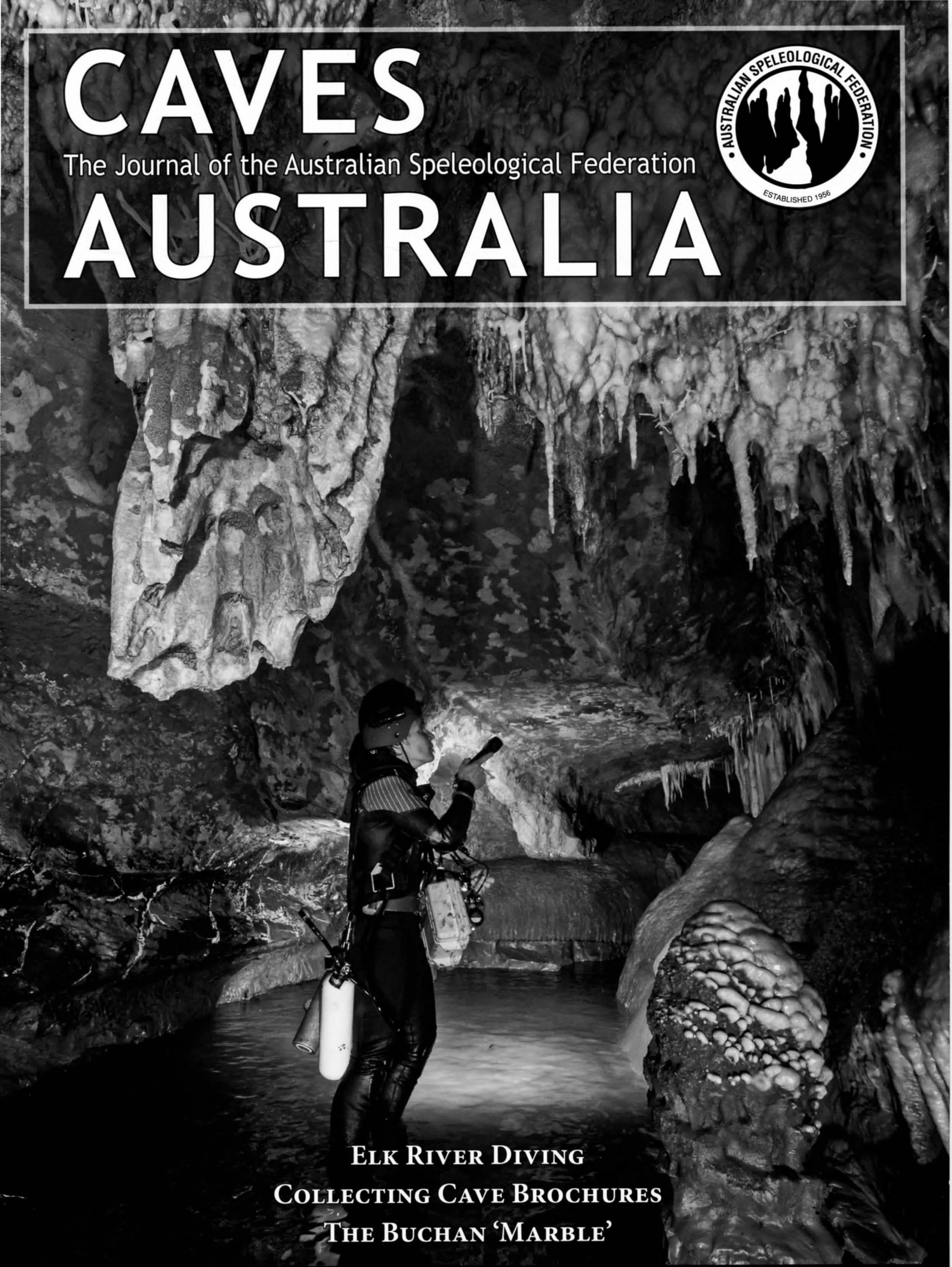
# CAVES AUSTRALIA

The Journal of the Australian Speleological Federation



**Elk River Diving**

**Collecting Cave Brochures**

**The Buchan 'Marble'**

No. 200 • MARCH 2015

ASF

# 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. A more extensive list was published in the last *ESpeleo*. The relevant websites and details of other international and regional events may be listed on the UIS/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. A very busy 2015 is promised with ACKMA at Naracoorte in May, the ASF conference in Exmouth in mid-2015 and the UIS 50th birthday in June.

## 2015

**May 10-15**

**21st Australasian Conference on Cave and Karst Management,** Naracoorte, SA. Details of registration, program, papers, accommodation and associated trips are available on the website, http://ackma.org/. Go to the ACKMA Conference site and for further details contact the organizer Deborah Carden, Email: conference.convenor@ackma.org; Email2: deborah.craven-carden@sa.gov.au. Ph: (08) 8762 3412; Mob: 0409 006 710.

**June 15-20**

**23rd International Karstological School 'Classical Karst' & 50th Anniversary of the formation of the UIS,** Postojna, Slovenia. The International Union of Speleology (UIS) celebrates its 50th Anniversary in conjuction with the 23rd International Karstological School, a series of state-of-the-art lectures and field trips conducted annually by the Karst Research Institute in Postojna, Slovenia. The 2015 school will focus on the importance of exploration on cave and karst research. Registration is possible only online and will be open from 15 December 2014 until 15 May 2015 for School and until 1 June 2015 for UIS day. To register for the celebration and/or the school, and for more information, use the website http://iks.zrc-sazu.si/en/

**June 21-26**

**Ningaloo Underground 30th ASF Conference:** Exmouth, Western Australia. Escape the southern winter (or the northern hemisphere) to enjoy a packed conference program and explore range, reef and gorges with the benefit of local knowledge (always a plus). Details on facilities, accommodation, papers and the registration form are available on the website http://ningaloo.wasg.org.au. Abstracts for papers are due 31 March 2015.

***The following more specialised international meetings are currently planned for 2015. Details of these can be accessed from the Events tab on the UIS website http://test3.brlog.net/.***

**16-19 April**

**13th conference of Cave Rescue Commission of UIS.**

**20-25 April**

**75th Congress of Cuban Speleological Society,** Cuba.

**30 May-2 June**

**EuroSpeleo Forum 2015 and XXII Italian National Congress of Speleology,** Italy.

**15-19 June**

**33rd Congress of the Brazilian Speleological Society.**

**20-26 June**

**KG@B, International Conference on Groundwater in Karst,** UK.

**13-17 July**

**NSS Convention,** USA.

**16-20 September**

**13th Symposium on Pseudokarst,** Czech Republic.

**5-9 October**

**14th Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impacts of Karst,** USA.

**19-23 October**

**National Cave and Karst Management Symposium,** USA .

**1-4 November**

**Geological Society of America (GSA) Convention,** USA.

# Cave temperature study could improve climate change predictions

**Brooke Grant**
*UNSW*

**RESEARCHERS studying the hydrology of Wellington Caves in central NSW have made a discovery that challenges a key assumption used to reconstruct past climates from cave deposits.**

Published in *Nature's* open access journal *Scientific Reports*, the research found that there can be a 1.5°C difference between the temperature of the air in the cave and the drip water that forms the stalactite.

Stalactites and other cave formations, collectively known as speleothems, form when rainwater drips from the surface into the cave system, picking up minerals along the way that solidify once exposed to the cave air.

Scientists had previously assumed that speleothems formed at a temperature equal to the average temperature outside the cave and used this assumption to construct records of past climate variations, says lead author Dr Mark Cuthbert, holder of a European Community-funded Marie Curie Research Fellowship at UNSW's Connected Waters Initiative.

'However, that assumption had never been tested,' he says. 'The 1.5°C difference is very significant if you're looking at past climate change. It is similar to the kind of change in temperature that we've had in the last 12,000 years naturally during the Holocene.' The difference in temperature is attributed to evaporative cooling, which occurs as the water moves along the cave wall before reaching the point at which it drips and forms the speleothem.

'If you were looking at a speleothem formed in that environment and didn't know this process of evaporative cooling was happening, you might jump to the wrong conclusions, in either direction, about what the climate outside the cave was like at the time the speleothem formed,' says co-author Monika Markowska, a research scientist at the Institute for Environmental Research at the Australian Nuclear Science and Technology Organisation (ANSTO).

ANSTO researchers have developed expertise in modelling climate change using nuclear techniques, such as neutron activation soil analysis and carbon 14 dating.

The research team also includes Professor Andy Baker, Director of the Connected Waters Initiative (CWI) and other CWI researchers. The same researchers recently found that other important evaporative effects occur between the soil and the cave that also need to be taken into account when interpreting speleothems as records of climate change.

'Further experimental work is under way to investigate the influence of the geometry, orientation, the thermal properties of a particular formation, and the water film thicknesses, on the relative cooling rate,' the researchers say in their paper.

Dr Cuthbert hopes that ongoing research will lead to numerical models that take into account all the different variables in a cave system that might influence climate change calculations. Speleothem chemistry is one of several methods used to reconstruct past climates alongside other techniques including sediments, ice cores, trees and corals. Caves can yield particularly high-resolution records going back several hundred thousand years.

See more at: http://tinyurl.com/owdatdt

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## CAVES AUSTRALIA

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**Change of address**
Notify us immediately of any address changes to ensure delivery of your *Caves Australia.*

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ASF

# Contents



*Cover: Sandy Varin in the decorated area of Elk River on the other side of sump D1*
*Photo: Liz Rogers*

## ASF Executive



**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.

# EDITORIAL

**IT DOESN'T seem that long ago that I wrote my last editorial, but the proposed dam on the Belubula and its threat to our caves is keeping my nose down.**

**NSW votes on 28th March and both Labor and the Greens have come out against the dam.**

**I've included a response in this issue to the Water NSW document in which dam sites have been identified.**

**Some exciting results just in from our bat research: the last bat study at Cliefden in the 1960s identified two micro bat species.**

**Initial analysis of recent data identified six, two of which are vulnerable, and we were thrilled.**

**Further analysis (and this is only a pilot study) has identified eleven species. What will a full study uncover?**

**Brooke Grant's piece on a NSW Uni Cave Temperature Study further underlines the value of caves.**

**I spoke in Sydney recently at the Save Cliefden Caves Association meeting against the damming of the Belubula. Tim Flannery (yes, that Tim Flannery) was keynote speaker. Armstrong Osborne spoke, too.**

**There will be a comprehensive report on the evening in our next CA.**

**The Exmouth Conference is nearly upon us. It's time to get Papers in and arrange transport. See you there.**

***— Ian Curtis***

# President's Report

**IN JUST a few months the next conference at Exmouth will take place. There will be opportunities to meet cavers from all around Australia, share experiences, get together socially, explore gorgeous Exmouth and visit a cave or two.**

Conferences, like many things in caving, come together due to the hard work, goodwill and dedication of ASF members. Unlike commercial enterprises which have unlimited budgets, community organisations like ours exist and prosper on limited budgets and the kindness, generosity and dedication of ASF members and their families.

Every now and then questions are asked as to whether ASF membership fees are too expensive.

To this I'd say, 'Imagine how expensive they would be if everyone billed the ASF for hours spent by members on community projects, arranging conferences, providing catering, time spent chasing sponsors, council meetings, stationery, telephone expenses, individual insurance without group bargaining power, keeping clubs' books, accommodation and a feed provided to weary cave travellers when they end up in other states … the list is endless.'

The ASF aims to minimise the fees (as set by the Council) but this is only able to happen due to the goodwill shown by all ASF members in supporting the growth and future of caving in Australia.

So from the Executive to all the ASF members out there who sacrifice personal time, energy and occasionally funds to help the running of the Federation. a big 'Thank you'. Your work is acknowledged and appreciated.

Don't forget, everyone — make sure your club is represented either in person or by proxy at the 2015 Exmouth conference to ensure you have your input into the future direction of the ASF.

Happy Caving, keep up the great work and, most important, look after your fellow cavers. I look forward to chatting to many of you in Exmouth.

*Cheers — John*

# Ningaloo Underground

## 30th Biennial ASF Conference

**EXMOUTH, WESTERN AUSTRALIA 21-26 JUNE 2015**

**ESCAPE the southern winter to enjoy a fantastic conference program and explore range, reef and gorges with us. Don't forget your bathers and snorkelling gear...**

Find all the details, including FAQs, on the website at www.ningaloo.wasg.org.au

### KEYNOTE SPEAKER

Bill Humphreys, Senior Curator Biospeleology, WA Museum

### EARLYBIRD REGISTRATION

Just a reminder that earlybird registration ($220) runs until 31 March.

Registrations received after this date will be charged at $250, so get yours in now! ningaloo.wasg.org.au/registration/registration-information

### ACCOMMODATION

Beds available in share houses — queen, single or bunk beds — at a maximum cost of $200 per person for the week.

All accommodation and registration enquiries to Fran Head at registration@ningaloo.wasg.org.au

### PAPERS

What do you have to share with us? You don't need to be a scientist – we want to know about your caving experiences.

Abstracts are due by 31 March, so contact Tim Moulds at papers@ningaloo.wasg.org.au

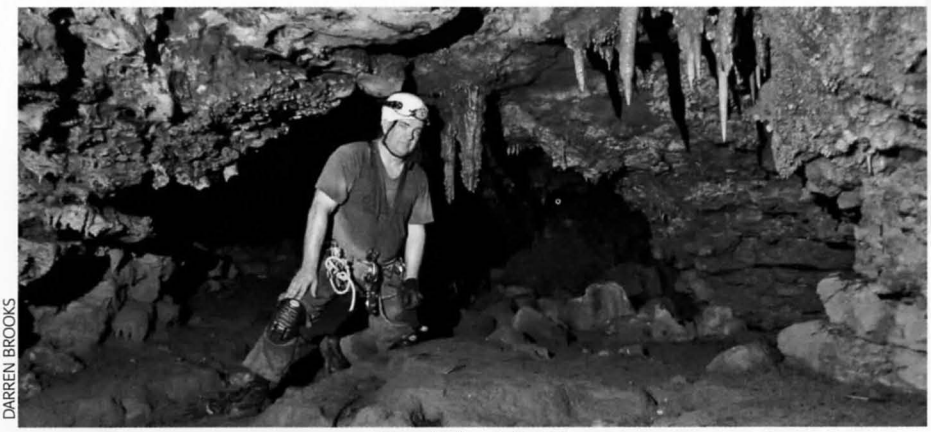
### SPONSORS

Sponsors to date include the Shire of Exmouth, Mainpeak, Starless River and Devil's Lair Winery, so expect good gear and good drinking.

### CAVING

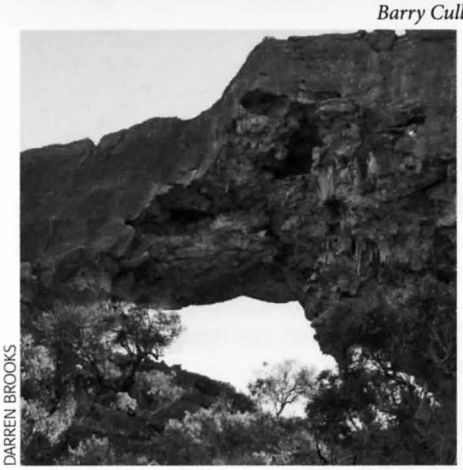
Pre-conference day trips go out from town, while post-conference caving involves camping on the Cape Range.

The difference is location, not excitement!



DARREN BROOKS

*Barry Cullen in C-103*



DARREN BROOKS

*The prominent arch of C-850*

DARREN BROOKS

*Skeleton, possibly* Amphibolum longirostris

## Need New Caving Gear?

**TO MARK its sponsorship of Ningaloo Underground, popular WA caving and outdoor supplier Mainpeak is offering:**

- 15% off any item in the Petzl Australia catalogue (sport or professional) — www.petzl.com.au
- 15% off any full-priced item in the Mainpeak catalogue — www.mainpeak.com.au

This offer will run from now until 15 May 2015. Prepaid items may be collected at the conference or by arrangement from Mainpeak stores in Perth.

Or, if you prefer to receive your goods straight away, pay a small freight charge and they will be forwarded to you.

Why not save money by combining with friends and making up an order to be posted in an Australia Post 3 kg or 5 kg satchel?

Just email your order, headed 'Order ref Ningaloo Underground', to Mainpeak director John Mustard at jmustard@mainpeak.com.au

State your preference for collection or freight, and John will respond with a price for your order, and payment details. It's that simple — and you don't even need to be attending the conference!

So take advantage of the offer now – and happy caving from Mainpeak.

# A New Dam on the Belubula

**Ian Curtis**
*OSS*

## BACKGROUND

On Sunday 8th February 2015, OSS, as a key stakeholder, was contacted by NSW Water and the local media and informed that the Executive Summary findings of the long awaited Water Security Report were to be announced by the Minister later that morning. The full report was to be released on the following day.

Cranky Rock on the Belubula was the preferred option site, and, in the words of Kevin Humphries, Minister for Natural Resources, Land and Water the following day: 'The Needles is off the table.'

What a relief. The Cliefden Caves safe! However, even the most cursory skim of the full document reveals that this is not so.

For the NSW government, preparing for a March election, they certainly may want it to be.

A bunch of noisy local cavers and an active Sydney Facebook campaign are an unwanted distraction in the run-up to an election.

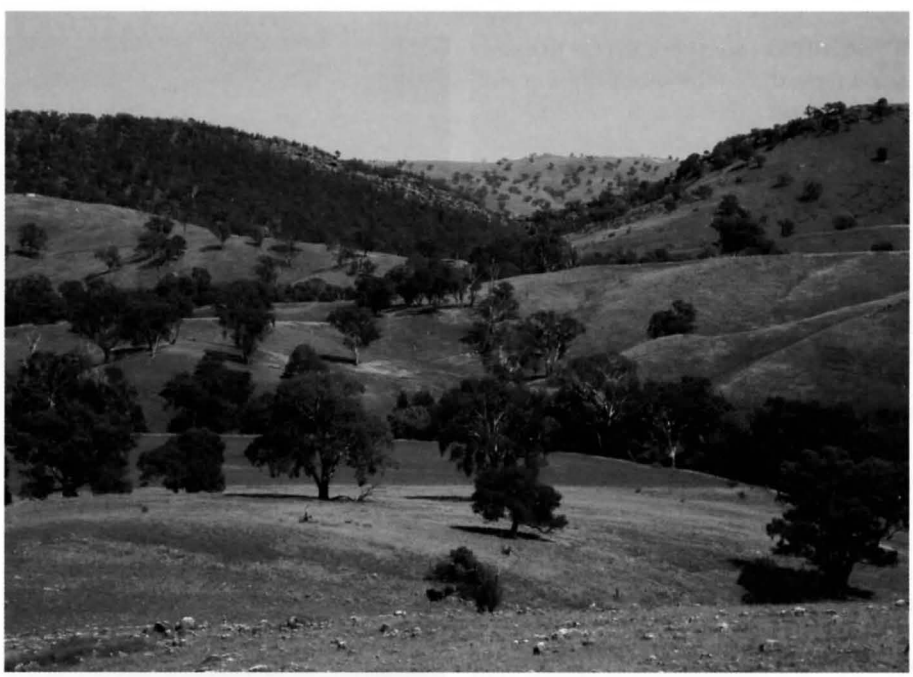
Of the 15 potential dam sites on the Lachlan/Belubula reviewed, a shortlist of four preferred options is given: in descending order, Cranky Rock, Abercrombie,The Needles and raising the Wyangala Dam wall. Cranky Rock and The Needles are on the Belubula; Abercrombie and Wyangala on the Lachlan.

Now that Phase 1 (preparing this desktop study) is out of the way, the next stage, in situ investigations of the sites, to be completed by March 2016, 14 months hence, can get under way.

After these investigations identification of a final (definitive) site will be determined. Does this read to you that The Needles is 'off the table'?

### *Response to Report: Water Security for Regions: Belubula and Lachlan River Dam Investigation Report.*

'The Cranky Rock dam site may be marginally preferred to the Needles site in that it has the potential to avoid the impact on the known extent of Cliefden Caves, but it is likely to be more expensive.' (p. 38)



IAN CURTIS

*Needles Gap*

One of the difficulties in this saga has been the constant moving of dam size and cost goalposts.

When the idea was first raised, John Cobb, Federal Member for Calare, spoke specifically of a 90,000 ML dam with a 49 m wall at the Needles.

The NSW state budget, in June, allocated $150 million towards the dam. Same dam, same place.

Now the size has exploded to a 700,000 ML dam with a 102 m wall at a cost of $665,301,029. This is not the final cost, although it includes roads, land clearing, vegetation, land acquisition and fishways.

It also includes a construction profit of 10% — not bad when interest rates are so low. Not costed are tunnel and diversion structures, gates and mechanical equipment, site security, decommissioning of downstream storages and lakes, instrumentations, electrical works …the list goes on.

None of the projected sites is cheap. The bargain of the four targeted sites is Wyangala at $592,529,666 for the raising of the wall by 20 m; the most expensive is Cranky Rock at $768, 469,467. The Needles is estimated at $665,301,029. At nearly $100 million cheaper to build, and of similar carrying capacity, it doesn't take much imagination to see The Needles back on the table!

### *Who exactly is the dam for?*

Current urban use is 2-3%, agriculture, forestry and fishing 6.1%, manufacturing 8.3% and mining 18.5%. (p. 14).

The report talks of three possible new mines in the area (although one, Regis Mines, has withdrawn, citing the low gold price). It cannot really be for town water security, as a 2009 report by Centroc (a group of local councils) recommended a 22,000 ML expansion of Lake Rowlands. The agricultural water users downstream would like more water, but surely a dam which will not have much change left out of a billion dollars would not be for them. Although agricultural use is most often mooted, the answer must surely be mines.

The report tiptoes warily around the nearby Cadia mine, its tailings pond and

its various water dams, although its water needs are instructive. Its enormous size stands out — an estimate using Google is a 1.5 km diameter crater, depth unknown.

It is the largest mine in the Lachlan catchment and we know it uses 1.5% of the state's electricity.

In the Belubula catchment, Cadia's water is secure. It sources water from everywhere — Blayney and Orange effluent, groundwater bores and licences, on-site dams and water harvesting. Its appetite for and sourcing of water is also instructive. Projected new mines will be allocated 18.5% of water use, six times that for urban use..

### *Who will pay for the water? And who will own the water?*

Referring to the National Water Initiative, the report states that water will be sold at market rates. Private and local council investment are recommended, so it would seem that shareholders would control prices and quantity.

In the words of the report, there has to be a 'paying customer base'. As the Murray-Darling Basin Plan (MDBP) has sustainable diversion limits (SDL) that cannot be altered and no new licences can be issued, it is not surprising that water licences on the river are valuable and highly sought after.

The report lists alternatives to building a new dam (changing the MDBP requirements, inter basin transfers, recycling water from the Lithgow Mines, changing demand management, amongst others).

These alternatives would certainly be cheaper, yet the report suggests that one of the problems has been water costing. The Macquarie and the Lachlan catchment areas generate 'similar tradeable volume', yet the Macquarie has had no zero allocation years and there have been many on the Lachlan.

Water licences on the Lachlan are about half the cost. In 2011 a Lachlan water licence cost $569/ML; Macquarie water was $1,063/ML.

As there is similar agricultural water usage in both catchments, maybe Lachlan water is too cheap.

Several stakeholder comments suggest that opposition to a dam is driven by 'tree huggers' from Sydney.

Those people were obviously not at the Central West Environment Group meeting in Orange, where the idea of a new dam was overwhelmingly rejected by local people.

And shouldn't we all take an interest in what happens in other parts of our country? Should we, as local people, have no opinion on the dumping of coal waste in the Barrier Reef or the extraction of coal seam gas on the Liverpool Plains?

In the project weightings which have ranked these four sites, the environment sustainability weighting is 5%. The rationale (p. 210) for choosing this figure is questionable.

It is very low when compared to other weightings. For example, interests of the community is 9%, maximising state investment is 13% and cost effectiveness is 14%. The emphasis, clearly, is driven by economic imperatives.

The environmental 5% will include land loss, cave and fossil loss, bat and bird habitat/maternity site loss, recovering Murray Cod and platypus colony disruption, loss of valuable trees and shrubs, and bird environment loss.

A dam will split in two the riparian gallery forests, which are currently intact.

A couple of years only to do a full environmental study! A different set of weightings would clearly give a different set of site rankings, or eliminate a site altogether. If a site is preferred for engineering or financial reasons environmental barnacles will be ruthlessly careened.

### *Will these dams on the Belubula actually go ahead?*

All sites on the Belubula have significant development issues. The report lists three: '...faulting near the dam site introducing seismic ground displacement, strong shaking or leakage'; 'the presence of calcareous materials in the reservoir and their reaction (solubility) to water'; and 'the need to cut off seepage flows throughout the alluvium at the dam site.'

Failure to absolutely dispel any of these fundamental concerns should see no dam at any site on the Belubula.

Will a dam at Cranky Rock, several kilometres further downriver, save Cliefden Caves?

This report does not clearly answer that question. Dam sites, wall heights, catchment areas — all these details are not addressed. At the very least, it appears that the warm spring would be inundated.

Why have the caves not been better protected? The caves are on private land and farmers are traditionally wary of advertising their patch — government bodies have a habit of intruding. Landowners are wary of insurance claims, too.

The caves are listed on the Blayney and Cowra local environmental plans. They were listed on the Register of the National Estate in 1987. However, the RNE was closed in 2007 and there is no longer a statutory list.

This was replaced by the *National Heritage Act* and the *EPBC Act* at the Federal level for places and biota deemed of national significance. Places which were of local or state significance remained the responsibility of the state to protect. This despite the NSW Office of Environment and Heritage's assessment: 'Cliefden Caves contain abiotic and biotic values of state, national and international significance.'

## CONCLUSION

This is a desktop report with no ground truthing. The costs are high and will be higher, and the reasons given for such enormous storages on a small river system are questionable.

Wherever the dam is built, the environment will be the loser.

There are alternatives to building a dam which will have less effect on the environment. NSW taxpayers should not pay for a dam on a river system which already has dams which are seldom full due to inadequate rainfall and overcommitted water rights to downstream users; a dam which will damage karst values and flood nesting trees used by forest bats, birds and arboreal mammals. Cavers object to a dam which will flood and affect the Cliefden Caves.

The NSW election is in March and both the Greens and Labor have come out against building a dam. Polling tells us that NSW voters are opposed to selling off government assets and the sale of assets will finance this proposal. As the financing of this dam is predicated on a Coalition electoral victory, who knows what may happen? The recent Queensland rejection of privatisation gives us hope.

# Vertical Rescue Training in Southern Tasmania

**Alan Jackson**
*STC*

**CAVE RESCUE training has become all the rage in Tasmania of late. Probably concerned that we might be getting left behind by our northern Tasmanian cousins, STC decided to put a show on too.**

STC's Search and Rescue Officer, Andreas Klocker, persuaded resident caving guru and NSW Cave Rescue Squad lackey, Al Warild, to fly down and impart a little knowledge on how vertical cave rescues are done in parts of the world that have real caves (i.e. situations where it's impracticable to establish thousands of police officers and tarp-wielding SES volunteers, kilometres of 13 mm rope and helicopters).

Al was kind enough to donate nearly a week of his time to provide a four day intensive course to more than 20 cavers – STC members and several other cavers from northern Tasmanian clubs, Victoria, NSW and even WA. David Taberner (NSWCRS) also flew down to do Al's dirty work.

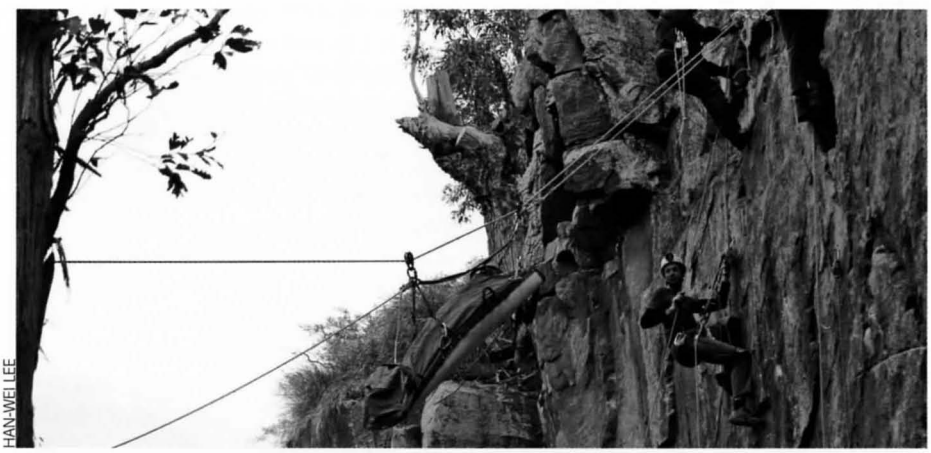
Two days were spent learning the basic principles at a small climbing crag in South Hobart — anchors, knots, rigging, stretcher rigging, counterbalance manoeuvres, tyroleans etc. were all demonstrated and practised.

Two days applying the freshly learnt skills were then spent underground — a day in the upper reaches of Owl Pot and another in Growling Swallet (both in the Junee-Florentine karst area).

To say the exercise was valuable would be the understatement of the year.

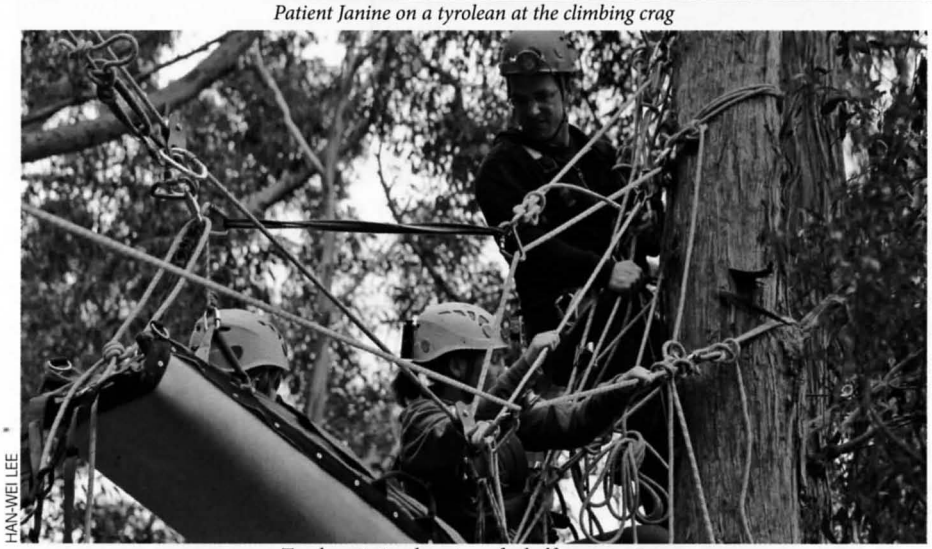
I believe everyone (even the old hands who thought they knew everything already) walked away with an array of new practical skills.

A massive thank you goes to Andreas for instigating it, Al and Dave for getting it done, ASF/ACRC (Australian Cave Rescue Commission) for liberating $500 to cover Al and Dave's airfares, and all those who attended and made the event the great success it was.



HAN-WEI LEE

*Patient Janine on a tyrolean at the climbing crag*



HAN-WEI LEE

*Tyrolean to tyrolean transfer halfway up a tree*

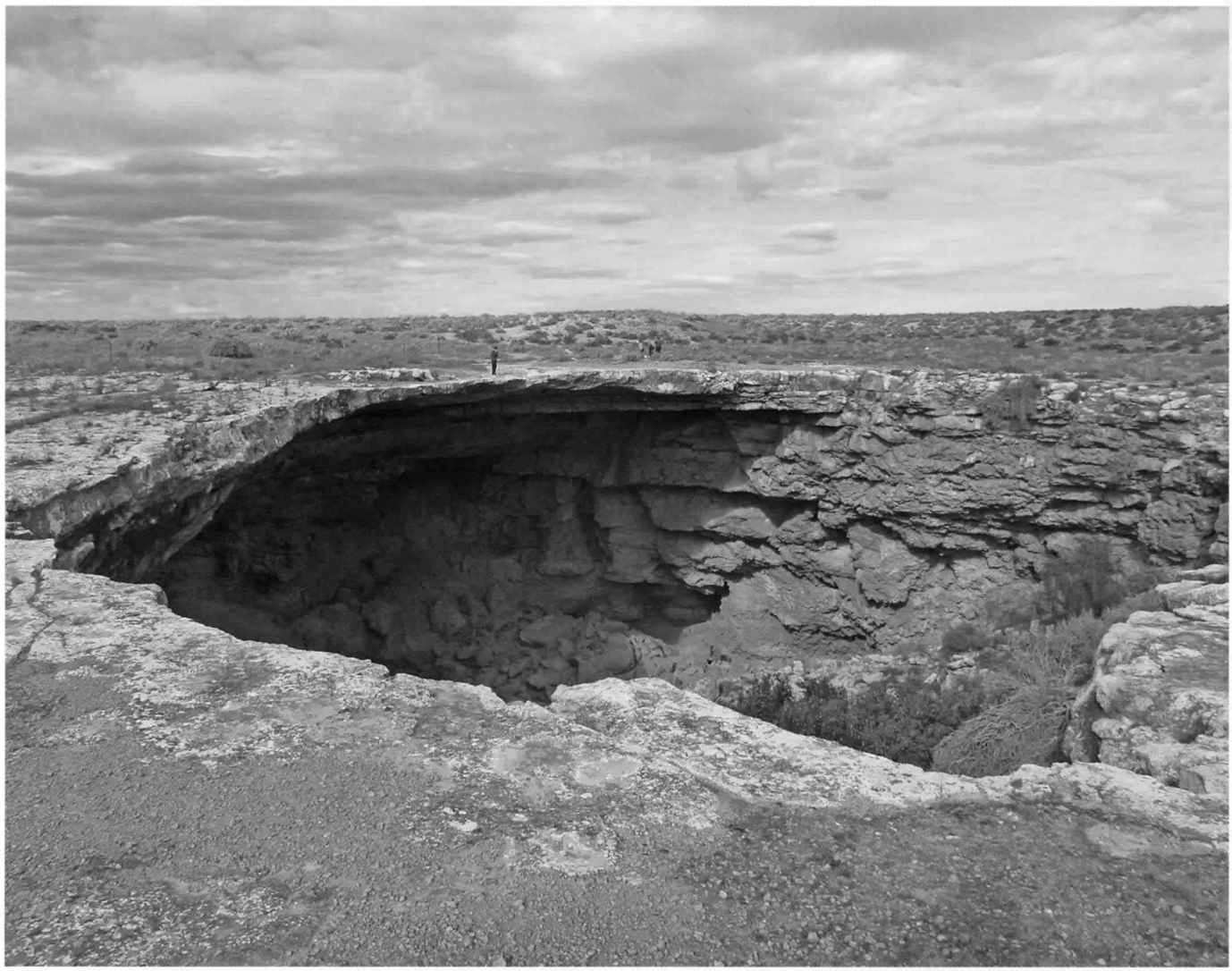
CHRIS SHARPLES

*Preparing for patient transfer in Growling Swallet*

# Koonalda Cave

## National Heritage listing for outstanding Aboriginal Heritage

**Susan White**



NICHOLAS WHITE

**THE Australian Government has placed the Nullarbor Plain's Koonalda Cave on the National Heritage List (NHL) as the 102nd listed place in recognition of its rare Aboriginal archaeology and heritage.**

Koonalda Cave is of outstanding heritage significance to the nation for the role it has played in the evolution of our contemporary understanding of the age of Aboriginal art, archaeology and occupation in Australia.

It is a tangible link to the past that continues to hold special significance for Mirning people.

The details of the actual listing can be accessed at www.environment.gov.au/heritage/places/national/koonalda.

This is well worth accessing and reading, as it discusses in some detail the main reasons for the listing and has a good list of references.

It also includes an excellent summary description of the cave and the history of use over the decades.

It should be noted, however, that this is listed in the Indigenous Class, not in the Natural Heritage class and so it is not listed for its karst values as such — although they are obviously integral to the indigenous heritage.

In particular there is a good summary of the role the cave has played in the evolution of our contemporary understanding of the age of Aboriginal art, archaeology and occupation in Australia.

It remains the best example of finger fluting in terms of their quality, preservation and complexity.

# Elk River Cave Update

## Results from the second diving project in the Murrindal Potholes Eastern Master Cave

**Peter Freeman**
*VSA*

### BACKGROUND

The Murrindal Potholes Reserve, on the hills north of the small town of Buchan, is Victoria's premier cave area. It has always been a fun place — hardly any great caves, but enough quantity of smallish vertical caves to keep us quite busy.

Annoyingly, the deepest of the caves all bottom out at around 60 m depth and none leads to significant active water.

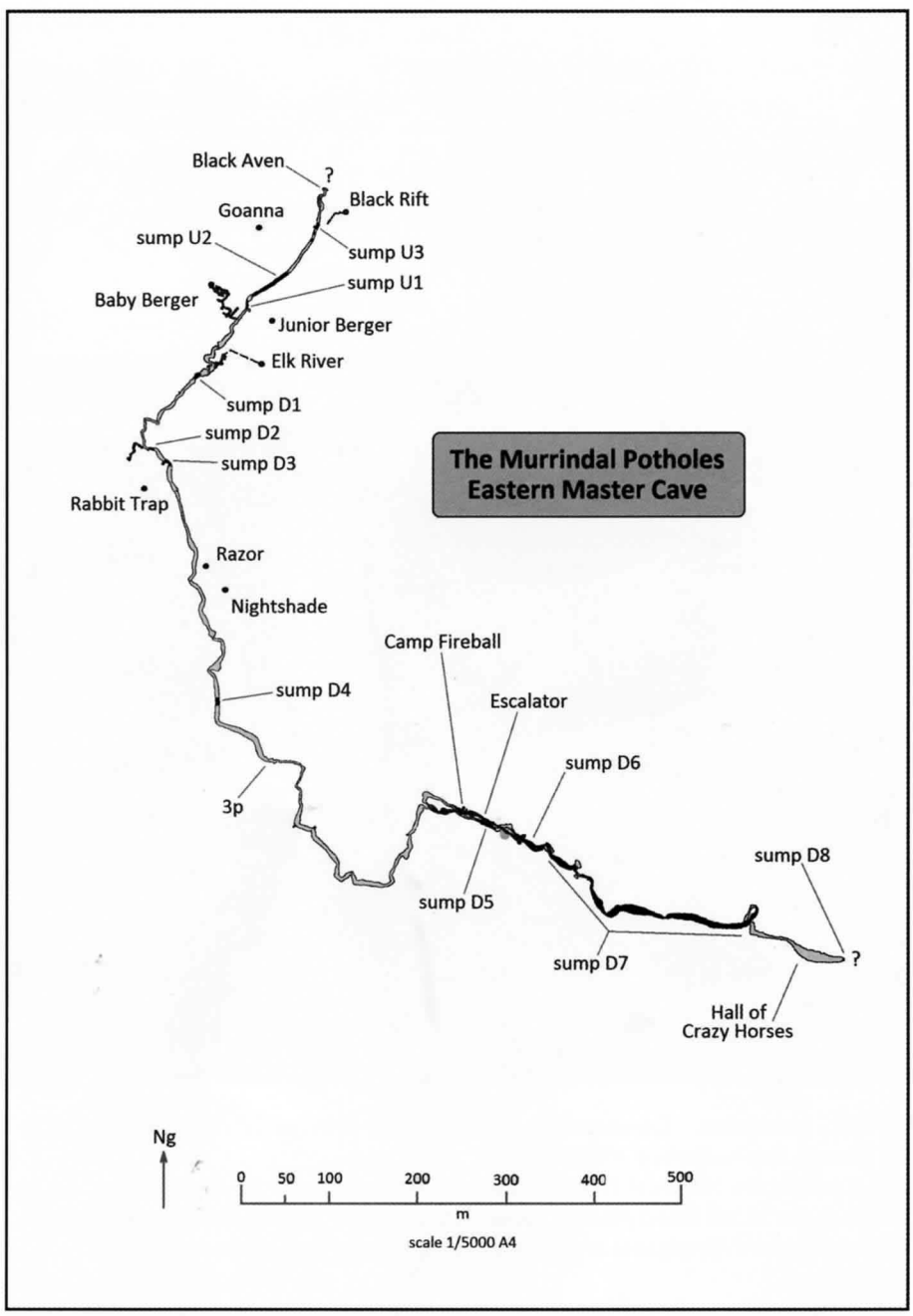
That suddenly changed in early 2006 when the Victorian Limestone Caving Team opened M179, the one pothole that did not stop but led into 140 m of sweetly flowing underground river [VLCT 2007, Van Dyk 2007].

After the initial explorations, the resulting cave didn't attract any visitors, other than me, for some time [Freeman 2008]. I was keen to get past both the upstream sump and the downstream sump, or find someone who could.

Agnes Milowka had recently appeared in the VSA club, and just at the right time she introduced me to her fellow sump diver, James Arundale. Jim and I had much in common — both of us grew up caving in the Yorkshire Dales, UK; and we were both ex-members of the same UK caving club, University of Leeds Speleological Association.

Naturally, I took Jim, and soon afterwards Agnes, to look at those sumps!

The story of how Jim and Ag passed those sumps and subsequent ones, to discover much of the Murrindal Potholes Eastern Master Cave, was recounted in *Caves Australia* 180 [Freeman & Arundale 2009]. Those explorations, now known as the Elk River Cave Diving Project, ended in 2010, with both Jim and Ag having penetrated over 40 m into Downstream Sump 6 (D6) but not reaching further air-space.




PETER FREEMAN

***Note:*** Sumps in the Master Cave are notated as D1, D2, etc, going downstream away from the Original Streamway, and U1, U2, etc, going upstream away from the Original Streamway.

### THE MASTER CAVE EXTENSION PROJECT

In 2011 Agnes' tragic death in Tank Cave and Jim's departure from Australia left Sump D6 waiting for attention. Shortly after this time VSA fortuitously had a new influx of cave diving talent, and they soon sensed that Elk River was the place to be. Planning for a project to pick up the gauntlet began early in 2012. Many tactical discussions were held between the divers; and Liz Rogers, who has since acted as

LIZ ROGERS

*Team shot above the rift passage before sump D5, where the cave cuts down through the rock and drops rapidly. This was taken after spending the night camping at sump D5. Left to right, Dave Bardi, Sandy Varin, Steve Fordyce and Liz Rogers.*

LIZ ROGERS

*Andreas swims into clear water in sump D6. Mud-coated ceilings and walls mean clear water quick deteriorates into brown soup.*

LIZ ROGERS

*Steve Fordyce climbs a waterfall on the water home from sump D5. While water levels are normally very low, winter rainfall increased flow levels.*

LIZ ROGERS

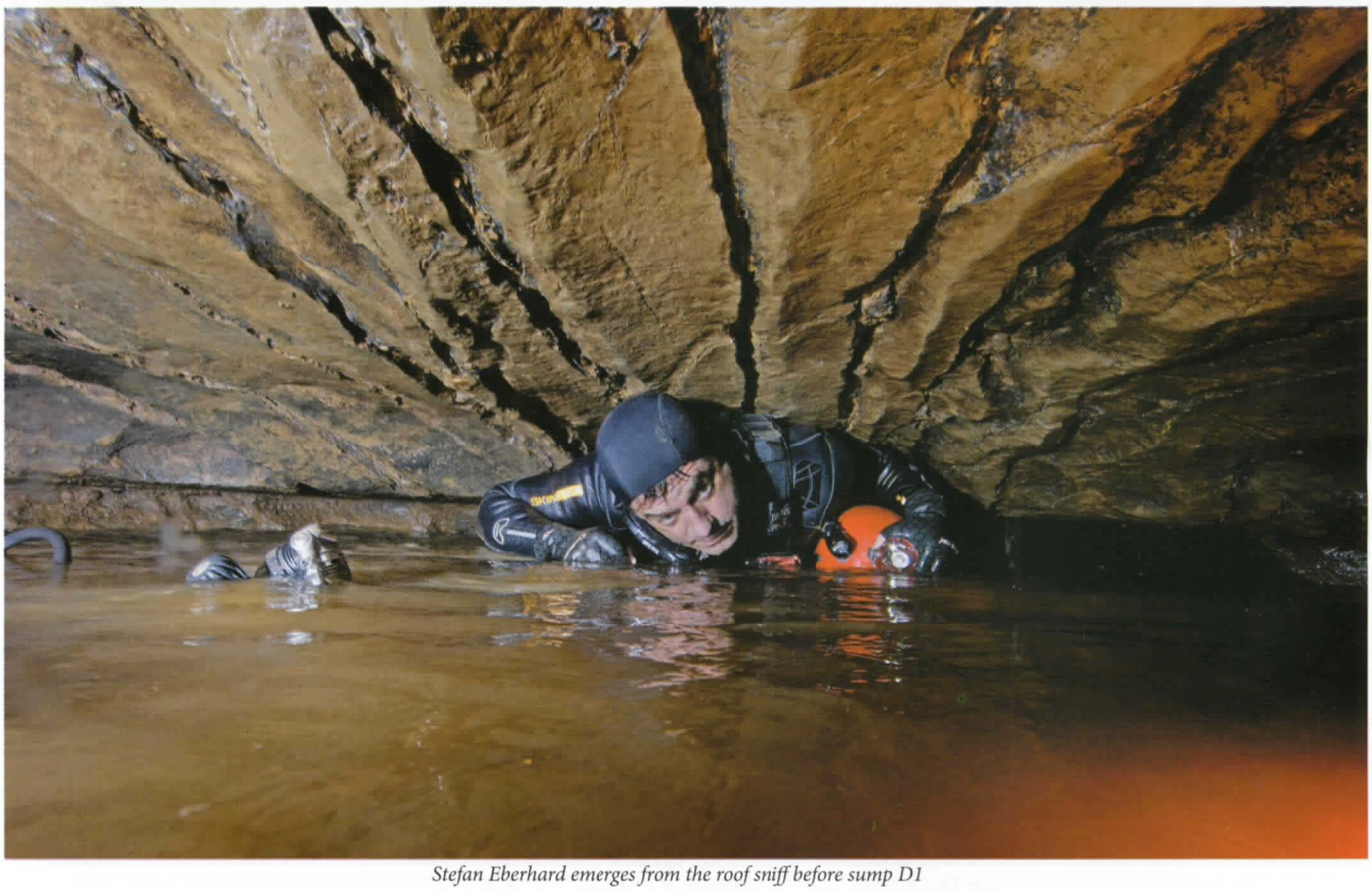
*Andreas swims through sump 7 under the second airbell which was at the time the further known airspace in the cave system.*

LIZ ROGERS

*Tim Muscat ducks under the remnants of a rimstone pool in the streamway*

LIZ ROGERS

*Andreas wanders through the flat decorated passage between sumps D4 and D5 before the cave drops down a waterfall and develops back into a vertical rift formation*



LIZ ROGERS

*Stefan Eberhard emerges from the roof sniff before sump D1*

LIZ ROGERS

*Sandy Varin drags a caving bag full of tanks through sump D2, raising a cloud of silt.*

director of the new project, opened up a productive communication channel with Parks Victoria. I had kept Dale Calnin, the chief ranger, closely informed of events in the first project, and we knew that it would be essential this time, too. Fortunately, Dale understands the historic significance of these explorations, and we thank him for his continuing support.

The first visit by the new team occurred exactly a year later, on 26 January 2013. The divers were Liz Rogers, David Bardi and Sandy Varin, supported by Ken Murrey, David Rueda, Rowan Bulpit and me. Sump D4 was reached, photos were taken by Liz, and a missing piece of the survey was completed. The divers became instantly acquainted with the nature of the cave: its tight and difficult dry approach to the stream passage through Baby Berger Cave, the taxing squeeze through Sump D1, and the beautiful stretches of airspace streamway. This trip also set our standard pattern of a quick pitch-rigging descent by the dry team on Friday, a long-duration penetration attempt by the dive team on Saturday, and a gear retrieval and de-rig descent (by the dry team or by both teams) on Sunday.

Enthusiasm being high, we returned one week later. The dive team was again David and Sandy, but plus Ken Murrey and minus Liz; and the support team was again David, Rowan and myself. This time Sump D4 was passed, D5 was reached, and air tanks for future trips were deposited. Trip duration for the divers was 14 hours: this, and even longer durations, would become regular. On this first journey down the Long Streamway (Elk 5, between Sumps D4 and D5) route-finding was also a delaying factor.

## EARLY PROGRESS

Since we had done two successive weekends, we now optimistically planned weekly visits. The cave was therefore left rigged, but in fact it was two weeks before we were at Buchan again. This diving push by Liz, David, Sandy and Ken, joined now by Steve Fordyce, was spectacularly successful: Liz plunged into D6, went to the end of Jim's line in clear water, and swam straight out of the far end into Elk 7. That airspace was named Liz's Room. Ag and Jim, in their cloud of silt four years previously, had been only ten metres short of passing this sump!

Additionally on this trip, all the other divers reached the start of D6. Elk 6 airspace (The Labyrinth) was surveyed, and its branches explored. The dry team had expanded too, gaining Topaz Aral, Tom Porritt and Alen Milos.

It was mid-April before we again had our ladders and ropes strung through Baby Berger. Steve and Ken went as quickly as possible to Liz's Room, and Steve swam off into Sump D7. Before turning for home he had laid more than 80 metres of line. Meanwhile Liz, accompanied by diver Andreas Klocker, explored up the Long Streamway's dry branch named 'The Escalator'. Fifteen hours were spent in the cave, and a very tired team emerged, as usual, into a dark starry night on the Potholes Reserve. The same team, assisted only by me, hauled 11 packs out from Uncles Aven the next day.

The next few trips, in May, June and July of 2013, made no progress downstream. This was due partly to a flood in the cave, partly to technical problems, and partly because a tank-drop-only trip was made. However, other important work was done, including safety improvements, establishment of emergency dumps, re-surveying the whole original streamway and M14 access route, and surveying all of the known upstream cave. Also, new divers had been on the team, as well as new supporters (Cath Hemley, Ian Barnard, Tim Muscat, Seamus Breathnach).

The flood was interesting, but unfortunately it occurred just as the regular team was supplemented by visitors Ken Smith, Stefan Eberhard and John Dalla-Zuanna. There had been prolonged heavy rain before the descent, but we didn't reckon on the effect in the cave being so dramatic. In fact, Baby Berger was in a very wet condition and Elk River was flowing strongly. The

Upper Roof Sniff had effectively sumped; I looked into it optimistically, but was sternly told by Liz not to be so silly as she prepared to lay dive line through it. All the divers dived through it, and through the Lower Sniff, and some went through D1 and as far as D2. Caution, of course, prevailed and a return was soon made, with the level clearly rising further. By the time of Sunday's pack retrieval and de-rig, with rain still falling, the cave was almost unrecognisable and quite spectacular; there was a little waterfall at each drop in Baby Berger, and a rather noisy one on the 40 m pitch.

In October, Steve once again laid line in D7, gaining another 150 m of underwater cave. He was accompanied by Liz, who surveyed all the way back to the line tie-off in Elk 7 airspace. Also of note this time, Tim Muscat graduated onto the dive team and Michelle Doolan and Jason Goldstein joined me in dry support.

LIZ ROGERS

*Andreas Klocker negotiates a narrow rift between sumps D4 and D5*

## PROGRESS SLOWS, BUT PRACTICES IMPROVE

From November 2013 to November 2014 progress has been only a few metres at the downstream frontier. This has been due to many factors. The November 2013 descent trialled underground camping, with a 29 hour duration (it was not helpful enough to repeat, so far). Some side-lead exploration was performed. Resupply-only trips were made. Water tracing was performed, proving the resurgence to be at M26 Sub-Aqua Cave, and karst geologists John Webb and Brian Finlayson were guests on the team. Many photos, still and movie, were taken. M14 rigging was improved, and our pack hauling practices were refined. Jason Mallinson temporarily joined the dive team for one descent, and new dry cavers (Nina Birss, Bradley Dohnt and Oliver Tomlin) participated as porters.

## FINALLY – A BREAKTHROUGH

On the long weekend in March 2015 a three-person dive team (Liz, Steve and Ken) and a five-person dry-support team assembled for a major downstream push. Day one's work was to position lots of equipment in the streamway (along with exploring farther upstream). On the next day, a sixteen hour effort by the divers was rewarded by shaking off the jinx and finally passing Sump D7.

Steve, loaded with four large side-mount tanks and all the other usual appendages, laid an extra 110 metres of line to complete the 366 metre sump. He emerged into a small tunnel that soon led down a waterfall and into a large Hall, eight metres wide and twenty metres high. His exultation was not dimmed when he came, after 155m, to the next sump. It's just the way it goes ....

D8 now beckons.

## THE UPSTREAM DIRECTION

Jim Arundale had passed through one short sump going upstream, and partially penetrated U2, even before D1 had been passed. Agnes had also explored against the flow, passing the 50 m long U2 and reaching the outflow of U3. During the Master Cave Extension Project, this direction in the streamway has understandably been given lower priority, but it was not forgotten. Steve Fordyce picked up this challenge on the weekend of the flood by surveying all the way from Uncles Aven to the end of Agnes' line. Ken Murrey was also interested, and in October 2013 he swam through, and surveyed, Sump U3, emerging into an airspace now known as Ken's Room. Having overstayed his expected return time, he had to turn around while still walking up open cave passage.

Another seventeen months passed before the peace beyond Sump U3 was again disturbed. Ken and Steve went through to continue exploration, and found themselves, after only a few more metres of passage, at the bottom of a large aven with falling water.

Where this may lead is a mystery, since there are no surface features nearby. Ascending the aven will not be easy, and it must wait, but we're sure there is more to find up there.

## THE FUTURE

The team, frustrated by the long period of only minor progress but now re-energised, recognises that the cave is becoming more difficult. The problem is that the exploration front is at the far end of a supply chain that is long and getting longer with the logistics therefore becoming progressively more challenging.

As examples of this, I can mention that there have been durations of more than eighteen hours for the divers, and one trip took in and brought out eighteen packs. To set against that problem, the core participants are now well-practised, the route down to the water and through the Master Cave to the longer sumps has become quite familiar, pack handling through Baby Berger's Balcony Tube has become streamlined, and the use of some new diving technology is on our horizon.

The last line tie-off, over 250 m into the seventh sump, is staring into large open passageway, and so all are confident that new cave length is there to find.

It is also worth noting that the altitude difference between Sump D7 and the resurgence inspires confidence that more airspace cave exists in the 600 m gap, so some of that route might be walking, not swimming. Stay tuned.

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# Cave Tourism Brochures

**John Dunkley**
*HCG, Jenolan Caves Historical and Preservation Society*
**Scott Melton**
*Jenolan Caves Historical and Preservation Society*

**CAVE BROCHURES must seem a rather mundane subject. They are handed out free, and they're usually discarded afterwards.**

They are, after all, nothing more than advertising matter. They cost nothing, so perhaps they're worth little. They are ephemeral.

In a breakdown of the spectrum of tourism experiences, brochures fit into the anticipatory stage, and are followed by the stages of travel to the site, on-site experiences, return travel and recollection.

People who actually visit the caves advertised may well buy postcards, books, pens, patches, T-shirts, jewellery, snowdomes and all manner of souvenirs afterwards as gifts, mementoes or recollections of a pleasant trip. Quite a few of us collect such memorabilia. But not much attention has been given to pre-trip advertising and publicity media like brochures.

Caves are major regional attractions in some parts of the world, particularly in China, which hosts over 40 million cave visits a year; Slovenia, with up to a million visitors a year just to the Postojna area; Missouri, with 20 competing show caves; and Thailand, where I estimate several million cave visits occur each year, mostly to Buddhist sites but with a growing promotion of adventure tours.

Brochures are one of several media demonstrating contrasting cultural approaches to cave interpretation; in China particularly, the very names of many caves highlight cultural differentiation.

Australian cave tourism in the modern sense began in the late nineteenth century largely by word-of-mouth, through Cook's *Australian Wonderland,* centenary celebratory books such as Cassell's *Picturesque Australasia* and Andrew Garran's *Picturesque Atlas of Australasia* and occasional lengthy newspaper articles analogous to the confected travel sections in today's newspapers, including the excellent articles in the *Illustrated Sydney News.*

In May 1905 the quaintly titled NSW Department of Intelligence established a State Tourism Bureau to promote tourism, and shortly afterwards the first cave tourism brochures appeared. Other states rapidly followed suit.

Because trains were the usual mode of travel, many early brochures promoted caves as part of a package offered by the various railway departments, which were developing extensive travel departments.

The first newspaper advertisements also date back just over 100 years. Promotional advertising expanded rapidly with cheaper printing, especially of photographs, the growth of the middle class, paid annual vacations, and the advent of rail excursion fares. As motor transport spread, there was a gradual move to increasing promotion of the caves themselves, and a corresponding growth in brochures.

So, what value do cave tourism brochures have? Mainly, they provide another window of insight into the way our caves were promoted and displayed, into changing social habits and values, and to comparative interpretation and presentation practices. They have been used by writers about tourism history generally. Some illustrated examples from this presentation include:

**Information on caves no longer shown to the public,** including names given to decorations etc. e.g. Scotts, Baldocks, Jersey, Cammoo, Exit Cave (adventure tours) or until its recent reopening, the old Nettle and Arch at Jenolan.

See figure 1: Brochures showing information on the now closed Cammoo Caves at Rockhampton

**Changing transport methods to the caves.** The move from package tours e.g. with train included or stops on the Blue Mountains, to more individualised programs as cars became more common. Gradual changes due to technological changes e.g. horse and coach versus organised motor tours. The Caves Express, and train tours to Mole Creek, Buchan and Naracoorte.

See figure 2: Brochures showing changes in information on transport to and from the caves; Jenolan and Buchan

**Changing prices** e.g. how Jenolan widened the gap between prices of Lucas Cave and of more restricted caves like Ribbon, to market the latter as a premium experience. There were even changes in name — Ribbon Cave became the Blue Ribbon Tour; part of Imperial Cave became the Diamond Cave Tour. In both cases prices increased markedly as new marketing niches were exploited. Similarly, new owners decided that Capricorn Caverns marketed better than Olsens, and Careys better than Goodradigbee. At Waitomo, staid advertising of the 'world famed glowworm grotto' expanded to more aggressive promotion of 'underground playgrounds' and 'eight amazing adventure options'.

See figure 3: Changes in marketing practices at Wee Jasper (NSW) and Waitomo (NZ)

**New directions in marketing** — at Naracoorte, Victoria Cave became Victoria Fossil Cave to cater for a boom in public interest in the fossils. Other examples include Jenolan promotions, such as the many anniversaries of various discoveries — 'The other Wilson', etc.

Jenolan has in general marketed its history better than any others in Australia. It is also instructive to compare earlier and later marketing focus with that from the 1980s era when it was called Jenolan Caves Resort, administered by the Department of Leisure, Sport and Tourism, and emphasised tennis courts, fitness trails and a camping ground. An increase in special-interest tours can be tracked through some brochures.

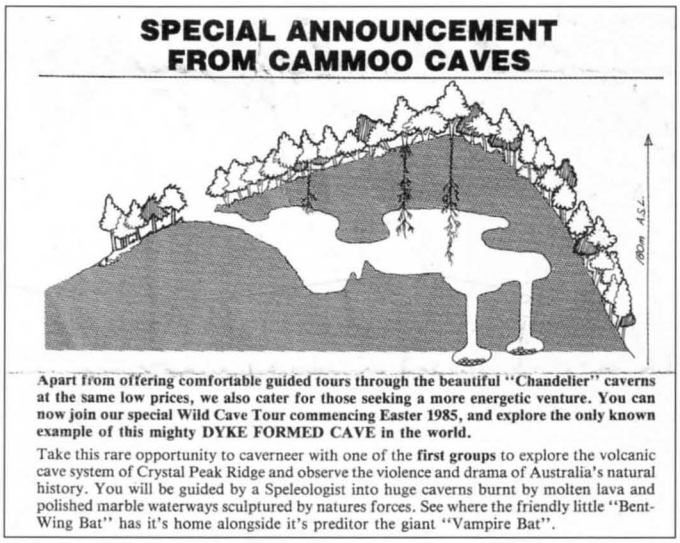
**Changes in the language of advertising** — 'inspections' became 'tours', 'tours' became 'adventures'. Nevertheless, in many cases florid language such as 'a place apart and enchanted … surcharged with mystery' (Jenolan, 1930) and 'a symphony in stone' (Yarrangobilly) has not changed with terms like the current (2008) 'magic happens here'.

See figure 4: Florid language used to describe cave tour experiences at Jenolan and Yarrangobilly

**Reflections on changing practices — things that aren't done any more or shouldn't be.** Some brochures show visitors

*This article was presented at the ASF Conference in Sale, January 2009. The Proceedings from that conference are currently in production.*

# Cave Tourism Brochures



**SPECIAL ANNOUNCEMENT FROM CAMMOO CAVES**

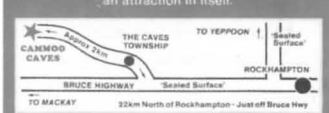
**Apart from offering comfortable guided tours through the beautiful "Chandelier" caverns at the same low prices, we also cater for those seeking a more energetic venture. You can now join our special Wild Cave Tour commencing Easter 1985, and explore the only known example of this mighty DYKE FORMED CAVE in the world.**

Take this rare opportunity to caverneer with one of the **first groups** to explore the volcanic cave system of Crystal Peak Ridge and observe the violence and drama of Australia's natural history. You will be guided by a Speleologist into huge caverns burnt by molten lava and polished marble waterways sculptured by natures forces. See where the friendly little "Bent-Wing Bat" has it's home alongside it's preditor the giant "Vampire Bat".

There are extensive lawns, flowering shade trees, shrubs and vines, a large car park, picnic and play area for the children, to help you relax.

Well defined bush walking tracks allow you to view and photograph the sub-tropical rain forest and the Karst landscape.

Cammoo Caves Limestone Kiosk, an attraction in itself.




- Souvenir Kiosk • Picnic Area with BBQ
- Continuous Tours 8.30 to 4.00 – 7 Days a Week
- Coaches Welcome
- Special Tours by Arrangement

*We hope you enjoy this Wonder of the World Down Under*

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ROCKHAMPTON'S TROPICAL WONDER

CAMMOO CAVES

CENTRAL QUEENSLAND

THE CHANDELIER CAVE SYSTEM is a naturally well decorated and colourful complex of caverns, with its huge chandelier. All is seen by plain light; then, in colour for your enjoyment.

A DELIGHTFUL CONTRAST

*Figure 1: Brochures showing information on the now closed Cammoo Caves at Rockhampton*

## *Victoria's Wonderful Cave Country*

PRACTICALLY every State in Australia has within its territory wonderful caves. Victoria is particularly fortunate in this respect, and the caves in the Eastern portion of the State are well worth a visit. Some of these caves are great caverns, while others are tiny grottoes, which resemble glittering treasure chests. Pendent stalactites bejewel the roofs, alabaster stalagmites rise like pillars from the floor, while radiant helicitites scintillate upon the walls.

Though there are some magnificent caves in the limestone country near the source of the Murray River, the only section of cave country which has been made accessible to tourists, and where they are specially catered for, is in the vicinity of Buchan, in Eastern Victoria, 224 miles from Melbourne, about 10 miles from the Snowy River, and 20 miles north from the railway station at Nowa Nowa.

The Buchan Caves appear to be the central point of a long series of great caverns, the trend of which can be traced along the country overhead by great funnel-like depressions.

The surpassing charm of these Caves surprises most visitors who view them for the first time. The formations in them are absorbingly fascinating. There are dainty shapes and filmy shells inimitably colored in a way that suggests a recent completion by some weaver's magic loom.

Fanciful combinations suggest all sorts of quaint figures. There are curious galleries, winding passages and spacious compartments, all combining for a wonderful effect. Their fascination persists long after the entranced visitor has returned to the sunlight above.

The age of these caves is very great. In some cases no less than three storeys of galleries lie one above the other.

It has been calculated that it takes 33 years for a stalactite to grow one-eighth of an inch, and, as many



## *How to Get There*

THE Buchan Caves are easily and quickly accessible. One may travel by the morning train from Melbourne, and, reaching Nowa Nowa the same afternoon, take car to Buchan, arriving there in time for tea in the evening.

The route may be diversified by leaving the train at Bairnsdale, and journeying to Lakes Entrance by car or by boat via the Gippsland Lakes, whence car may be taken to the Caves.

Advice concerning the route desired may be obtained at the Government Tourist Bureau.

The drive from Nowa Nowa to Buchan is particularly attractive, passing over the foothills of the Tara Range, and through fern gullies up and down timbered slopes, where heath and bush flowers bloom.

Having arrived at the township of Buchan, where accommodation is available, the tourist can from this centre explore the caves and subterranean passages, admire the rugged grandeur of the hills, and enjoy the drives and beautiful valley views which are a special feature of the district.

*The caves are open for inspection Mondays to Saturdays at 10.30 a.m., 2.30 p.m., and 7.30 p.m.; Sundays, 10.30 a.m. and 2.30 p.m.*

THE following is the scale of charges for admission:

| | | |
|---|---|---|
| Fairy Cave | 2/6 for each person. | |
| Royal Cave | 2/6 | „ „ |
| Murrindal Cave or Lilly Pilly Cave or both | 2/6 | „ „ |
| Federal Cave | 1/6 | „ „ |
| Moon Cave | 1/- | „ „ |

In the evening the charge for admission to either the Fairy or the Royal Cave is 3/-.

Children under 14 years of age, half rates.

Visitors desiring to make an inspection at 7.30 p.m. must give due notice to the Caretaker.

*For further particulars consult the Government Tourist Bureau, Queen's Walk, Melbourne (C. 2896), or the Branch of the Bureau at Spencer Street Station (C. 1267).*

Issued by
THE VICTORIAN RAILWAYS COMMISSIONERS
in conjunction with
THE BUCHAN CAVES COMMITTEE

Nov., 1929 Victorian Railways Print 6723-29

NEW SOUTH WALES GOVERNMENT RAILWAYS.

## CAVES EXPRESS

### Sydney—Mount Victoria and Return

Passengers desiring to travel by this train, in either direction, are required to book reserved seat in advance, for which no additional charge is made.

It is recommended that application for reserved seat for the return journey be made immediately on reaching destination station.

**Caves Express**

Runs in following Time-table, calling only at the stations shown:—

| DOWN (WEEK DAYS ONLY) | a.m. | UP (WEEK DAYS ONLY) | p.m. |
|---|---|---|---|
| Sydney .. dep. | 10 40 | Mt. Victoria .. dep. | 7 0 |
| Hazelbrook .. „ | 11 53 | Blackheath .. „ | 7 7 |
| | p.m. | Medlow Bath .. „ | 7 14 |
| Lawson .. „ | 12 10 | Katoomba .. „ | 7 23 |
| Wentworth Falls .. „ | 12 22 | Leura .. „ | 7 27 |
| Leura .. „ | 12 31 | Wentworth Falls .. „ | 7 34 |
| Katoomba .. „ | 12 36 | Lawson .. „ | 7 45 |
| Medlow Bath .. „ | 12 44 | Hazelbrook .. „ | 7 46 |
| Blackheath .. „ | 12 53 | Parramatta .. arr. | 9 25 |
| Mt. Victoria .. arr. | 12 57 | Strathfield .. „ | 9 3 |
| | | Sydney .. „ | 9 15 |

* sets down only

The Travelling Public are notified that Light Refreshments are available on this train, and patronage of this service will be invited by attendant.

**Refreshment Service**
Tea, Coffee, Milk or Aerated Waters with either Sandwich, Cake, Pie, Scone, Biscuits, etc., 9d.
Vanilla Ice Cream, 6d.

**Other Services**
Basket Assorted Fruit, 1/6
Cigars, Cigarettes and Tobacco at ruling prices
Sweets of all Varieties

SPECIAL NOTICE

Attendant must tender a receipt for all moneys paid for Refreshment Service, and patrons will kindly demand same if not tendered and destroy to prevent further use.

Criticisms or complaints are invited by the General Manager, Railway Refreshment Rooms, Adyar House, 19 High Street, Sydney, and will receive courteous and prompt attention.

**Caves Inspection Fees.**

Inspection Fees are not included in the tour prices. The Caves available for inspection are subject to variation, and visitors usually prefer to make their own selection.

The following are the Fees fixed by Regulations under the Public Trusts Act, 1897:—

| | | | | | | |
|---|---|---|---|---|---|---|
| Ribbon — Limited to | 8 | persons | per | inspection | .. | 5/- |
| Skeleton— „ | 8 | „ | „ | „ | .. | 3/- |
| Orient — „ | 16 | „ | „ | „ | .. | 5/- |
| Temple of Baal „ | 25 | „ | „ | „ | .. | 4/- |
| River — „ | 25 | „ | „ | „ | .. | 4/- |
| Jubilee — „ | 20 | „ | „ | „ | .. | 3/- |

Guests at Jenolan Caves House are accorded priority of booking for the above Caves. Make your reservations at the Booking Office immediately on arrival.

Lucas, Right Imperial, Left Imperial, Nettle and Arch .. .. .. .. .. .. 3/-

***Tickets.***

For Day Inspections—Obtainable at the Post Office, near the Kiosk, for 30 minutes before the inspection hour.

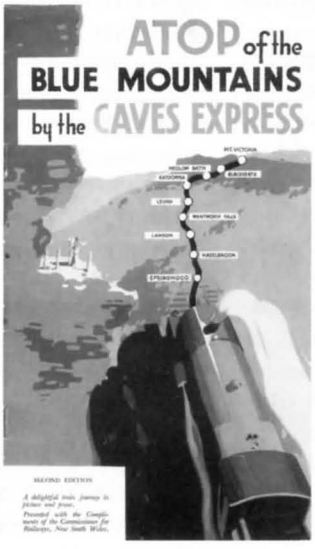
For Night Inspections—Obtainable at the Office, Jenolan Caves House vestibule.

Tickets are available only for the particular inspection for which they are purchased, and on the day of issue only. No refund can be permitted in respect of unused tickets.

***Special Inspections.***

The Superintendent of Caves may authorise a Special Inspection, provided a Guide is available,

*Figure 2: Brochures showing changes in information on transport to and from the caves; Jenolan and Buchan*



*How to Reach . . .*

WAITOMO

Waitomo is reached by rail and road from all parts of the North Island. Travellers by tram arriving at Hangatiki Station from Auckland or Wellington, will find motor-cars waiting to convey them over the five miles of road to the comfortable hotel.

Those touring by motor through the North Island may approach by any of the roads connecting with the main Auckland–Wellington road.

WAITOMO HOTEL TARIFF.

The Tariff at Waitomo Hotel is £1 per day.

CAVE FEES.

The Waitomo Caves Fee is 4/- for each person.
The Ruakuri Caves Fee is 3/- for each person.
The Aranui Caves Fee is 3/- for each person.

N.Z. GOVERNMENT TOURIST DEPARTMENT'S FREE TRAVEL SERVICE.

One of the principal duties of the Officers of the New Zealand Government Tourist Department is to afford all possible assistance to travellers. With a thorough knowledge of conditions, the Service will, free of all charge, plan itineraries suitable to the needs and desires of the individual or party, make reservations for trains, steamers, motors, air travel, and hotel accommodation.

Officers of the Department meet in the stream all incoming passenger vessels.

Advice and information will be given freely on application.

OFFICES IN NEW ZEALAND.

HEAD OFFICE—3rd Floor, D.I.C. Building, Lambton Quay, Wellington.
AUCKLAND—Government Insurance Buildings, Queen St.
TE AROHA—Government Domain.
ROTORUA—Fenton Street.
WELLINGTON BUREAU—Dominion Bldg., Wakefield St.
CHRISTCHURCH—The Square.
DUNEDIN—Corner Rattray and Princes Streets.
INVERCARGILL—Esk Street.

AUSTRALIAN OFFICES.

New Zealand Trade and Tourist Commissioner, 14 Martin Place (opposite G.P.O.), Sydney.
District Manager, New Zealand Government Trade and Tourist Bureau, Collins House, 360 Collins Street, Melbourne.

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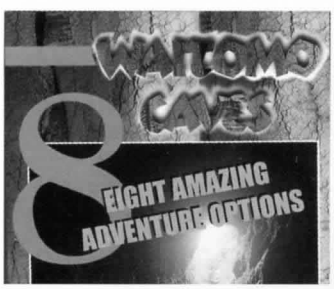
Waitomo Caves

NEW ZEALAND

And . . .

The World Famed Glow-worm Grotto



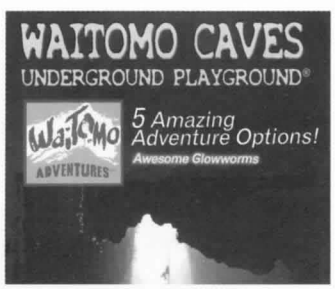




*Figure 3: Changes in marketing practices at Waitomo*

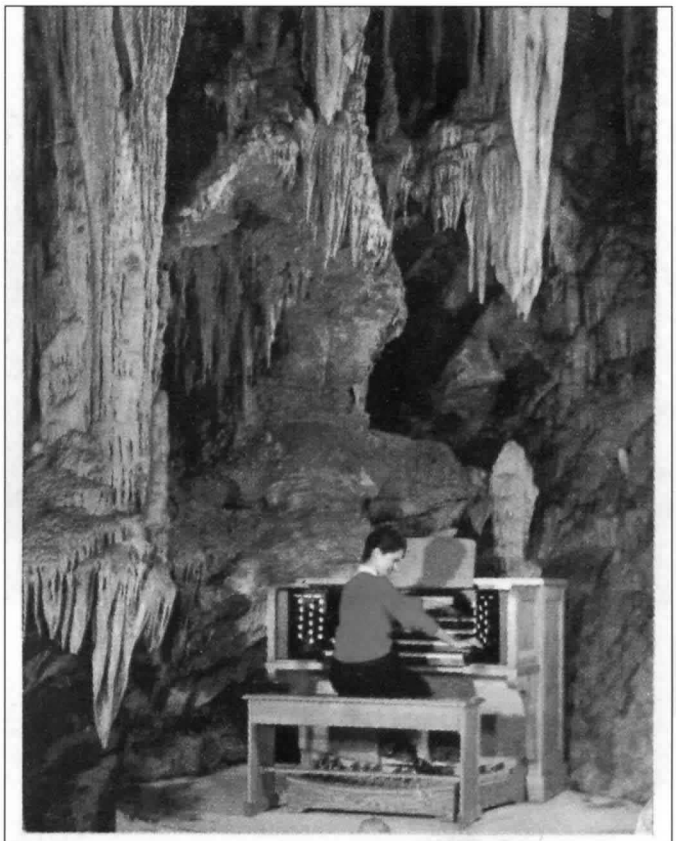


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*Figure 5: Luray Caverns in Virginia advertising its Stalacpipe Organ, where the organ's hammers struck selected stalactites; a practice no longer encouraged.*

America's greatest glacial caves!

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*Figure 6: Penchant for the rare or the 'best'!*

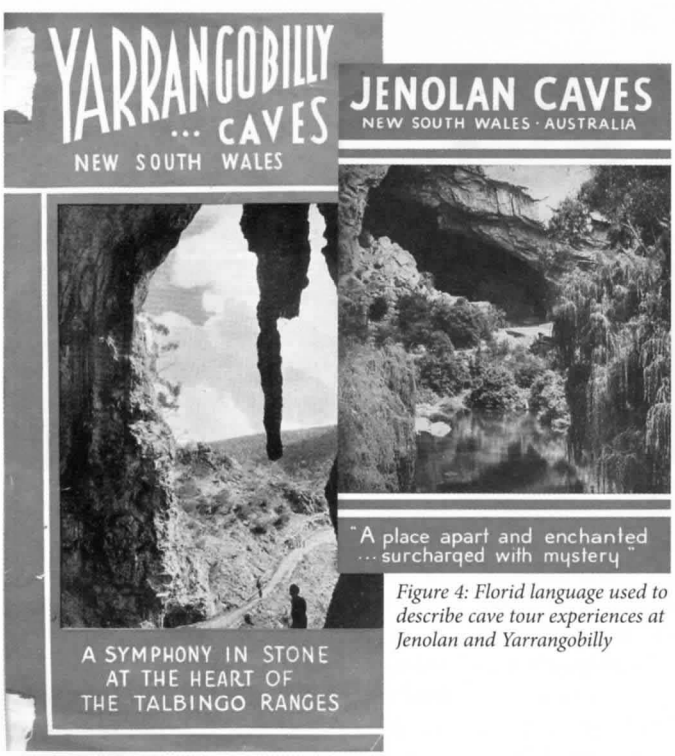



*Figure 4: Florid language used to describe cave tour experiences at Jenolan and Yarrangobilly*

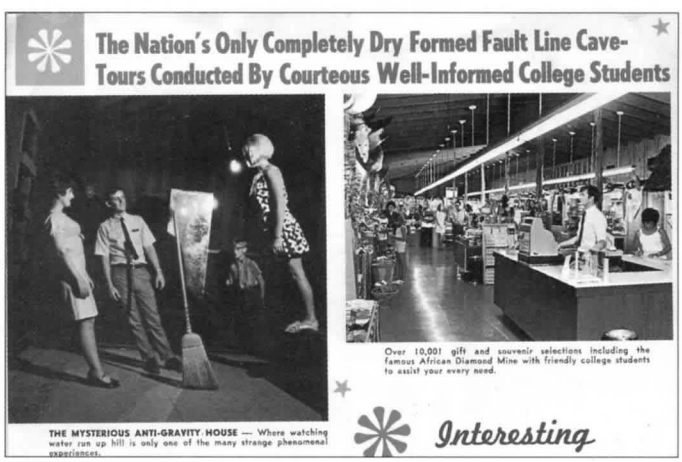
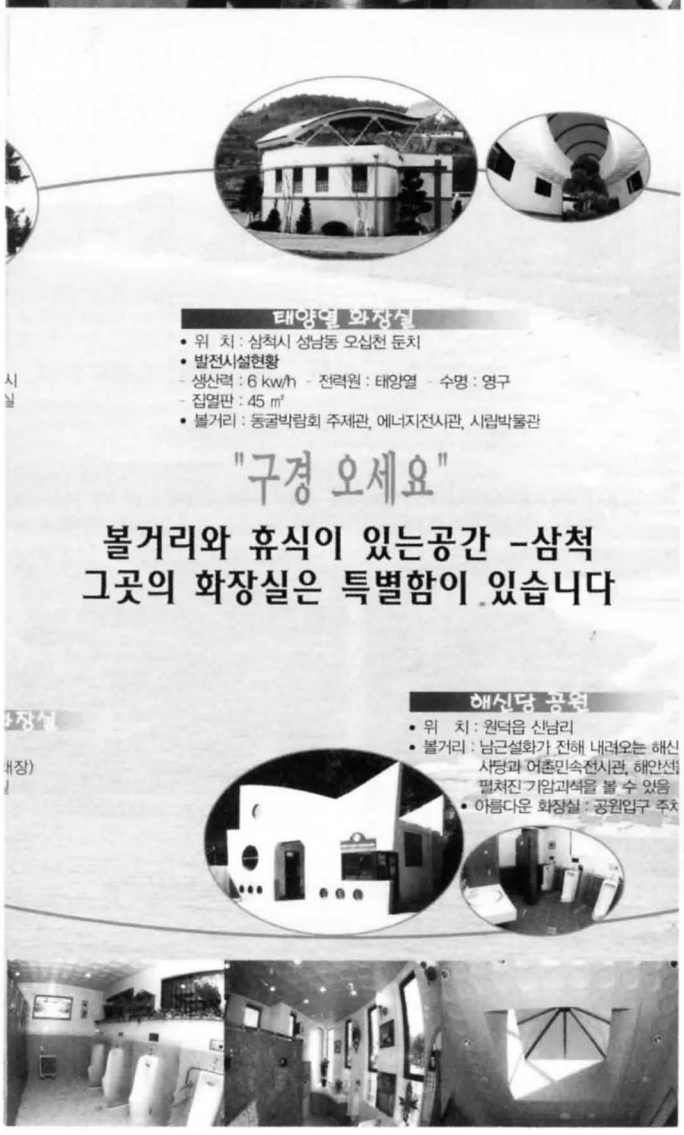



*Figure 7: Brochure showing gift shop in an American cave brochure*





Pictured above is a fascinated crowd viewing one of over one hundred authentic shrines created over the period of a lifetime by the talented, artistic Bro. Joseph Zoettl, O.S.B. These inspiring attractions glorify the architectural majesty of past ages in an exquisite four acre park.

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*Figure 8: Quirky information a) woman in swimsuit beside a cave pool at Luray Caverns, b) toilets in Korea and c) shrines at Ave Maria Grotto in Alabama*

touching the formation, standing or climbing on decoration, or offer overnight adventure camping in caves — in the USA, we might add. Luray Caverns in Virginia used to advertise widely its Stalacpipe Organ, where the organ's hammers struck selected stalactites! Han-sur-Lesse in Belgium apparently still features someone lighting a flaming torch and dashing down an underground rockfall trailing ash.

Regulations were often cited: facilities for the disabled, smoking and eating in caves, preference given to guests of Caves House at Jenolan for certain cave tours, and restricted opportunities for photography. which eased as faster film and digital cameras became available.

See figure 5: Luray Caverns in Virginia advertising its Stalacpipe Organ, where the organ's hammers struck selected stalactites; a practice no longer encouraged.

**Product differentiation:** Inside, many caves look much the same to visitors. Product differentiation therefore became important. New Zealand's Te Anau Cave claimed to be 'the only known example of a living cave that may be visited by the public anywhere in the world', while caves like Postojna in Slovenia, Cumberland in the USA and Dragon Palace in China make much of their featured underground electric transport by train, open car and boat respectively. There is a widespread American penchant to claim the 'biggest', 'tallest', 'most spectacular' or whatever, and appeals to Ripleys or the *Guinness Book of Records* — caves such as Bridal Cave and Lost Sea.

See figure 6: Penchant for the rare or the 'best'

**Merchandising:** Because most tourist caves there are privately owned, American brochures frequently place great emphasis on the ubiquitous gift shop, restaurants, and frequently a motel and other facilities which serve as profit centres.

Indeed, in many such places, the peripheral attractions are a greater revenue source than the cave itself.

In the UK, Wookey Hole devotes less than 10% of its brochure to the cave itself, promoting instead an Edwardian fairground and photo studio, a penny arcade and a magical mirror maze.

The nearby Cheddar Showcaves brochure similarly has more to say about cream teas and Cheddar cheese, rock climbing, orienteering and open-top double-deck bus tours than about the caves. Australian cave sites are usually more traditionally oriented, probably because most are in public ownership and they have only recently realised the need for some form of product differentiation.

See figure 7: Brochure showing gift shop in an American cave brochure

**There are sometimes quirky comments on values and concerns of the times** — examples are given of a woman in a swimsuit beside a cave pool at Luray Caverns; the bathrooms of Samcheok in Korea; soothing the American fastidiousness about safety and comfort, even warnings that 'cabin trunks and hatboxes cannot be conveyed as passengers' luggage' (Jenolan).

See figure 8: Quirky information: a woman in a swimsuit beside a cave pool at Luray Caverns, toilets in Korea and shrines at Ave Maria Grotto in Alabama

Despite the millions produced, old tourist brochures generally are not easy to find, precisely because of their fleeting nature and minimal market demand. On the other hand, for those contemplating starting a collection, cave brochures have one other advantage over most other speleological ephemera in these days of eBay: current items can be obtained free.

# ASF needs Freedom of Information

Dear Editor,

In *Caves Australia* for March 2014 you published a very cogent article by Tony Culberg on Insurance and other ASF Expenses. This showed that ASF had not been following its own Insurance Guidelines and had for years been charging members far more than it was paying in premiums.

Kempsey Speleological Society discussed this article at our April meeting and instructed me to investigate further.

First I asked ASF Treasurer Grace Matts how ASF fees are set. She replied that fees are recommended by the Executive but actually set by the Council. So we can't blame the Executive for the overcharging; the blame lies with all Club delegates at Council meetings.

Grace pointed out that Tony's article was not entirely correct, that he had added up all ASF money, much of which (e.g. for *Helictite,* NSW Speleo Council and Karst Conservation) is not directly ASF's to spend.

I found an official-looking statement from 2003 that 'Insurance is quarantined from other ASF activities' so I asked Grace how much was in this special account. She replied that there is no dedicated insurance account; their auditor told ASF not to separate it out. I wrote once more, summarising our correspondence to make sure I'd got my facts right before taking the matter further.

So we were astonished when our President, Phillip Lardner, got a long letter from General Secretary Bob Kershaw objecting to my 'numerous pieces of correspondence'.

(Grace had never complained, she always replied fully and promptly, and even thanked me when I repeated one email that went astray.)

Bob stated: 'Any further correspondence regarding those topics will not be replied to by the Executive of ASF to your club or its members — we have used up our volunteer time allowance!'

That is rude enough, and he's making sure of it: when I emailed Grace to thank her for her help and courtesy the message bounced, and I found that ASF has put a block on all emails from my address. It's pretty rough when you are not even allowed to say 'thank you.'

Bob wanted to know whether I wrote on behalf of my Club Executive (I did) or as an individual member. KSS sees this as irrelevant: in either case I have an equal right to question the governance of ASF, and to write letters as 'numerous' as may be required to obtain the information requested. Bob's letter and the blocking of my emails give the impression that it is impertinence to dare to question the actions of the ASF Executive.

ASF is badly in need of more transparency, and things threaten to get worse. The 2002 Insurance Guidelines specified that 'the total contribution payable towards Public Liability Insurance will be calculated as the quoted premiums plus 15% 'buffer allowance' (not that anyone paid any attention to them!) KSS notes with dismay that the Draft ASF Insurance Scheme Governance Guidelines 2015 do not lay down how the total contribution from members is to be calculated or tie it in any way to the actual premium.

And Bob Kershaw's letter says that 'insurance is now a normal Federation administration expense.' These two changes seem designed to make it even harder for members to find out how much ASF is paying for insurance as compared with what it is charging us.

How do we get some sort of Freedom of Information to operate inside ASF?

*Yours — Philip Holberton*

# Buchan limestone in Melbourne and elsewhere

**Miles Pierce**
*VSA*

**ALTHOUGH most of us think that the mid-Devonian Buchan limestone is confined to the Buchan district — which it is naturally — some fine pieces of it, dressed and polished, grace various notable buildings in Melbourne and elsewhere, including one site as far away as London. As a building stone, it is commonly referred to as Buchan marble.**

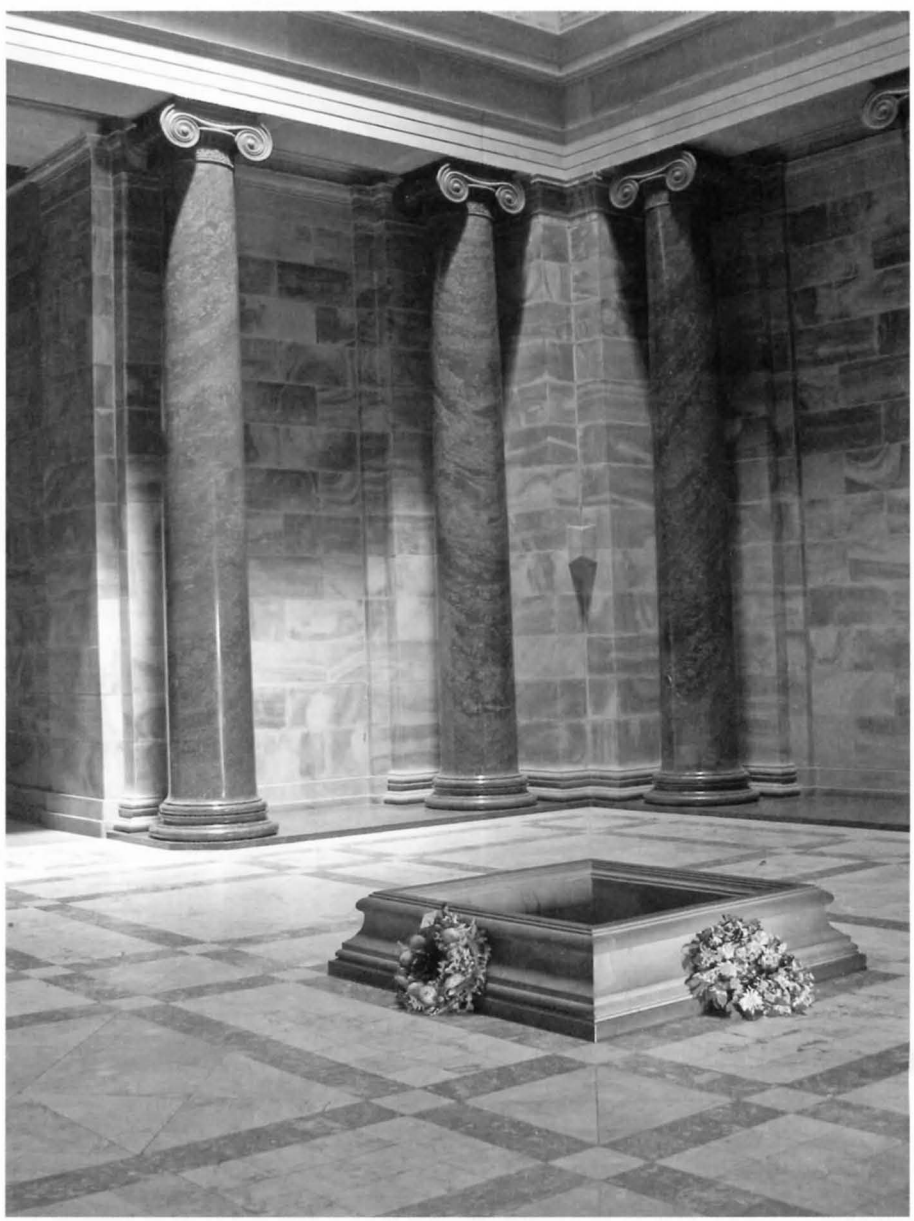
The dense, fine-grained crystalline limestone at South Buchan is not marble in the geological sense of having been metamorphosed and recrystallized, however the term 'marble' is used in the dimension stone trade to include fine-grained limestone that is capable of sustaining an attractive and durable polished finish.

The quarrying of Buchan 'marble' for dimension stone took place intermittently from 1910 to the early 1940s, with the majority extracted from a quarry on James Cameron's property at South Buchan. James Cameron, MLA for Gippsland from 1902 to 1920, recognised the potential of the limestone outcropping on his South Buchan farm property and adjoining public land as a quality building stone. Samples of the distinctive dark-grey/black stone won a prize at a London exhibition in 1908 and within two years, quarrying had commenced under Martin Cameron, one of his sons, and a small team of loyal local employees who worked on an as required basis to supply individual orders from distant stonemasons.

Dimension stone was extracted from the quarry using the traditional plug and feather method. A series of holes around 25mm diameter at 150 to 200mm centres were drilled using a hand operated pneumatic percussion drill along the line of the desired parting.

Two half-round steel shims or 'feathers' with a tapered inner face were then placed in the top of each of the drilled holes and a protruding 'plug' with matching opposite taper inserted between them. With all the holes so fitted, the quarryman then struck the head of each plug in turn with a sledgehammer and repeated the sequence until — if all went well — the rock fractured along the line of weakness formed by the drilled holes. Drilling of the bedrock in the quarry face could be vertically from the top and/or horizontally from within the quarry pit.

The rough-cut stone of the required dimensions was hauled 25 km from the quarry to the railhead at Nowa Nowa by a horse-drawn dray for subsequent conveyance to Melbourne by rail. Skilled stonemasons then shaped, dressed and finally polished the stone for its ultimate installa-



MILES PIERCE

*Buchan marble column, Shrine of Remembrance, Melbourne.*

*This article is edited slightly from the original which was published in* Nargun *45 (3/4) February 2013.*

tion in buildings according to the architect's plans.

One of the first dimension stone orders for black Buchan marble was for use in the State Library building, particularly in the main foyer, including the elaborate balustrade rails on the original stairways leading up to the first floor reading room, and some wall panel sections and skirting.

Other still extant city buildings using the distinctive dark Buchan marble include the Melbourne Town Hall, the former magistrates court (now incorporated within RMIT University), Anzac house in Collins Street, the former Port of Melbourne Authority building in Market Street and the Manchester Unity building.

For Australia House in London, officially opened after the conclusion of World War I in 1918, Buchan marble was shipped to England and features most prominently in the main foyer.

The largest single order for dimension stone from Cameron's South Buchan quarry was for the Shrine of Remembrance, completed in 1934. This order required the exacting quarrying of sixteen defect-free, 8.5m long, 10-tonne pieces of Buchan black marble for the distinctive circular columns that surround the inner sanctuary. The Remembrance Stone itself in the middle of the inner sanctuary is also fashioned from Buchan marble.

A second nearby independent quarry, known locally as Heath's quarry, produced a small quantity of lighter grey Buchan marble that was also used decoratively in some of the aforementioned buildings.

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*Quarrying rough-hewn marble columns at Buchan Quarry for the Shrine of Remembrance.*

The June 2012 issue of the RHSV *Victorian Historical Journal* (Vol. 83, No 1), contains an article: 'The Black Marble of Buchan' by VSA member Elery Hamilton-Smith, assisted by me. The article identifies twenty-four sites in Melbourne where examples of the application of Buchan marble are still extant and pictures of a selection of them are included to illustrate the text. This article for *Nargun* is based on material from that journal, and those interested in finding out more are urged to seek out a copy of the RHSV June 2012 *Journal*.

The quarrying of limestone has often been in conflict with the retention of karst features and in particular caves, albeit that both involve voids in the rock.

The extraction of dimension stone from South Buchan was, however, a relatively small-scale operation and in an area that does not appear to have experienced significant cave development.


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