to the utterly confusing. Refer to the *Australian Karst Index* 1985 for more cave information. Significant caves are gated.

To visit the area contact OSS (P.O. Box 752, Orange 2800) well in advance or telephone the Cliefden Coordinator (currently Denis Marsh 02 6365 8330), to check available dates. You will be sent a Visitor Request Form where you give details of your proposed trip: who will be coming, when, and what you would like to do. An OSS representative will liaise with the property owners for permission before advising conditions for access.

IAN CURTIS

There is a cavers' hut (The Cliefden Hilton) which has cooking facilities, water for washing and showering, toilet, an open fire and eight bunks. A small fee is paid to OSS for hut maintenance. In addition a small levy is paid to the property owner to cover electricity if camping over. It is possible to camp around the hut, which is situated on a working sheep station. Visitors are reminded that the Central West can be extremely cold in winter and hot and dry in summer.

The caving area is only open to members of ASF clubs.

COMING EVENTS

This list covers events of interest to anyone seriously interested in caves and karst. The list is just that: if you want further information the contact details for each event are included in the list for you to contact directly. The relevant websites and details of other international and regional events may be listed on the IUS website http:///www.uis-speleo.org/ or on the ASF website http://www.caves.org.au. For international events, the Chair of International Commission (Nicholas White, nicholaswhite@netspace.net.au) may have extra information. This list only covers events in 2011 and the first half of 2012.

On the other hand 2013 looks very busy with the next ASF Conference TAGalong in January at Galong NSW, the ACKMA Conference in May at Waitomo Caves, NZ and the international (UIS) congress in July at Brno, Czech Republic.

2011

September & October

Jenolan & Wombeyan Caves Volunteer Weekends, 2011: Sycamore War 3-4 September, 29-30 October & Wombeyan Weed Whacking Weekend 17 & 18th September Registration is required. Details were published in the last *e-speleo.* Contact: Trish Kidd, NPWS Oberon (Trish.Kidd@environment.nsw.gov.au) Ph: 6336 1972 Mob: 0423 527 740.

November 25—26

Centre for Gippsland Studies. Monash University, Churchill, Victoria Gippsland Environments and Human Interaction: Past, Present and Future (Workshop and Conference).

2012

January 7

ASF Council Meeting, Bankstown Grammar School, Sydney.

May

ACKMA Annual General Meeting, Wee Jasper, NSW.

Jenolan Cottage Association Inc

FOR OVER 23 years the accommodation costs for staying in the cavers' cottage at Jenolan have remained the same, but now we have to increase the fees.

Following the Association's annual general meetingon 12th July, 2011 it was decided that from 1st August, 2011 the fees would have to increase as follows:

- Subscriber clubs will pay $160 in deposit and $40 per weekend and $15 per additional day.
- Casual clubs/users will pay $50 per weekend and $20 per additional day.

Improvements have been made over the years and include a new bathroom, a new roof, improved barbeque area and a slow combustion heater in the fireplace, amongst other things.

Water and electricity are increasing in cost and our accounts were "in the red" at the end of this financial year.

J Bonwick
Chairman
G Matts
Treasurer

CAVES AUSTRALIA

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ASF

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Cover: Pitch 1, MW-1 Arrakis, Tasmania. Photo by Matt Cracknell

ASF Executive

EDITORIAL

THE ASF Conference at Chillagoe was a resounding success. Energetic cavers enjoyed swimming and wading through flooded towers, flying over them, viewing Aboriginal rock art and poking around old industrial ruins and cars – never a dull moment. Steadier club delegates and mature speleos found the informality refreshing and conducive to the business of conferences. The town enjoyed us and we enjoyed the town. Well done, Chillagoe! Well done, Chillagoe Caving Club!

Stan admits in his President's Report to feeling humbled when reading through the ASF Awards. Flicking back through the past few *Caves Australia* I agree with his sentiment. I read of club members - ordinary Joes - fearlessly standing up to councils and powerful interests intent on exploiting karst; I read of lawyers and geologists freely giving their time and energy defending limestone; I read of club members selflessly putting up shelves, cleaning out tips, working on databases, advising government departments and helping farmers; even, yes even, writing trip reports.

Nicholas White (VSA) submitted the following. It serves as an example of ASF at its best.

'In *Caves Australia* #180, there was a Conversation on Conservation article on the WA and Federal governments' proposal to nominate Ningaloo Reef and the Cape Range for listing as World Heritage. In June 2011, the Ningaloo Coast was granted World Heritage listing by the UNESCO World Heritage Committee. The area includes the spectacular Cape Range with its many caves and very significant cave fauna. The listing was based on Criteria 7 and 10 for the area's superlative natural phenomena, its habitat value and biological diversity. This includes recognition of the karst values, both geological and biological. ASF played its part through successfully objecting to mining and assisting with the discovery of the cave biota. It remains for cavers to be vigilant that the management protects these cave and karst values in an area with increasing tourism and population pressures as well as offshore oil exploration.'

President's report

AS AGING bones feel the slowing effects of a winter morning I am glad that I am still able to write and read of the gratitude and satisfaction that speleology brings to each of us.

We are a collection of people who are passionate about pushing the boundaries and the inner landscapes of caves as well as minimising the impact of cave destroyers.

In this issue of *Caves Australia* I have summarised the recipients of the Awards as announced during the recent conference in Chillagoe. It is heartwarming and humbling to read and write brief snapshots of people whom we recognise and in a special way say thank you to for their individual contributions to the understanding of processes and environmental factors affecting caves.

I will pay tribute to the multitude of not yet recognised cavers who use their skills, time and money to find and explore the gaps in the ground and the gaps in our knowledge. Keep up the good work

One might ask what is happening in the world of speleology in Australia? I would say much and refer to a club library that contains documentation of trips and reports and membership reports and summary of meetings and be convinced that speleology is far from a dead science and caving is not just a pastime of us oldies. I see families joining in on trips. I see cave managers working with cavers to better manage and make cave access and interpretation safer and more information-rich. I see new cave discoveries jumping out of pages to thrill fellow hunters. I do see the passing of notable people and I do see the announcements welcoming new members in most clubs around the country.

On a long weekend in June I went on an exploration and reconnaissance trip to one of my favourite cave-rich sites in the Flinders Ranges and found new caves, looked for lost caves and explored caves that had changed form over the previous 20

years. It was a time of contented fulfilment that each of us share, and not because we are coerced into caving, but more that desire is in our blood that will not leave us.

The politics of ASF is necessary. The delays and frustrations of a system that relies on a mixture of characters in different stages of careers and different States working in this big country in their spare time may seem unacceptable to some but I say the job is being done well. I commend all of the Executive and Commission members for the tireless work they do. ASF is in a strong place and is moving forward to meet the needs of a changing community and a shrinking world.

Winter is a good time to go caving, either because caves are relatively warmer than their icy surrounding or you are lucky enough, like me and others, to have travelled north to a warmer place.

There is no one ideal or model caver in Australia to aspire to be like. ASF is the ordered and yet random assortment of unique colours on the painter's palette. The picture we paint to the world is rich with the same diversity of the colours of the Australian landscape. Appreciate the diversity and harmony that can exist between us.

Let us get down and dirty,

In Caving
Stan Flavel

WANTED ARTICLES FOR *CAVES AUSTRALIA!*

Whether caving, cave diving or generally just caving, *Caves Australia* readers are interested in YOUR story.

It is only with YOUR contribution that we can produce a quality magazine for all to enjoy. For writing and style guidelines, contact the Editor or Production Manager for further information.

MW-1 Arrakis revisited

STC returns after 20 years

Janine McKinnon
STC

ARRAKIS is a dolomite cave located on the north-eastern slopes of Mt Weld, in South West Tasmania. I'm not sure about its original discovery, but it was lost, and then rediscovered on 13 July, 1985.

Considerable effort went into the exploration and surveying of the cave in the following two years and three maps were subsequently produced by the Southern Caving Society in 1988. The cave was then pretty much left alone and forgotten.

The cave, and all nomenclature within it, comes from Frank Herbert's novel *Dune* as a reference to the difficulty of obtaining water when camped near the entrance (Arrakis is a desert planet).

The Arrakis doline is huge. It is also a very impressive and beautiful entrance. A 20 m wide arch covered in saplings and bushes separates two collapses and the steeply dipping doline floor is a forest of tree ferns. Just out of the daylight zone, but still in a passage of huge dimensions, there is a 68 m drop (Gom Jabbar Pitch). The cave continues steeply from the bottom of Gom Jabbar Pitch with a couple of short pitches until a final 8 m climb and then a low grovel to its termination at -236 m.

In early 2009 one of our keen young members had been reading through the club archives and developed a desire to "do" Arrakis. After several months of nagging on her part, we finally got a group together in November 2009 to walk the track to investigate what would be needed to visit the cave.

The walk starts along an old abandoned logging road, and so now it is a walk through mud and cutting grass *(Ghania grandis)* for the first one and a half hours. Then it gets a bit better as you climb through the rainforest to the entrance. The walk to the entrance doline took about three hours with day packs. So a full assault with caving gear was going to be a bit slower — definitely a weekend camping trip with camping gear AND caving gear to carry, making the walk in slower still. We went home to think about it.

JANINE McKINNON

Arrakis — the camp and the entrance

We thought for quite a while, and eight of us returned in mid-December 2010.

The long-talked-about trip to Arrakis finally got underway at 6:30 am on a pleasant Saturday morning. The weather report for the weekend wasn't that flash, but as water was probably going to be a bit of an issue at our proposed campsite at the cave, we thought a few rain showers would be good.

The two cars rendezvoused at Banjo's bakery in Huonville, loaded up with coffee, muffins and breakfast, and then convoyed to the trail head. We noted that both forestry gates were padlocked open.

After the distribution of group gear and the consumption of festive home-made chocolate-covered raspberries and shortbread, we headed off into the *Ghania* at 9 am. The track was as unpleasantly muddy and *Ghania*-shrouded as I remembered for the first one and a half hours until the first major creek. It improves a bit from there to Trout Creek half an hour later. This is the last surface water before Arrakis. It then took just over an hour to get to the Arrakis doline. Old trip reports talk of the slightly less than two-hour walk in. They were either very fast, or the track has deteriorated a lot in the intervening 25 years. A bit of both, I think.

We set up camp with several of us bivvying under the overhang in the doline and the rest setting up tents, bivvies and a couple of hammocks nearby.

The group then split into two for the activities for the weekend. Five of us were rigging and bottoming the cave that afternoon. The others were going surface trogging and doing the cave Sunday morning, de-rigging as they exited.

I was kitted up and started to rig the entrance pitch at 1:30 pm. Alan was showing off his shiny new trog suit and the others were kitting up at a more leisurely pace, expecting to be waiting a while before they started down.

Alan was ready to go by the time I had the pitch rigged and he followed me down to the obvious spot for the installation of the safety line needed to get down Selamik Chamber to the pitch head without risking slipping to one's doom.

The cave was originally rigged with spits, and so these were now more than 20 years old. Two sets had been put in on the big pitch (in different locations) over a couple of years, and so, despite their age and questionable safety, we were going to try to use the second set, put in on the left hand wall, rather than install more bolts.

All went well until I started the approach to the top of the big pitch, at the low point of the doline. Then I struck a problem. Without spending pages in lengthy explanations, I had basically misinterpreted the description of the approach to the big pitch in old trip reports. I ran out of rope on the safety line I

JANINE McKINNON

Alan and Amy in camp

JANINE McKINNON

Jane on pitch 1

JANINE McKINNON

Matt enters Selamik Chamber

was on long before I got to the pitch head. I discussed this with Alan, who was following behind me, for a few minutes and we decided to use the 10 m rope I had brought for a climb at the bottom of the cave just in case it really needed a handline. I tied it in to the safety line and was off again. I aimed for the left-hand side where the most recent bolts were placed but I still had insufficient rope to get across to there. I also didn't really like the look of the approach or the presumed rigging point. I went to a small gully on the approach line and ran out of rope again.

Alan and I had one of those shouted discussions over 40 m and then I tied on the 76 m rope for the big pitch. I looked again at the rigging point options from the previous trips and didn't like them much at all. That really just left the right hand wall. This actually looked pretty good to me, albeit from a bit of a distant vantage point. So I found a safe spot, got off rope and called Alan down for a second opinion.

As he was on rope when he reached me, after a brief discussion, he headed to the ledge above me on the right hand wall to have a look. The ledge itself is a little 'airy' near the end, without a traverse line, but it led to a good site for rigging the drop — a much better takeoff point than either of the two previous sites used. Why they hadn't used it originally I don't know.

Plans were back on track then. Good. I came up and we started looking for somewhere to rig a backup/traverse line to get to the proposed pitch head. This took a long time. We couldn't find anything trustworthy. Loose rocks, crap rock, no threads. We were desperately trying not to put a bolt in but hopes were fast fading …

Meanwhile, the others were waiting further up the doline, probably gnawing off the less necessary bits of their anatomy for stimulation, as they waited interminably.

Just as we were about to admit natural anchoring defeat and put in a bolt for the approach line, Alan found a rock jammed solidly at the back of a small alcove. We both checked it carefully and declared it good enough. Forward movement was on again. We rigged this fairly quickly and moved out to the end of the ledge to decide on bolt placement. This was fairly quickly achieved and I put in one bolt. Alan occupied himself doing some gardening whilst the bolt was going in. He cleared the worst of the loose stuff but it was still a ledge to be treated with rock-kicking respect.

The rebelay bolt went in fairly quickly after and then I was finally away on the big pitch. We weren't sure if we had much spare rope so I put in a really tight loop, or lack thereof. At the bottom I found we had a few metres to spare so Alan re-jigged the rebelay

on his way down.

The others started down to the pitch head while Alan and I moved on down the cave. They caught up to us looking for the crack from which we were supposed to rig the 3 m pitch. After finally finding it, it was declared the wrong size for the nuts we had and a bit dodgy anyway, so we put a bolt in above the drop.

On down to the next pitch. This has a corroded old spit that is only part way into the rock. This is totally unnecessary as there are three good naturals in very convenient spots, so why anyone put in the effort, with a hand drill, remember, to place this spit I have no idea. As it is only part-way in, I wouldn't trust it anyway.

Luckily the 8 m climb proved to be very easy so we were all able to get to the chamber at the bottom where the stream comes in. (We had used that rope much further back, remember.) We headed downstream first with all of us going almost to the end of navigable passage. Then we went upstream to the end of the easy going stuff.

The trip out went easily. Alan and I had decided that a second bolt on the pitch head of the 68 m pitch was a better idea than the single one we had put in, and so he re-rigged the pitch at the rebelay to give us the extra rope at the top. We had seen that we had enough — just.

It's interesting to see how attitudes change over the decades. Back in those days we were quite happy with a single spit anchor on a big pitch and now we want two 8 mm x 90 mm throughbolts to feel safe.

Alan waited at the pitch head for me as the others went out and then we decided where to put the second bolt. As usual, the best place was out of my reach for manipulating a drill, and so Alan put in this bolt. We re-rigged the pitch head so that the next day's group would have the mental reassurance of two bolts at the primary anchor.

I headed up last and was out at 7:30 pm after a very enjoyable but inefficiently slow trip.

Amy was cooking dinner for us, which was a wonderful treat. All I had to do was get changed, get a glass of port from Tony (who had carried in a small cask!) and start eating the pre-dinner nibbles people had supplied while I waited for my tuna and lentil dinner to be ready.

How did we do for water? you ask. One of the others did a 90-minute round trip back to the last creek in the afternoon to get some, but this proved to be unnecessary as it drizzled most of the time we were there. This turned out to be a good thing as we set up water collecting systems on our tents and fly sheets and thus had plentiful supplies.

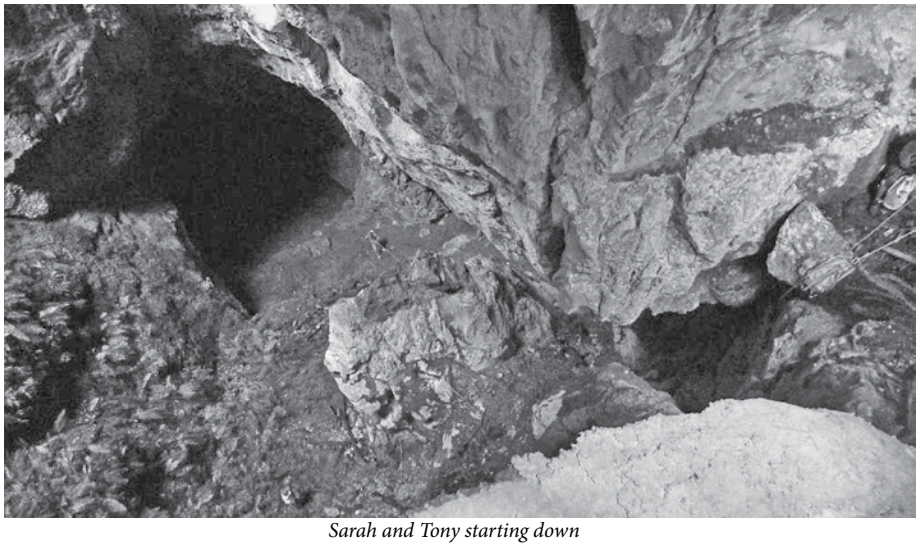
The following day the second half of the group bottomed and de-rigged the cave, and we repeated their Saturday afternoon activity of forest wandering. Many interesting potential caves were noted during these wanders which warrant a return when the enthusiasm can be mustered.

We all slogged our way back out along the track again in the afternoon.

Party members: Serena Benjamin, Matt Cracknell, Sarah Gilbert, Alan Jackson, Janine McKinnon, Jane Pulford, Ric Tunney, Amy Robertson, Tony Veness, Geoff Wise.

JANINE McKINNON

Looking up Selamik Chamber



JANINE McKINNON

Sarah and Tony starting down

Chillicon 2011

Wendy Lander
CCC

The quiet town of Chillagoe in far north Queensland was filled with the hustle and bustle of Chillicon for the week 17th to 22nd of April. This conference was hosted by the Chillagoe Caving Club with Alan Cummins acting as co-ordinator.

It started off with a welcoming BBQ Sunday night. This gave us a chance to meet other participants and get our bearings within the 3 or 4 streets between accommodation and the town hall of Chillagoe.

Each day there were many and varied speakers on a broad range of topics, all pertaining to the caving environment. These presentations took place in the town hall which was within walking distance of, well, everywhere.

Scrumptious morning teas, lunches and afternoon teas were enjoyed by all and provided by local caterer, Andy. There were also workshops and demonstrations at various locations, local history tours, walks — an endless list of activities was available.

For those who enjoy caving every spare moment was filled with it. If people had enough energy there were day trips into the tourist caves, night trips and day trips into the wild caves.

We were fortunate to still have a lot of water in the caves which is unusual for the area, but swimming through passages was enjoyed by those from colder climates and endured by those of us from the tropics. Bbrrr. (I didn't want to look silly and wear my 10 mm wetsuit.)

The speleosports provided some interesting challenges and great merriment for onlookers as teams of three, joined together with approximately 1 m of rope space between them, tackled the course. There were some very interesting / compromising positions witnessed during completion of the individual challenges.

Wednesday night and we followed the candle-lit path, and gazed at the lit up bluff, before finding a seat under the white marquee for the Caveman's Dinner. Once again there was a magnificent feast provided by Andy, with music by local band Now or Never. There was much merriment and dancing enjoyed by all.

Polo shirt $25.00; cap $9.00; sticker $4.00; mug $12.00

Karabiner 8GB USB stick with conference logo and proceedings. $30; 8GB USB stick with conference logo only $25

Conference goers had the opportunity to take a flight over the area, with half-hour morning flights and evening flights as well as one-hour flights available. This was an amazing way to see the unique limestone tower karst and countryside.

For those who were unable to make it to the conference we have the proceedings on an 8 GB karabiner USB stick ($30) or if you would just like a novelty 8 GB karabiner USB stick ($25) there are some blank ones available.

There are also polo shirts ($25), caps ($9), stickers ($4) and mugs ($12) available. These will be posted to you anywhere in Australia for no extra cost.

Thank you to everyone who helped to make the Chillicon conference such a wonderful success. Without their efforts to join us from near and far or the people who helped in all aspects of creating this conference we would not have had such an excellent speleological event.

A message from Elery Hamilton-Smith

ELERY was absent from Chillicon and sent his apologies. This email was read at the Cavers' Dinner and received a standing ovation:

I am sorry that it is impossible for me to be at Chillagoe with all of you.

As many of you already know, I have spent a lot of my life as a researcher, educator and consultant on caves and cave protection, and for the last 15 years have spent a lot of time out of Australia. In the course of that work, I have visited caves in over 50 countries and have had all too little opportunity for caving in Australia.

I have reached that stage in life where I am overflowing with reminiscence and reflection. As much as I have found happiness and satisfaction in all my professional life, the simple caving which underpins my professionalism is the thing which I remember with most joy.

My first ever visit to Corra-lynn led me walking and crawling from one scenic delight to another. I came away with a great sense of scenic wonder and beauty. My memory is full of the great things I have seen and the sheer pleasure of gazing at the wondrous landforms of karst remains very much alive to me.

Photo needed

Of course my first visit to a truly spectacular surface was to Chillagoe in 1964 — and my last similar experience was a 35 km day walk along the Danxia of South China. But there are other great things – my solo walk from Uluru across the Nullarbor to the Head of the Bight gave me a great new sense of my own bondage to our land.

But it is not just what I have seen. There is a wonderful silence and peace sitting alone in the darkness of a cave; the musical sounds of running water; stunning patterns of crystal facets; the great companionship of exploration; and the evidence of our first people in their art and ritual sites, all of which have an aura of their own.

Again, Chillagoe is a wonderful place to see the art and to respect the meanings of the men's initiation site.

Words and photographs are not adequate to capture all of that. I only hope that the qualities which caving experiences have given to me are shared as much as possible through my work.

Commercial and Recreational Values of Magnesite Deposits near the Arthur River, NW Tasmania, Australia

John Wylie
SRCC

INTRODUCTION

An opportunity to visit the Arthur/Keith River magnesite karst for the first time with fellow members of Savage River Caving Club (SRCC), occurred on 10 February 2009, (Gray 2009), with a further trip to take photos on 28 and 29 March 2010, with Paul Darby, Lyndsey Gray and Greg Middleton. In light of the continued commercial interest in developing the magnesite deposits near the Arthur River, (http://www.bhrplc.com/projects/Tasmania/Tasmania-Magnesite.html), although present drilling is in an area where no known caves exist (Ford 2011, Kempton 2011), it is still important to continue working to protect this magnesite karst system.

When I contacted Ian Houshold seeking literature on the magnesite deposits, he indicated it would be very useful to have a comprehensive chronological review of events in the area — hence this report.

I have probably not exhausted every avenue in putting this chronology together, although I believe that the most important publications have been picked up. Further, most of the referenced items have their own comprehensive lists of relevant literature relating to the magnesite deposits, that could provide further useful reading.

A visit to the area, particularly the Central Creek karst, is an easy day trip, and anyone with a passionate interest in unusual karst landscapes, should certainly put this area on their 'must see' list.

Members of SRCC would be happy to assist interested ASF members to visit the area provided arrangements were made well in advance.

WORLD MAGNESITE DEPOSITS

Magnesite has been forming since Archean times with major magnesite deposits occurring in the Precambrian (Schroll 2002). The world's economic magnesite resources are estimated to be about 8600 million tonnes with China having the largest deposits followed by Russia, then North Korea, and Australia fourth, with workable deposits of magnesite in every state of Australia except Victoria, (Geoscience Australia 2011). A geological report, *Magnesium, its Alloys and Compounds* (Kramer 2001), including the history and the massive growing demand globally for magnesite, makes interesting reading.

AUSTRALIAN MAGNESITE DEPOSITS

Tasmania has the third largest demonstrated resource of magnesite in Australia (195 million tons), with South Australia the largest (344 Mt), followed by Queensland (Towner 2009). States have put out detailed reports on their magnesite deposits: South Australia, (Ludbrook 1980, McCallum 1990); Queensland, (Gnielinski 2010, Jones 1995); Tasmania, (Bacon, *et al* 2008); Northern Territory (NT Dept of Mines & Energy 1998); Western Australia (Abeysinghe 1996); New South Wales (Brownlow 2006); and Victoria (McHaffie & Buckley 1995).

KARST DEVELOPMENT IN MAGNESITE – AN UNUSUAL OCCURRENCE

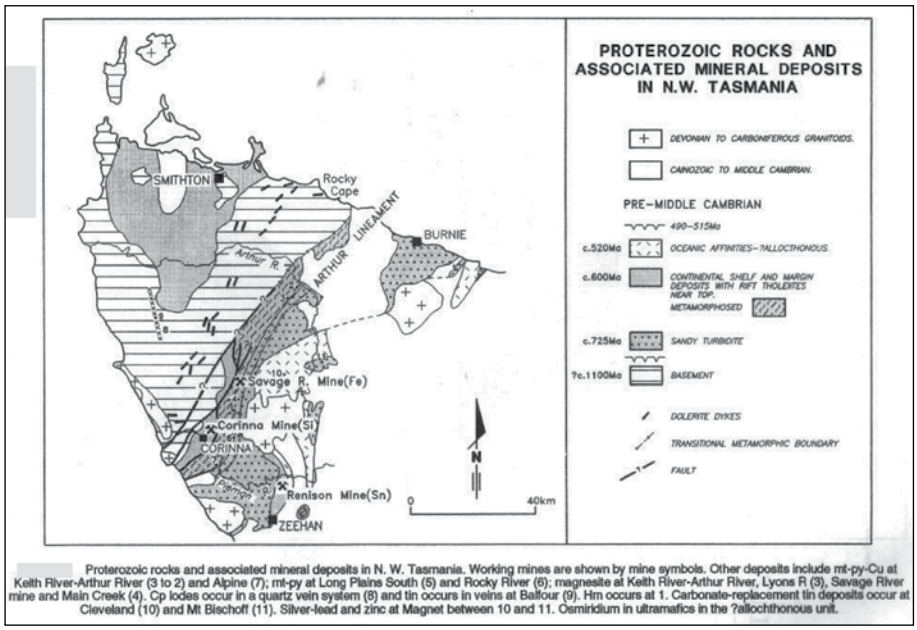
Caves and karst features in magnesite appear to be unusual (Kiernan 1995a), with few documented. There is at least one significant cave in Slovakia around 73 metres long (Houshold *et al* 1999 p. 22).

GREG MIDDLETON

Lyndsey Gray among Karst spires Lyons River

The only other literature since found on magnesite with caves relates to some in England. Ric Halliwell of the Craven Pothole Club provided a number of publications on English magnesite caves (Anon. 1974, Anon. 1978, Anon. 1979, Lowe 1974, Gibson *et al* 1976, Speight 1987), with one cave, Smeaton Pot, being extended in the '90s, to 295 m long and 35 m deep (Shooter 1994) after Ric and Pat's recent speleological trip down under (Halliwell 2010, Wylie 2011).

DISCOVERY OF MAGNESITE IN TASMANIA



Proterozoic rocks and associated mineral deposits in N. W. Tasmania. Working mines are shown by mine symbols. Other deposits include mt-py-Cu at Keith River-Arthur River (3 to 2) and Alpine (7); mt-py at Long Plains South (5) and Rocky River (6); magnesite at Keith River-Arthur River, Lyons R (3), Savage River mine and Main Creek (4). Cp lodes occur in a quartz vein system (8) and tin occurs in veins at Balfour (9). Hm occurs at 1. Carbonate-replacement tin deposits occur at Cleveland (10) and Mt Bischoff (11). Silver-lead and zinc at Magnet between 10 and 11. Osmiridium in ultramafics in the ?allochthonous unit.

Turner et al. *1992. Geology and prospectivity of the Arthur Mobile Belt.* Bull. Geol. Surv. Tasm. *70:227-233. [pp232]*

The first known deposit of magnesite in Tasmania was reported by Government Geologist P.B. Nye in 1925 who also noted caves in the magnesite: "It outcrops boldly in huge irregular bodies, in and between which tortuous passages, caverns and caves, occur." (Nye 1925).

An earlier geological report (Waller 1902), certainly acknowledges magnesia, vughs, cavities of considerable dimensions and warm springs in the vicinity of the Victory Mine, and in 1925 on testing grab samples, the dense fine-grained mineral was found to be magnesite (Nye 1925). These would certainly be the first known caves in magnesite in Australia, and the only ones reported to date in the Southern Hemisphere.

THE COMMERCIAL AND RECREATIONAL VALUES OF THE MAGNESITE DEPOSITS

It was only a matter of time before the magnesite deposits of North-West Tasmania would become of commercial interest, and this was realised by the Mines Department back in 1925 when a pulp paper mill was being contemplated (Nye 1925).

Substantial deposits of magnesite were noted in 1989 (Turner 1989 p. 6) within the tectonic feature now known as the Arthur Lineament, also referred to as the Arthur Metamorphic Complex (Turner 1989 p. 22). It is further briefly described in another article on the potential of the Proterozoic rocks of North-West Tasmania (Turner, *et al* 1992).

CONSERVATION STIRRINGS

Efforts towards preserving this area started back in the 1960s (Pullinger 2004) and since then environmental groups (The Wilderness Society 1992, (Konkes 1996), have been lobbying for the saving of the area generally from the Arthur River in the north to the Pieman River in the south, and from Sandy Cape on the West Coast to the Murchison Highway in the east, with the magnesite deposits falling near the middle of this magnificent wilderness area that has become known as the Tarkine (Brown 1995).

GEOLOGICAL/ GEOMORPHOLOGICAL AND SPELEOLOGICAL REPORTS, 1925—2011

Our understanding of the distinct landforms and drainage of karst is constantly improving, requiring people with expertise in the relevant fields such as geology, geomorphology, hydrology, climatology, biology, palaeontology, archaeology and speleology to continue their studies and document their findings. This progress has been particularly evident in relation to Tasmania's magnesite karst.

1925

The Tarkine geology/geomorphology is complex, and has been studied and reported on by a number of people over the decades since at least 1925 when Nye compiled his report for the Department of Mines (Nye 1925).

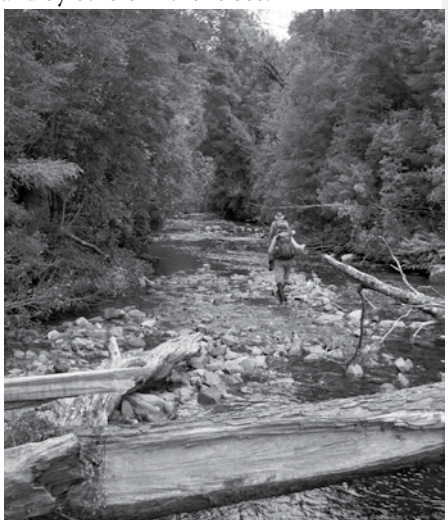
GREG MIDDLETON

Paul Darby on Magnesite on Central Creek in cool temperate rain forest

There are six main magnesite deposits, divided into two areas. In the South these are on Bowry Creek, Main Creek and Savage River, and in the North, on Lyons River, Keith-Arthur River and Central Creek (Calver 1999, Sharples 1997). Other minor deposits have also been noted (Houshold *et al* 1999).

1934

The relatively remote geographical location of the Arthur River magnesite deposits has prevented their becoming a viable proposition since their discovery in 1925, although there were occasional signs of interest, such as indicated by Nye, *et al* (1934), and by others in the 1960s.



GREG MIDDLETON

Walking down Lyons River near Magnesite spires and caves

1960s

As geological survey work continued on the mineral-rich areas of the West Coast, another area of magnesite was discovered during 1962, to the north-east of Savage River (Urquhart 1966).

The Department of Mines noted that no production of magnesite had been carried out to that time in their 1967 geological survey bulletin and, interestingly, didn't mention the Keith River Deposits (Jennings *et al.* 1967).

1970s

In 1971 mineral exploration was undertaken on the Arthur River deposits, 500 metres north of the New Victory Mine and west of the Arthur River on the Lyons River with an extensive report being prepared on the magnesite (Nye 1971).

1980s and 1990s

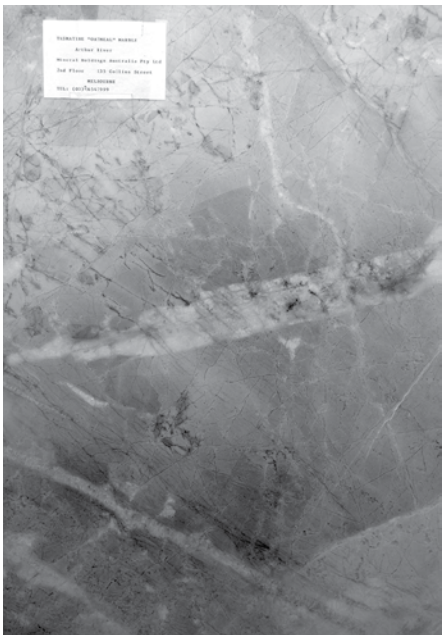
Through these decades exploration of the magnesite lenses continued, with numerous authors giving accounts of the history of discoveries and the geology and mineralogy of the magnesite deposits during this period (Frost 1982, Dickson 1990, Calver 1999).

Henry Shannon and Frank Salt carried out field investigations and later informed Kevin Kiernan that karst landforms had

developed on magnesite in the Savage River area (Kiernan 1988a); he referred to it as 'parakarst', that is, karst-like features developed on rock with less than 50% carbonate minerals (Gunn 2004).

The Tasmanian Department of Mines put out a report on the Precambrian magnesite promoting it as "Tasmatine Marble", (Bacon 1989), possibly after samples were provided by Mineral Holdings Australia and laid in the foyer of Mineral Resources Tasmania head offices at Rosny Park, Hobart. However, probably owing to its hardness and fracturing, it was not commercially viable (Sharples 1997 p. 69), although it was being considered for making headstones according to one report (Anon. 2002).

An inventory of the north-west coast carbonate deposits in the Smithton district was undertaken by the Forestry Commission of Tasmania (Henricksen 1990), as a contribution to a proposed "Atlas of Tasmanian Karst", with information coming from numerous speleological publications and the *Australian Speleological Federation Karst Index* (Matthews 1985).



MINERAL RESOURCES TASMANIA

Tasmatine "Oatmeal" Marble, polished sample of Magnesite from Arthur River in foyer of MRT Head Office.

The Wilderness Society put forward a World Heritage Proposal in 1992 (The Wilderness Society 1992), for an area proposed to be called the Tarkine. The Department of Mines critically reviewed the geological and geomorphological aspects of the TWS submission (Turner 1993) and one of the speleological groups reviewed the submission and made notes on it (Lichon 1992).

Subsequently, *An Atlas of Tasmanian Karst* by Kevin Kiernan highlighted the significance of the magnesite, providing further insight into the conservation values of this unusual geomorphological landscape (Kiernan 1995a, b).

Several Tasmanian departments and authorities published papers between 1989 and 1994 on significant geoconservation sites, one in particular included the magnesite deposits, noting their geologic, geomorphic and pedagogic values (Bradbury 1995).

The Tasmanian Conservation Trust Inc, prepared a report for the Australian Heritage Commission on the Tarkine area, with a chapter on the magnesite karst, providing information on mining exploration to date and the geology and significance of these Precambrian magnesite deposits (Sharples 1995).

The magnesite deposits were acknowledged within a geoconservation report to Forestry Tasmania for the Murchison Forest District which identified the landforms and geological sites within that district to provide an inventory of significant features that forest managers could use to facilitate the better management of those landforms and geological sites (Sharples 1996).

Logging was not new to this area, and recommendations for the proper management of forestry operations on other karst areas had been provided back as early as 1988 (Kiernan 1988b & 1989, Henricksen 1990).

By 1997 Chris Sharples had added significantly to the knowledge of the Tarkine karst (Sharples 1997) and this was to greatly assist others in the future, in relation to both commercial and environmental aspects. Renewed interest in the magnesite deposits once again arose in 1997 from numerous mining interests to develop the resource; a broad summary of their findings was provided by Calver (1999).

It was this renewed interest by mining companies, that encouraged Savage River Caving Club (SRCC) to start investigating the magnesite deposits near the Arthur River about 500 metres north of Victory Springs, and the Old Victory Mine, resulting in the first speleological club report on the magnesite (Heap 1997a).

The information that initially assisted Dave Heap of SRCC was from Kiernan's (1995) Tasmanian karst atlas and the later "Karst geomorphology and values of the Tarkine" which included a useful map of the various carbonate deposits within the Tarkine region (Sharples 1997 p. 22).

SRCC continued to document, survey and tag the caves at Central Creek and Lyons River during 1997 (Heap 1997b, c, d, Gray 1997), significantly adding to the overall knowledge of the karst.

The significance of the hydrology of the Central Creek karst is the underground drainage (Sharples 1997, Houshold *et al* 1999) which over millennia has etched its

JOHN WYLIE

Eroded magnesite, Lyons River

JOHN WYLIE

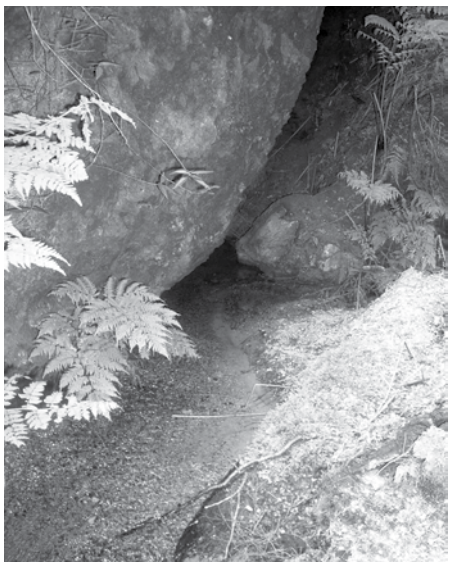
Magnesite outcrops, Lyons River

JOHN WYLIE

Greg Middleton (left) and Paul Darby at entrance to Lyons Den (KR 9) Lyons River

way down through the magnesite, where numerous runnels, grikes, caves, arches, amazing pinnacle outcrops and a small narrow gorge have evolved within a myrtle rainforest.

Five hundred metres south-west of Central Creek, a number of thermal springs were discovered possibly at the same time as the Old Victory Mine commenced operations in the 1900s although there is no evidence as to when they were first recognised (Houshold *et al* 1999 p. 39, Sharples 1997 p. 93). Warm

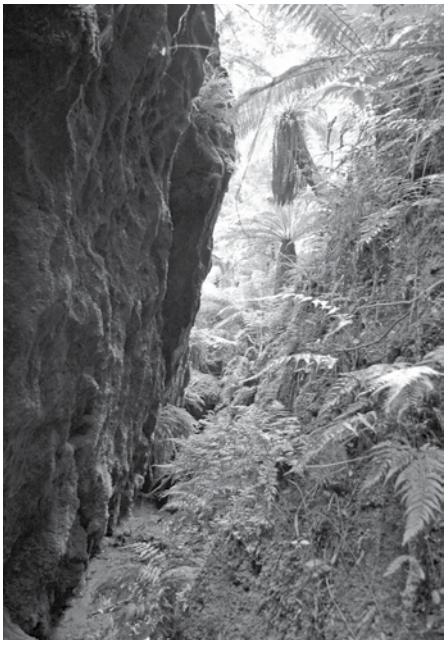


JOHN WYLIE

Resurgence at Central Creek

JOHN WYLIE

Paul at Thermal Spring, Old Victory Mine



GREG MIDDLETON

Narrow gorge among magnesite spires, Central Creek

karst springs of geoconservation value also exist on the Lyons River (Houshold *et al* 1999 p. 7).

The renewed interest in the magnesite deposits resulted in one of the mining personnel also seeing an opportunity to make further financial gains by marketing the mineral spring waters. This involved capping one of the natural thermal springs and greatly altering the area. The operation was not a success (Sharples 1997 p. 91, Houshold *et al* 1999 p. 39), leaving the infrastructure to be pilfered over time. The significance of these thermal springs lay in the fact of their being the only warm springs in magnesite in Australia — if not the world (Kiernan 1995a Vol. 1, p. 129).

By 1998 the general public was very much aware of the proposed magnesite mine and processing plant, with divided opinions appearing in the various Tasmanian papers (Agatyn & Diwell 1998, Anon. 1998, Carrigg 1998, Hollister 1998). 1998 also saw publication of *A Decade of Caving* by SRCC (Gray 1998), in which the Keith River Karst was shown to be one of those areas being documented, with eleven caves being described, tagged and surveyed.

A further three visits were made to the area by SRCC during 1998 (Heap 1998a, b, c) with one of the reports being written up by Arthur Clarke (Clarke 1998a) and partly reprinted in *Speleopod* (Clarke 1999).

A number of articles noting the importance of this most unusual karst area and why it should be preserved were presented by various people in the *ACKMA Journal* from 1998 (Kiernan 1998, Houshold 1998, Clarke 2002), with one speleo group reprinting some information from the Ozcaver e-mail list (Clarke 1998b). There was also a follow-up of the outcomes of an ACKMA bid to carry out a survey of the magnesite (Houshold 1999).

The hydrology of the Tarkine is unique in Australia, due to very little river/stream regulation and abstraction, although pollutants enter the upper sections of the Arthur River from mining operations. Despite various studies of the freshwater habitats of the northwest coast, little had been done to address conservation of aquatic invertebrates in the Tarkine. Helen Dunn made the first moves towards addressing this issue (Dunn 1998).

In late 1998, the Tasmanian Government organised an independent report on the geoconservation values of the Keith River magnesite karst (Williams 1998), which included a note on the biota and hydrological values that warranted further investigation.

The University of Tasmania School of Zoology undertook a fauna study of the magnesite karst. The field collection results indicated a diverse range of forms, other than cave-adapted fauna, and a literature search indicated three species of rare freshwater snails are noted as being in the Bowry Creek area (Richardson & Doran 1998).

Both of the above reports by Williams and Richardson & Doran put strong emphasis on ensuring that detailed sampling and studies are undertaken on the efflux water from drill holes, and more importantly from Victory Springs, for any deep hypogean fauna, together with a survey of the distribution of the rare aquatic snails along with zoological sampling of surface habitats and importantly within the caves including a baiting program.

In 1999 an article was published in *Wild* magazine (Bunton 1999), giving a brief overview of the threats to the magnesite in the proposed Tarkine World Heritage area.

Ian Houshold, Clive Calver and Chris Sharples prepared a very detailed Tasmanian Government publication on the magnesite karst of Northwest Tasmania, covering a wide range of aspects of the deposits (Houshold *et al* 1999).

Throughout 1999, speleological groups reported on the karst (Gray 1999), SRCC indicating that the mining interest seemed to have waned (Salt 1999). Mole Creek Caving Club published a brief report on the proposed mine and the dangers to the karst if mining went ahead (Hunter 1999).

2000s

Speleologists continued to report on visits to the area (Bunton 2000) and on the conservation status of the karst (Clarke 2001a).

In the Australian Speleological Federation (ASF) 2001 Annual Report, Clarke (2001) reported that due to the economic situation the proposed smelter plant had been postponed.

A former director of Crest Magnesium, Peter Salter bought out Thomas Natural Spring Waters' lease at Victory Springs (Sharples 1997 p. 91) in 2001 and set up his own company, Tiger Spring Ltd, on the original Victory Springs site (Grube 2001).

2002 began with a report by Arthur Clarke in the *ACKMA Journal* on the state of play, noting the presence of water-filled subterranean cavities, proven by exploration drilling, which could support a diverse range of aquatic fauna (Clarke 2002).

Chris Sharples was able to collect some sediment samples from two caves in the Keith/Arthur River magnesite karst, with a palynological result showing an abundance of fossil pollen (Harle 1996).

A review of geoconservation values of the Tasmanian Wilderness World Heritage Area was undertaken, along with adjacent areas, noting that the Arthur River magne-

site carbonate tower karst is well developed, globally rare with hydrothermal processes, biologically significant, and has exceptional geomorphic features (Sharples 2003).

2003 also marked 15 years of cave exploration by SRCC, marked by a brief history of the club's activities and on-going documentation of the magnesite karst and views on the proposed mine (Gray 2003, Salt 2003).

Mineral Resources Tasmania presented a summary of opportunities for mineral exploration and development indicating 75% of the State was then available for exploration and mining, with a reference to the very large deposits of magnesite (Anon. 2004).

Exploration continued with Mineral Holdings Australia presenting its annual report on its findings with some detailed maps of the Cann Creek deposits (Duncan 2005).

Arthur Clarke presented a one-page abstract at the 25th ASF conference in 2005, on cave invertebrate fauna in Tasmania in which he briefly noted the magnesite as a site with no cave fauna recorded to date (Clarke 2005).

Since 2003 very little has been written on the magnesite karst, and to the present day the 385 ha acknowledged as containing the best examples still remains unprotected (Sharples 2003 p.13, Eberhard 2007).

Threats to geodiversity continue "as it is considered that earth features are rugged and do not need to be managed," (Pemberton 2007).

In fact, these features, if not managed, are easily lost or degraded due to lack of geoconservation knowledge.

2010

A further review of the protection status of Tasmanian karst in a recent issue of the *ACKMA Journal,* acknowledged "that more of Tasmania's karst estate is reserved than at any time in the past, [but] the devil is in the detail and some critical gaps are still outstanding" (Eberhard 2010).

What now for this important natural resource?

Tasmania is well known for its natural – especially mineral – resources (Anon. 2004) with huge quantities being transported out of the State since settlement. This has had its impacts on the island's geoconservation values as there were few management plans or abatement measures at the time.

The Arthur River area was initially logged many years ago and the Old Victory Mine opened back in the 1900s. Since then the area has been heavily exploited for its natural resources.

During the last few decades modern equipment has made it possible to further reveal the area's natural resources, with a number of dozer tracks being pushed in and around the Central Creek magnesite deposits to help assess the possibilities of these being economically exploited.

A quarry has been developed on the karst for road base and the latest commercial endeavour has been the extraction of mineral waters from Victory Springs.

These developments have all had their impacts, and although some restoration has been carried out, it's not possible to undo what has been done. Many of the scars of yesterday are still visible — fortunately, they are slowly healing but will never totally disappear.

Hopefully, common ground can be found in the light of the greater knowledge of the natural beauty and geodiversity that has evolved in this particular area of the North West Coast, and with the proper management measures taken, all of those who either live there or visit can continue to enjoy the region.

The magnesite karst is different, has taken millions of years to evolve and, as noted by Jason Bradbury, comprises "essentially non-renewable resources" (Bradbury 1995 p. 1).

NOTE

On a March 2011 SRCC trip another cave was tagged and surveyed on the Lyons River. This will be reported in the next issue of *Speleopod,* making a total of 12 caves now documented in the area.

ACKNOWLEDGMENTS

For making this article possible I must first thank Paul Darby, Lydnsey Gray and Michael Simco of SRCC for taking me to one of nature's natural wonders, the magnesite karst near Victory Springs on the Arthur River, which has certainly left a lasting impression. Also, thanks to Greg Middleton for taking lots of photos to illustrate this article.

Others who have contributed to the documentation of this unique geological region have not only provided valuable reports but numerous other references providing many hours of interesting reading — I truly appreciate your efforts and words of encouragement — so thanks to: Ian Houshold, Chris Sharples, Helen Dunn, Greg Middleton, Ross Ellis, Ralph Bottrill and Kylie Lau for further enhancing my knowledge of the carbonate deposits of the Tarkine, North-West Tasmania.

To Ric and Pat Halliwell of Craven Pothole Club, many thanks for providing information on the magnesite caves back home in the UK, and providing the only other records of caves in magnesite found to date, going back to the 1960s.

To Magnesite Tasmania general manager, Alan Daley, many thanks for granting permission and giving us access to investigate and photograph the karst, with the assistance of field foreman Andrew Eastaugh, saving us many kilometres of walking.

ESSENTIAL READING FOR AN UNDERSTANDING OF THE LANDSCAPE AND KARST OF THE TARKINE

The four publications below, in my view, provide key details, not only of the magnesite, but of the whole area:

1. *Forgotten Wilderness: North West Tasmania,* D.N. Harries 1995.

2. *Karst Geomorphology & Values of the Tarkine,* Chris Sharples 1997.

3. *Magnesite Karst in Northwest Tasmania,* Ian Houshold, Clive Calver and Chris Sharples 1999.

4. *Geology and Mineral Resources of Tasmania,* C.F. Burrett & E.L. Martin (Eds.) 1989.

GREG MIDDLETON

Magnesite outcrop, Lyons River

GREG MIDDLETON

Paul Darby entering new cave Lyon Down Hole (KR12) Lyons River.

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GREG MIDDLETON

Paul Darby and John Wylie standing on magnesite exposed and eroded in the bed of Lyons River

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Personal Protective Equipment (PPE) Inspection Requirements – Fact or Fiction

David Doughty
ASF & HSC; PPE Inspector (THS)

I HAVE been involved in caving, rock climbing, canyoning, abseiling for adventure, fun, data collection and training for close to 30 years. In that time I have seen equipment substantially change in quality and durability. Labeling requirements have increased as manufacturers have become exposed to litigation. Equipment instructions have become elaborate and often in multiple languages to cover the wider sphere of users and the varying levels of knowledge they have.

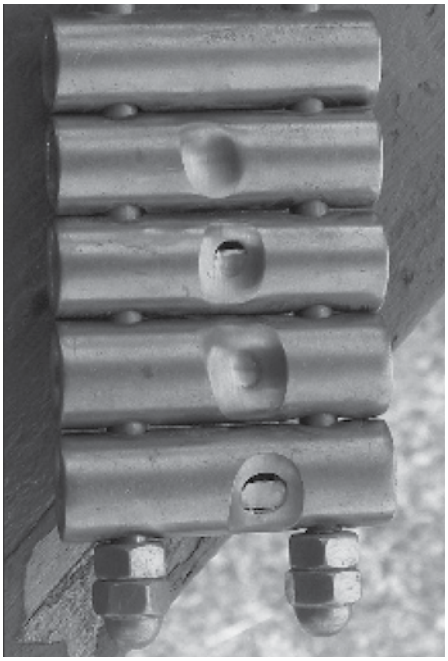
Gear I have seen used by other cavers, rock climbers, canyoners and abseilers has varied in its state of care from excellent to suicidal. Some examples that spring to mind are:

- ropes worn through to the core and beyond;
- descenders with over 50% of the friction surface missing;
- tape so abraded and faded that it was like paper;
- pulleys where the axles are seized because of mud and corrosion;
- sisal laid rope rigged in one continuous length from the entrance of Tuglow Main Cave to the streamway, via the rock pile with no re-direction or re-anchoring;
- karabiners covered in so much corrosion that they looked like a piece of cauliflower.

Gear we use, or as it is referred to now, PPE (personal protective equipment), is expensive and will last a long time if used, maintained and stored correctly. We have to remember that equipment will not last forever and we should plan to replace it when its usable life time ends. From here on in I will use the acronym PPE to indicate equipment cavers, rock climbers, canyoners, abseilers use.

HOW DO WE KNOW WHEN THE PPE WE USE IS AT THE END OF ITS LIFE?

There are a number of ways you can tell if your PPE should be removed from service.



DAVID DOUGHTY

A tad too much wear, I think

The PPE item has:

- been damaged to a level where it is no longer safe to use;
- come in contact with a chemical or a substance that changes the properties of the PPE;
- passed the manufacturer's expiry date;
- components missing;
- been stored or transported in a location that affects it;
- been used incorrectly or for the wrong application e.g. towing your car;
- been modified outside of the manufacturer's guidelines e.g. painting helmet;

WORKPLACE REGULATIONS THAT DEFINE THE PPE REQUIREMENTS

Generally work place regulations do not apply to the recreational world cavers / club members operate in.

Having said that, they could apply if the club is carrying out work for a farmer, as the farm is his workplace, or land management authorities (e.g. NPWS in NSW) where OH&S regulations apply.

You may even be asked for inspection registers or currency of the PPE you intend to use in these locations. Already most land management groups require the caver or caving 'club' to have a level of insurance if they wish to cave within their boundaries. This should lead you to the question:

AM I COMPETENT TO INSPECT MY OWN PPE?

If you can understand what is meant by the eight points above then you are well on your way. If you have read and understand the manufacturer's instructions you are closer still, and if you have read the applicable manufacturing standard you are closer again. The balance of the information required to make you competent at inspecting your own gear comes from finding out the acceptable wear as stated by the manufacturer and from hands on practical inspection experience.

Just to be clear, inspection is different to pre-use checks. Pre-use checks are what you do prior to leaving home; putting on your PPE; and before you use it e.g. abseiling down a pitch. Inspections require you to look in detail at your PPE, completing visual, functional and sometimes smell analysis, then documenting the results.

You may ask: 'Why document the inspection?' There are a number of reasons:

- it allows you to record the product information e.g. manufacturer and serial number;
- it gives you information on product durability and life span;
- wear can be used to indicate training requirements. For example, if you keep tearing rope fibres or creating pulls in the sheath of your rope when practising ascending skills then it means you are not disengaging the cam sufficiently — not that the sheath tension is not right (as I was informed once by someone complaining about their rope);
- it aids in the maintenance process e.g. PPE

DAVID DOUGHTY

The owner of this paint-encrusted helmet used it for work as a painter and then caving on the weekend

should be washed prior to inspection;

- in this litigious world we live in the documentation is a must if the gear is being used by other people e.g. slings on an abseil setup;
- it can be used to show land management authorities that your gear has been routinely inspected.

When you read the manufacturer's instructions, almost all recommend that PPE be inspected on a 6 or 12 monthly period by a competent person/PPE Inspector. This is usually close to the section saying you need training in the use of this product as it can kill you.

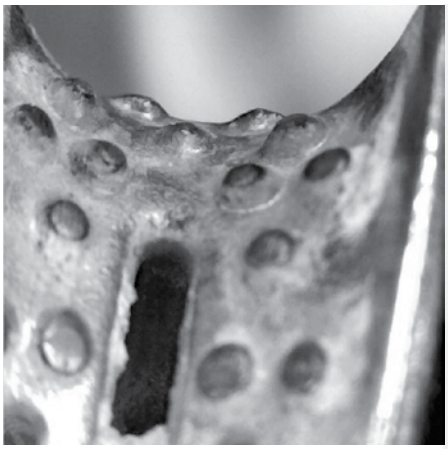
Carrying out inspections should be done in a clean environment with good lighting — not, as I had one person explain how they inspected their PPE while watching the Sunday evening movie! The PPE we use keeps us alive so the inspection, storage and maintenance of it need to be taken seriously too.

As a general rule the lifespan of PPE is:

- 10 years for textile based products;
- 10 years for plastics e.g. helmets; and
- for hardware items it is based on PPE inspection.

Having said this please check with the manufacturer on what they recommend is the life span of their product. Some manufacturers give guidance of life expectancy based on the amount of use.

If you do not feel you have the knowledge or depth of experience to inspect your own PPE then you should contact a training organisation or manufacturer (if they have a course) and enroll on a PPE Inspectors course.



DAVID DOUGHTY

A Petzl ascender with a worn cam. It was still in use at the time of inspection

They vary from three to five days duration and are very informative. The longer obviously covers a lot more types of PPE. I have been inspecting PPE for over 20 years, the last ten as part of my job, and I recently went to Petzl to do some refresher training in PPE inspection and learnt a whole lot more. This is not an area where you stop learning.

Cave safely and I may see you in a cave soon.

OBITUARY

Tom Robinson
Obituary

Les Pearson

TOM WAS born in Cairns on 19th July 1935 to Leonard and Jan Robinson, their only child. He grew up on their cane farm and was schooled at Caravonica and North Cairns State Schools before being sent to Church of England Grammar School in Brisbane for his secondary education.

On returning home Tom worked on the farm with his father and gradually took over the management and operation of the farm. He also became involved with management of the cane industry becoming a member of the Hambledon and later the Mulgrave Suppliers' Committee. When a nearby cane farmer filled in the district's main drainage channels, in levelling his farm, Tom became the Chairman of the Canegrowers' Drainage Board for the Smithfield area and supervised the re-establishment and maintenance of drainage in the area.

As a young man he became a member of Smithfield Junior Farmers' Organisation (later called Rural Youth) where he progressively became involved in the management of his club. In the 1950s Tom took a Rural Youth exchange to the United States of America where he lived with several families for approximately six months gaining wider experiences in farming practices. At the end of this exchange he took an opportunity to visit the United Kingdom before returning home. Tom later became an adult advisor for Rural Youth assisting various Clubs in management of their activities.

I first met Tom in late 1972 in the Queenslander Cave at Chillagoe on his first surveying attempt with Paul Wilson. We were all surprised at meeting anyone in the cave as it then had little visitation. This first survey was done using a compass with paced distances, as they had no tape or clinometer. This survey gave a very rough indication of the cave layout. However, in subsequent years he became more insistent on accuracy and often sent cavers back to resurvey sections of the Queenslander where he noted inaccuracies or unsatisfactory close errors. Tom's exploration and mapping of Queenslander Tower became a dominant activity for the club for several years and the result is something for him to be proud of.

LES PEARSON

On 23 April 1973 Tom was present at the inaugural meeting of the Chillagoe Caving Club along with fifteen others. When the Club got going Tom took the position of Survey and Record Keeper, a position he held until 1990. During this time he established a system of caving records which enabled him to edit the Club's publications *Chillagoe Karst* and *Mitchell Palmer Karst* that are essential documents for cavers in these areas.

In 1984 Tom's work on Chillagoe and Mitchell Palmer caving records was recognised by the Australian Speleological Federation with the award of a Certificate of Merit. In 1991 the Chillagoe Caving Club awarded Tom its first Life Membership.

When the Caving Club went on its first trip to Mitchell Palmer in May 1977 farm work prohibited Tom's joining the expedition. However, during the cane slack season he led numerous exploratory trips searching for better access to this quite inaccessible area and to the individual towers, making up for his earlier absence.

Tom was an outgoing personality and was usually at the centre of social activity. Over many years he involved a number of young people in caving, which he saw as a challenging and character building activity. He had much satisfaction when he saw development in these young men as a result.

During the 1970s and 1980s Tom's home became the centre for visiting cavers from overseas and down south to make first contact.

He provided accommodation and enthusiastic guidance for visiting scientists, particularly Brother Nicholas Sullivan and the expeditions to Chillagoe and beyond funded by his New York Explorers' Club.

These expeditions introduced a range of international scientists to this hitherto unknown area that was crying out for investigation.

The Cairns Penny Bank invited Tom to become a Director about 1990 as his background was seen as being useful to the bank. Unfortunately soon after he commenced he began to show signs of memory loss due to his then undiagnosed terminal Alzheimer's disease and was unable to continue.

After a steady decline in his health Tom was moved to the Carpentaria Nursing Home when he could no longer walk making it impracticable for Miriam to look after him at home. After several months there he died in his sleep on 18th April 2005, a few months short of his 70th birthday.

Memories and reflections on the life of Andrew David Skinner of Hastings, Southern Tasmania

8 January 1953 to 15 May 2011

Arthur Clarke
STC

ROS SKINNER

FIRST CHILD of Roy and Emily (Pem) Skinner, Andrew was born in Armadale (Melbourne) on 8 January 1953. Andrew came to Tasmania in 1954, when his father, Roy, was appointed Assistant Manager at the then-recently rebuilt Coles Bay Chateau (now Freycinet Lodge). Later that same year, Roy took up the position as Assistant Guide at Hastings Caves, using the Hastings Cave Chalet as the family residence.

From boyhood, Andrew assisted his father, Roy, in maintaining a full meteorological station reporting temperature, humidity, rainfall and wind speeds at the caves. One of Andrew's earliest recollections of life at Hastings Caves, was the early morning ritual of doing the weather readings then spending up to two hours every day cleaning up the rubbish from the previous day.

As a youngster, the learn-to-swim paddle-board used in the original thermal pool was made especially for him by family friend Olegas Truchanas, the well-known Lithuanian-born Tasmanian conservationist and nature photographer. Olegas subsequently taught Andrew to swim properly and as Ros (Andrew's wife) recalls, Andrew gained a reputation as a local swimming champion, proudly boasting that he could easily swim three lengths of Hastings pool, underwater with one breath!

Andrew inherited, or absorbed by osmosis, his father Roy's interest in caves and became a very keen caver. Andrew recollected early visits to Mystery Creek Cave with his father in 1960, when the Ida Bay Railway was still operating and together with caving club members they rode the empty limestone wagons into the old Blaneys Quarry on the northern side of Marble Hill. He recollected overnighting with his father and other cavers in a dilapidated paling board quarry workers' hut beside the Blaneys Quarry limestone railway terminus.

OBITUARY

At one stage Andrew was a member of four caving groups, joining the first, TCC (Tasmanian Caverneering Club) as a junior member at age 13. Later, during his teenage years, he became a member of SCS (Southern Caving Society), then at age 20 joined NC (Northern Caverneers) and from 1974 was a member of the Launceston Speleo Club. He remained a member of these groups till 1976 when he and wife Ros took up a post on Maria Island. In the early 1970s, Andrew had an association with a fifth caving group, the Claremont Caving Club, based in the northern suburbs of Hobart.

Together with his father, about 1965-66, Andrew assisted TCC cavers in planning the route and constructing the second major access track to Exit Cave. Lovingly referred to as the "Brooker Highway" (then later "the flat track"), it ran some seven miles from the old Catamaran Road along the D'Entrecasteaux River Plains to Exit Cave. Andrew's first trip to Exit Cave, on the southern side of Marble Hill, was at the age of 13, in 1966; the cave was then only known up to the talus section, generally referred as "The Rockfall".

Andrew lived with his family at the Chalet till 1968, until the larger dedicated restaurant with improved facilities and kitchen was built together with adjoining Cave Superintendent's accommodation. At age 15, Andrew established a small museum of cave-related exhibits in a corner of the dining room; it lasted from 1968 to 1970. His museum contained a mixture of geological items including fossils, rock samples, a few speleothems (but not many), old photographs, early newspaper cuttings about Hastings, pieces of old caving equipment, old cave lighting fixtures, a carbide-fuelled acetylene coach lantern and other items of interest borrowed from members of the outlying Hastings, Lune River and Southport communities. There was also a small collection of philatelic items: postage stamps that featured caves, cave tourism or karst features.

The museum also included some cave interpretation and historical information, some of which was used c. 1976 by Roy and Andrew to produce a booklet: *Hastings Caves State Reserve Tasmania — A Visitor's Guide*.

Andrew went to University of Tasmania in Hobart in 1971, where he was majoring in zoology, geology and geography. For those next two years, he lived in Parliament Street (Sandy Bay) sharing a house with other cavers including Kevin Kiernan. Andrew's studies in geography were the inspiration for Kevin to commence his own Uni studies and he still has Andrew's First Year Geography lecture notes! Known as "Parliament House" their house hosted the monthly meetings of the Tasmanian Caverneering Club. While at Parliament Street, there was the one and only meeting of the Exit Cave Society attended by Roy Skinner, Jim Casey and Michael Hodgman, mustering support and finance for the development of Exit Cave.

Aside from caving, Andrew was a keen bushwalker and conservationist. He became involved with the fight to save Lake Pedder and took on the role of Secretary for the Lake Pedder Action Committee. In late 1972, Andrew and Ros made a trip to Precipitous Bluff as a reconnaissance for the 1973 expedition by members of the Southern Caving Society and others. Andrew joined the United Tasmania Group — precursor to the Greens — to try to make politicians aware of environmental issues.

He transferred to the Mt. Nelson campus of the Tasmanian College of Advanced Education in 1973, enrolling in the final year of a landscape architecture diploma course. Inspired by his own exploration and other cavers' adventures in Exit Cave, plus the international Churchill Fellowship studies of tourist cave developments undertaken by his father, for his final year major project, Andrew formulated a plan to show how Exit Cave could be developed as a major world class tourist attraction. In that same year, Andrew conducted about 20 exploration trips into Exit Cave, producing an extremely detailed survey from the cave entrance to The Rockfall.

Despite being poor tertiary students with no car, Andrew was so passionate about caving that when he and Rosalind Bell married in 1973, he insisted that part of their honeymoon was spent caving. After completing his tertiary education, Andrew moved to Launceston and worked in town planning. It was an exciting time in the State of Tasmania. The National Parks and Wildlife Service (NPWS) had been formed in 1971 and in 1974, Andrew gained a position as an investigations officer in the NPWS resources section, where he worked with Greg Middleton and others. This put Andrew in a position to influence the creation or enlargement of parks and reserves. He was justifiably proud that he was able to influence extensions to the Southwest National Park, increase the area of Southport Lagoon Conservation Area, enlarge the South Bruny National Park to include Partridge Island and strongly supported the public submissions to have the Ida Bay and Exit Cave State Reserves declared.

In 1975, Andrew was instrumental in setting up the Maydena Branch of TCC, which included Max Jeffries, Laurie Moody, Phil Voss, John Parker, Ann and Steve Annan among others. The first trip of the new club found Beginners Luck Cave (later renamed as Tiata Kominya), with its multiple entrances, wombat burrows, megafauna remains and evidence of Tasmanian Aboriginal occupation. Also that same year (1975), Andrew assisted his father and other local cavers in organising the second Australian cave management conference in Hobart.

According to Ros, when Andrew joined Parks he had really only wanted one job, the Ranger on Maria Island, even though it entailed less pay, isolation, sometimes dangerous hair-raising boat rides, wild aeroplane landings, a house full of wildlife to evict, no power on occasions and monotonous green paint on everything — inside and out. Andrew's devotion allowed him to make a significant contribution to the preservation of Maria Island's important cultural heritage in a meaningful and respectful way. Later, on reflection, Andrew said that their years spent on Maria Island were the happiest in his life — fishing, magical walks and endless barbecues, plus a superb environment and work that gave great job satisfaction.

Late in 1978, Andrew gained a promotion to Ranger-in-Charge at Hastings Caves. Andrew arrived there around Christmas 1978 with Ros, young Ailsa and their six month old infant daughter, Annie. Newdegate Cave had just been rewired so Andrew's focus was initially on upgrading the thermal pool area. In Newdegate Cave, Andrew re-positioned most of the cave lights, especially those that were aiming towards peoples' faces. One of his first major achievements in Newdegate Cave was the final removal of the last lot of wooden bridges and stairs in the upper regions of The Cathedral, including the Cathedral Stage and the approach to Titanias Palace.

As Ranger-in-Charge from 1978 to 1984, he fought, cajoled and even embarrassed relevant ministers to get what was necessary for the Cave Reserve. A new water supply, sewage system and amenities that won awards were the result. He expanded the range of responsibilities for the Ranger-in-Charge to include surrounding reserves, scrounging paint, materials and labour to improve the Ida Bay Railway train depot, using his own tractor to mark tracks out to the George III shipwreck monument and the Southport Lagoon.

As head ranger at Hastings, Andrew also took it on his own initiative to alter the existing interpretation given for cave tours. He dismissed the former tradition of cave fantasy with named cave formations as "garbage", introducing more appropriate description of the speleothem features in terms of their geomorphic origin. Cave guides were retrained, to ensure they delivered a more appropriate cave science-related in-

terpretation, so the cave could be presented as a natural scientific feature. On arrival at the entrance to Newdegate Cave, illustrated descriptions of karst processes now greeted patrons, together with a survey profile of the cave they were visiting. An alternate walking track to Newdegate Cave via Fossil Creek Swallet and a suspension bridge over Hot Springs Creek gave Tasmania its first karst interpretation walk.

In 1981-82, Roy Skinner commenced planning of a new access route to Exit Cave from the saddle between Marble Hill and Lune Sugarloaf, behind Benders Quarry. Together with Hobart-based cavers, Andrew assisted his father in the preparation and formation of this new more direct walking track to Exit Cave.

Formed as a level and contoured pathway across the surface karst at Ida Bay, it was constructed with the aid of various local cavers (particularly SCS members) and NPWS rangers. Subsequently known as the "Skinner Track" it is today the only regularly used route for Exit Cave visitors. On occasional weekends, in between rostered duties at Hastings Caves, Andrew assisted his father running the Adventure Cave tours in Exit Cave.

Andrew planned a restoration project in Newdegate Cave to remove jettisoned waste, particularly the inorganic rubbish such as broken glass and discarded light globes. However, after spending funds to revamp the cave lighting, NPWS was reluctant to fund any restoration work.

Andrew later assisted Tony Culberg in running school-based caving at Exit Cave, in the Junee-Florentine and at Mole Creek. Andrew made valuable contributions to the first set of guidelines for school-based caving, being a member of the caving subcommittee of the Education Department's Committee on Outdoor Educational Experiences (COOEE).

After leaving his position at Hastings Caves, Andrew bought land in Southport and later in 1986 at the Hastings Caves Road site running a small farm where he, Ros and the three children raised cattle, living in a house beside the old Hastings Mill bakery. Andrew ran a rural contracting business, doing all kinds of odd jobs in the district and running their small farm in between. He is remembered for his role as caretaker at the former National Fitness Council Esperance Camp at the mouth of the Esperance River east of Strathblane.

In his spare time Andrew spent three years as a Volunteer Ambulance Officer. He was treasurer for the local coast care group and was a driving force in the establishment of the new Southport Community Management Centre, of which he spent several years as chairperson. Andrew had ceased active caving by 1990, and applied himself to working with the Dover Fire Brigade and then later running the more local Southport Volunteer Fire Brigade, as well as taking an active interest in local politics.

Andrew was very humble and always felt that he should do more. When in 2001, in the year of the volunteer, it was announced that he was the Huon Valley Council Citizen of the year he was so shocked and honoured that he was left speechless. Andrew had words for every occasion but at this time, he was quite without words.

On a fine and sunny Saturday morning on 21 May 2011, the cortege into the Dover Lawn Cemetery was made up of members of the local Dover and Southport Volunteer Fire Brigades. Kookaburras in nearby trees cackled with perfect timing, as Ros cracked some jokes about Andrew while reading the eulogy. As his coffin was lowered into a grave, brigade members held his Collingwood Football Club flag above! Carn the Pies!

Andrew Skinner was held in high esteem within the Far South community. This was the largest gathering at a funeral I have ever seen in Dover.

Exit Cave survey project

Exitravaganza 2012 survey camp – February 2012

Tony Veness
STC

MEMBERS of Southern Tasmanian Caverneers (STC) are currently systematically surveying Exit Cave at Ida Bay in Southern Tasmania.

Past survey data and relocatable survey stations are used where possible. The project is in its third year and is supported by the Tasmanian Government through the land management authorities and by Tasmanian Landcare.

STC was successful in a 2011 application for an ASF grant to support the project and monies allocated are going towards survey equipment, track marking consumables and costs associated with mounting a survey camp in February 2012. If you would like to participate in Exitravaganza 2012 by coming to tropical Tasmania for a week or more, please contact Tony or Geoff.

As per the last survey camp run in 2011, we camp near a horizontal entrance to the Exit system for a week (about 90 minutes from vehicle access) and survey for six to ten hours per day. Underground-free rest days are used for sketching or surface exploration in the surrounding rainforest. No vertical cave experience required though warm caving gear is recommended. Previous experience on caving expeditions and / or cave surveying experience is advantageous though not a necessity.

Email now to register your interest

tony.veness@csiro.au or geoff.wise@onecare.org.au

ROLAN EBERHARD

Exit Cave — the Grand Fissure

ASF Awards 2011

Stan Flavel
President, ASF

EVERY two years ASF calls for nominations for ASF Awards to recognise significant contributions to speleology in Australia. Nominations, which are not restricted to ASF members, are considered by an Awards Commission and announced by the President at every Biennial Conference. My thanks to the clubs and individuals who compiled information in nominations, and my congratulations to these recipients for many years of passion and dedication to speleology.

EDIE SMITH AWARD

For outstanding service and contributions to Australian speleology over a long period.

Greg Middleton

Greg entered caving in the mid-1960s through the Rover Scouts with whom he helped organise and install a gate on the Colong Caves in 1967, leading to a life-long commitment to cave conservation. He became a member of the Colong Committee formed to fight plans to mine the area, and wrote several papers in Australia and UK on the significance of the caves and karst there. He founded and edited Australian Speleo Abstracts for the years 1970 -1979 and has been the chair of ASF's Bibliography Commission for over 40 years. He coordinates Australia's part of the IUS Bibliographic program.

Greg worked for NPWS in NSW for several years, then with the newly formed Tasmanian National Parks and Wildlife Service for 25 years, becoming its Deputy Director, and was instrumental in the establishment of reservations and the promotion of sound management practices over several karst areas of Tasmania. In the early 1980s he organised cave exploration on the Franklin and Lower Gordon Rivers to bolster the anti-dam crusade. Later he was seconded to the government of Mauritius to plan and organise a system of National Parks in that country including some containing lava caves. From this he took a special interest in volcanospeleology, became a member of the IUS Commission on Volcanospeleology, and co-organised the recent ASF-sponsored international seminar at Undarra.

Still an active member and Librarian and Archivist of Southern Tasmania Caverneers with many publications to his credit as author or editor, Greg has visited, surveyed and documented lava caves in Samoa, Mauritius, Iceland, Galapagos and elsewhere and currently has a special interest in expeditions to the caves and karst of Madagascar.

AWARD OF DISTINCTION

Established to recognise those who have made an especially notable contribution to speleology

David Wools-Cobb

Award of Distinction for Cave and Karst Conservation — for outstanding leadership in the conservation of caves and karst in northern Tasmania, particularly for leadership and guidance of KarstCare.

A caver and conservationist for 40 years, David has been the driving force behind KarstCare since its formation by Northern Caverneers in 2000 as a community partnership.

In this role he was the enthusiastic coordinator, planner, fundraiser and communicator, conducting hours of debates about effective strategies, discussions with sometimes resistant management, job safety analysis and monitoring, as well as the hard yakka of lugging equipment into caves and around the karst surface.

Under his leadership KarstCare has secured grant money for rehabilitation of various cave reserves at Mole Creek, and spent many days removing rubbish from Marakoopa, King Solomons, Gunns Plains, Harry Creek, Elderberry Hole and other northern Tasmanian caves, and dealing with sycamore at Wet Cave, ivy at Marakoopa and erica at Mersey Hill. A major task of untiring effort has been the on-going maintenance in cleaning, track marking and boot wash stations in Kubla Khan Cave - hauling gear up to the entrance and knap-sacks of water through the cave, scrubbing mud off rocks, removing heavy, wet towels, cleaning up gear and writing reports to park managers. This alone took over 30 days of cleaning work and another 60 days of coordination and organisation. David also initiated and coordinated cleaning, track routing and rehabilitation in Tailender and Croesus Caves

As well as all this, David helped establish the Tasmanian Speleological Liaison Committee and has achieved an enviable reputation as a cave photographer.

JOE JENNINGS AWARD OF DISTINCTION FOR CAVE SCIENCE

Jill Rowling

Named in honour of Dr Joe Jennings, pioneering cave scientist and former ASF President.

Jill became interested in caving after meeting her partner Mike Lake in 1988. Many of the contributions for which we awarded Mike the Edie Smith Award at Sale in 2009 were done partly in tandem with Jill, for example in making the Karst Index Database work in its current form.

She is an electrical engineer (NSW Institute of Technology, Sydney 1986) who has designed many things including software, firmware and hardware for computers, modems, multiplexers, power supplies and gaming machines. Becoming intrigued by cave minerals since meeting Michael, she decided to pursue a masters degree in science in this field in 1999, graduating in 2005 at the University of Sydney. She contributed many papers in *Helictite* and other journals, wrote contributions to the definitive book on the subject, Carol Hill's *Cave Minerals of the World,* and is an authority in the field.

Jill was a Vice President of ASF in the 1990s, representing ASF for about 15 years on the Bungonia Recreational Advisory Group since its inception, and was an active caver particularly at Jenolan and Wombeyan where she and Mike have several projects under way including surveying and inter-

pretive walkways to the old marble quarry. Current interests include karst and caves in the central west of NSW.

Jill exemplifies the manner in which recreational cavers without relevant specialist qualifications can make a significant contribution to our knowledge of caves and karst. This is the spirit in which Joe Jennings worked with cavers and the spirit for which the Joe Jennings Award of Distinction was established.

AWARD OF DISTINCTION

For committed service in many areas in the leadership and management of Chillagoe Caving Club

Alan Cummins

Alan's passion began at Easter 1964 at Chillagoe. He soon formed close contact with the late Vince Kinnear who later became founding President of Chillagoe Caving Club, as a result of which they began exploration and thorough documentation of the caves that has continued for 47 years with numerous high quality publications and reports.

The value of a great leader to a club's survival and growth is linked with the leader's commitment, involvement and ability to obtain strong support not only from members but from cave managers and other community leaders and enthusiasts. The club blossomed under his terms as President, providing the vision and long-term planning needed for the club to procure and develop facilities such as its outstanding clubrooms at Chillagoe, to expand its interests to other areas such as Undara, Mitchell-Palmer and elsewhere, to assist visiting scientists with research interests in tropical caves and karst, to help organise two ASF Conferences in north Queensland and to institute rigorous training programs.

Alan has introduced many school, Australian Army, Boys Brigade, Cadet and Scripture Union young people to caving by involving them in club activities and practices, in the firm belief that this ensures a good safety record and better environmental attitudes.

AWARD OF DISTINCTION

Bruce Welch

Bruce's father Richard explored Mammoth Cave at Jenolan some 70 years ago and this may have inspired Bruce's passion for caves and for Jenolan in particular. His achievements in cave exploration, conservation and publication are outstanding. He helped found Peninsula Speleological Group in 1972 and led its first official trip, later joining Sydney University Speleological Society, of which he is an Honorary Life Member. In 1975 he discovered Spider Cave, since connected with the show cave system.

In the 1980s Bruce was the driving force behind the Jenolan Caves Protection Group, a group which the Minister of the day famously described in Parliament as one that met in a telephone booth. Nevertheless, through targeted press releases and the occasional TV camera crew sniffing out sewage in the Jenolan River, Bruce was instrumental in obtaining better management planning for Jenolan and other karst areas. In 1991 he went close to being elected to the NSW Upper House, obtaining 13% of the vote, and was later elected to Marrickville Council as a Green.

Bruce's main contributions have been through his professional expertise in book editing and production. He was Business Manager of *Helictite* for over 20 years, produced all editions of *Wee Jasper Caves,* including the new 2010 one, has co-written or produced three books on Jenolan (notably the "blue book" on the Northern Limestone), and in the last few years one on Wellington Caves, also producing five Occasional Papers for Jenolan Caves Historical and Preservation Society.

CERTIFICATE OF MERIT

For significant contributions to the Victorian Speleological Association and Australian Speleological Federation Inc.

Glenn Baddeley

Glenn has been a highly efficient administrator for both VSA and ASF, especially through his considerable professional computer knowledge.

He was President, Treasurer and Records Keeper of VSA and led exploration work in the new area of Drik Drik in western Victoria, he helped organise two ASF Conferences in Victoria, and for Vulcon was the Treasurer and Editor of both the Proceedings and Field Guide. As a Scout Team Leader he developed close ties between VSA and the Scout Caving Team to ensure caving activities are safe and responsible. He has been Business Manager of *Helictite* for over a decade, manages the *Helictite* web page and has been digitising earlier issues.

CERTIFICATE OF MERIT

For significant contributions to the Victorian Speleological Association

Paul Brooker

Paul has been active in many capacities in the Victorian Speleological Association, including President and Treasurer, and in Rimstone which owns and manages the caver-owned accommodation Homeleigh at Buchan, including dedicated refurbishments. He led major trips to Mt Owen area in NZ, including significant new deep caves such as Viceroy Shaft.

He seized a rare opportunity in recognising the potential of Pungalina in the Northern Territory and in negotiating access for the four annual VSA expeditions resulting in documentation of many caves and of important bat populations. He is a major and innovative contributor to VSA training programs, ensuring that the club continues to have enough active accredited leaders

CERTIFICATE OF MERIT

For outstanding leadership and service to the Metropolitan Speleological Society and for achievement in cave photography

David Stuckey

David came to caving through Venturers, joining MSS and promoting speleology through practical and sustained efforts in club activities, special projects and cave restoration projects over a period of 33 years. He was President for a record 16 years and a respected mentor to others. His particular patch has been Jenolan, Abercrombie, Tuglow, Wyanbene and Yarrangobilly. At Yarrangobilly he organised teams to work on restoration of Jersey Cave, on repair and realignment of lighting on South Glory Cave, and on de-wiring Harriewood and Castle Caves to help restore these caves to their original condition. He has also achieved recognition in expeditions to France where he bottomed Gouffre Berger (-1122 m) on an expedition that included some of the original explorers of the cave such as Jean Cadoux.

David has a special passion and skill in photographic recording and written documentation of caves and features. He has developed 2D and 3D-stereo imaging to represent caves to cavers and non-cavers alike in national and international bodies.

CERTIFICATE OF MERIT

For lasting contributions to cave exploration, surveying and documentation in the Northern Territory

Bruce Swain

A teacher, leader of outdoor bushwalks and accomplished bushman, Bruce did a huge amount of original exploration in remote areas of the Northern Territory, keeping the light of organised speleology alive there for over 20 years particularly in his role as NT State Coordinator & Records Keeper for the Northern Territory Speleological Society.

Knowing of the historical problems of maintaining good records of speleology in the Northern Territory, before leaving Katherine to live in New Zealand he organised arrangements for the NT records to be coordinated from north Queensland until interest in an organised group in the NT returns.

Boulder Caves of Mt Nicholas

A. Slee
Forest Practices Authority
P. McIntosh
FPA
G. Tempest
Forestry Tasmania

PETER McINTOSH

The entrance of Rumble Cave. Man (circled) for scale

INTRODUCTION

The Mt Nicholas Range is an isolated dolerite ridgeline rising to 859 m surrounded by extensive slope deposits lying between St Marys and Scamander in northeastern Tasmania.

During coupe assessment and a mapping project two unusual caves within dolerite slope deposits were located and mapped. Small crevices or rock shelters occupying voids within extensive dolerite slope deposits are common landforms in Tasmania.

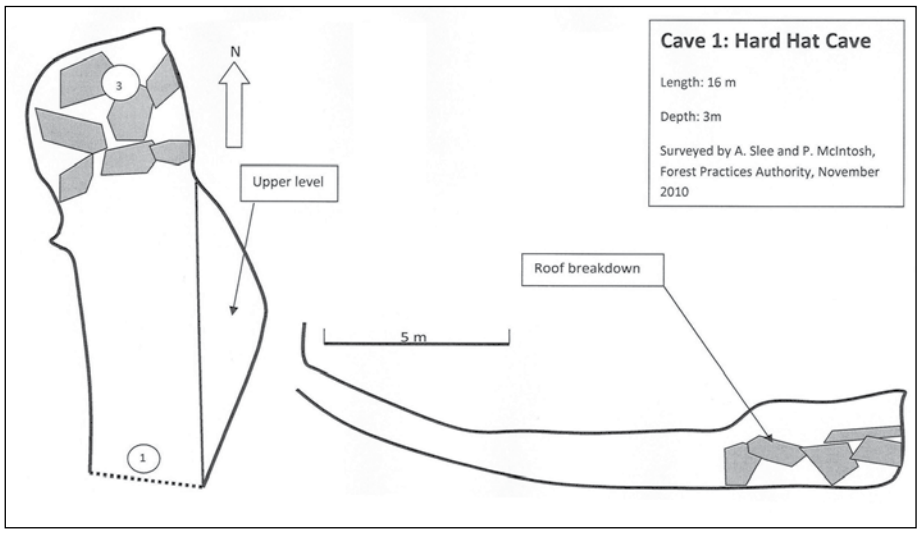
However, apart from the extensive Lost World dolerite rock topple caves on Mt Wellington there are not many records of features that are of a scale comparable to mapped and documented limestone caves containing large chambers in complete darkness that are suitable habitats for cave fauna.

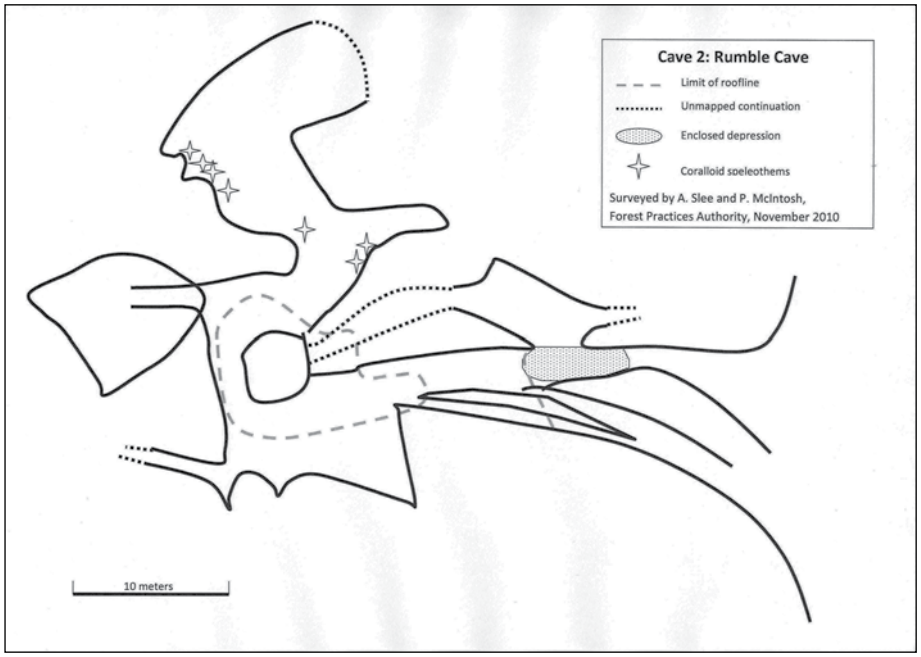
The north-east of Tasmania is a barren landscape for karst with only two small limestone areas known to host caves, the longest of which is Rumpot located at Mt Elephant to the east of St Marys, which has a mapped passage length of 35 m; therefore the modest Hard Hat Cave (MN1) and the more impressive Rumble Cave (MN2) described below are regionally significant caves that are refuges for cave-adapted species, most notably *Hickmania* cave spiders.

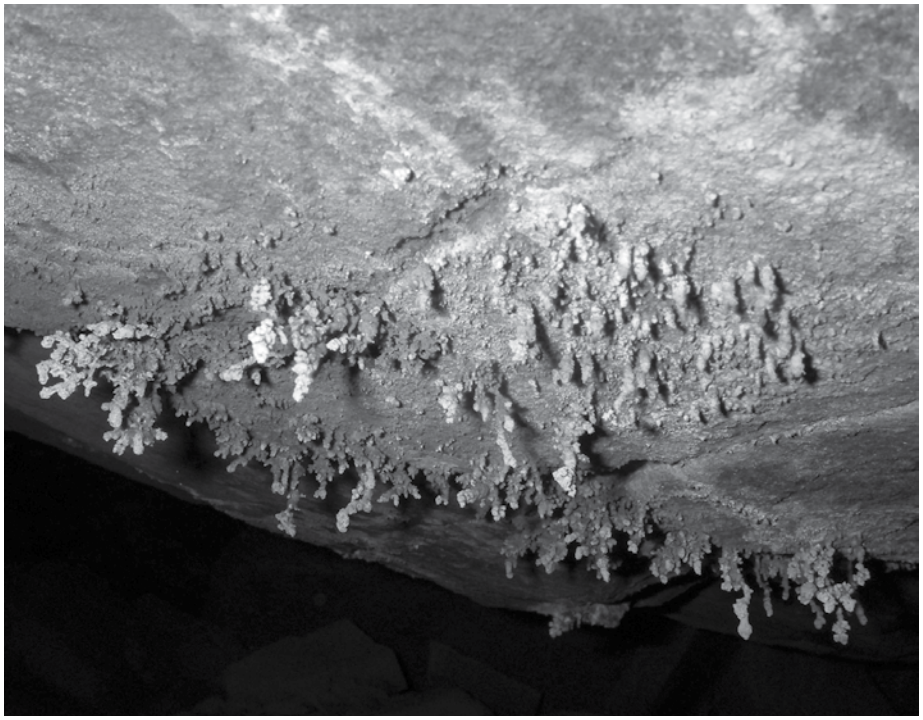
CAVE 1: HARD HAT CAVE

Hard Hat Cave was initially identified by Gareth Tempest, who reported it to the Forest Practices Authority. It is located within a large mass of boulders up to 10 m tall at the front of a dolerite talus 'lobe' that may have been deposited during a low-angle landslide event.

The cave lies at the lowest point of a 10 m wide depression reminiscent of a sinkhole in karst areas.







ADRIAN SLEE

Coralloid speleothems in Rumble Cave

The entrance to the cave is a low 4 m wide rift leading to a single sloping chamber 16 m long and 5 m wide. The end of the cave has undergone significant mechanical breakdown leading to stoping of the roof, increasing the roof height to approximately 2.8 m.

The cave appears to have formed by the mechanical fracturing of an adjacent boulder which has slipped down slope to form the cave roof. One species of cave spider and a small snail were identified within the cave.

CAVE 2: RUMBLE CAVE

Rumble Cave (MN2) is located about 1 km away from MN1 and lies near the backwall of an extremely large rotational landslide of unknown but presumably Quaternary age.

It is located within a large pile of rounded dolerite boulders that are individually up to 25 m wide. These appear to have moved rapidly down slope forming the large chambers and rifts that make up the cave complex.

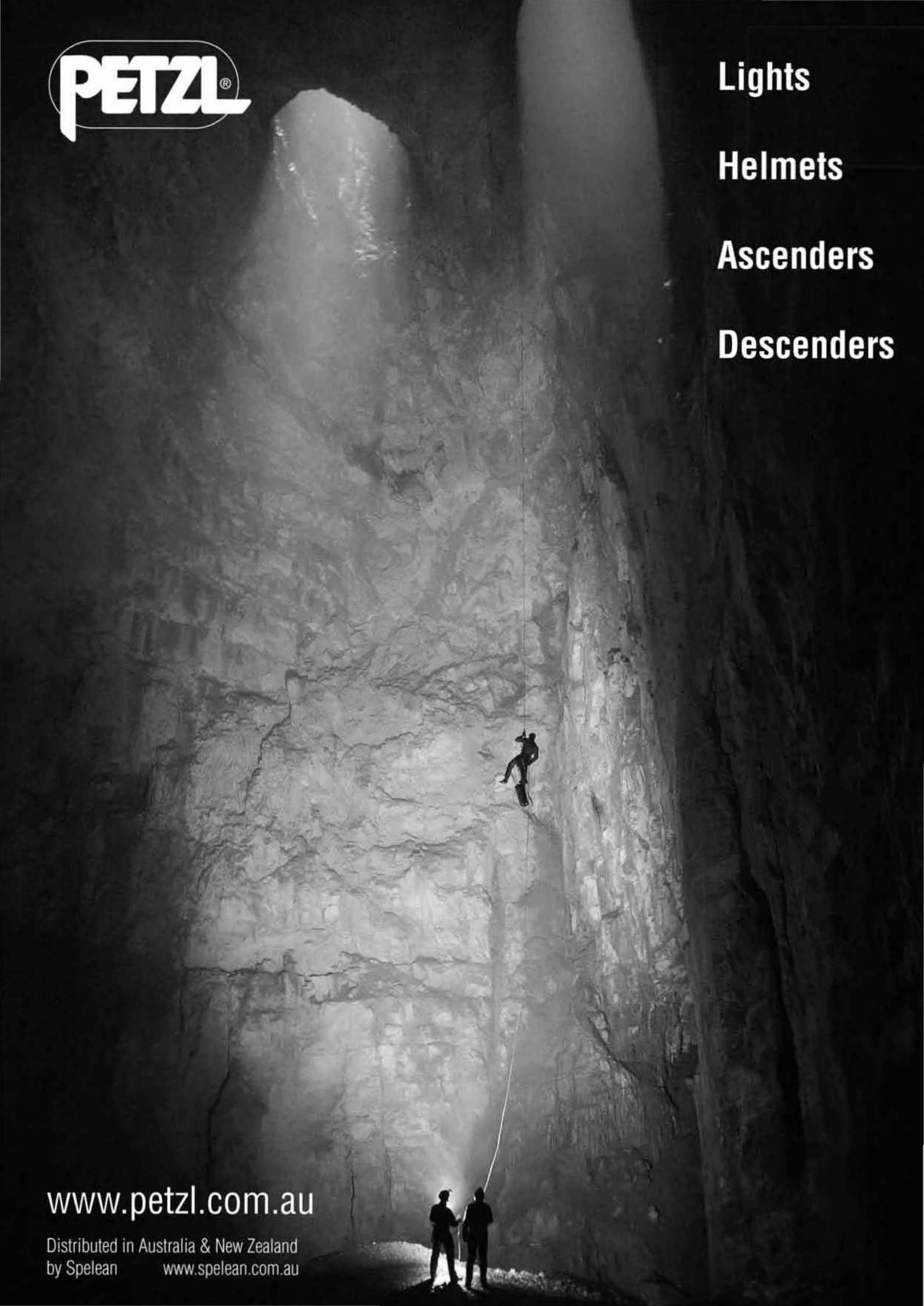
From the original discovery it was ascertained to be a significant find and the authors returned to survey the feature. The cave features a impressive 10 m deep rift running between several overhanging boulders into a central collapse zone surrounded by 10 m tall cliffs from which radiate large overhangs and cave passages extending into the dark zone.

The most extensive passage is located at the back of the rift and features two large chambers totalling >35 m length with roof heights of up to 6 m.

Towards the back of the two chambers the roofs of the chambers are decorated by small white coralloid speleothems and rudimentary flowstone; the presence of these presumably carbonate speleothems within dolerite caves is highly unusual and may relate to the chemical dissolution of feldspars within the dolerite by local seepage along fractures and the precipitation of calcite on the cave roof.

One of the other cave passages contains a roomy 10 m wide upper chamber housing a population of cave spiders. In all the length of roofed passage in the complex probably exceeds 80 m with several unexplored leads. There is also a further 30 m of partially roofed rift.

Compared with many karst caves in Tasmania this cave is of modest scale; however, it is a fine example of a large boulder cave that has formed through mass movement processes and to date represents the most extensive known cave complex in northeastern Tasmania; therefore the site is likely to be of conservation significance.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