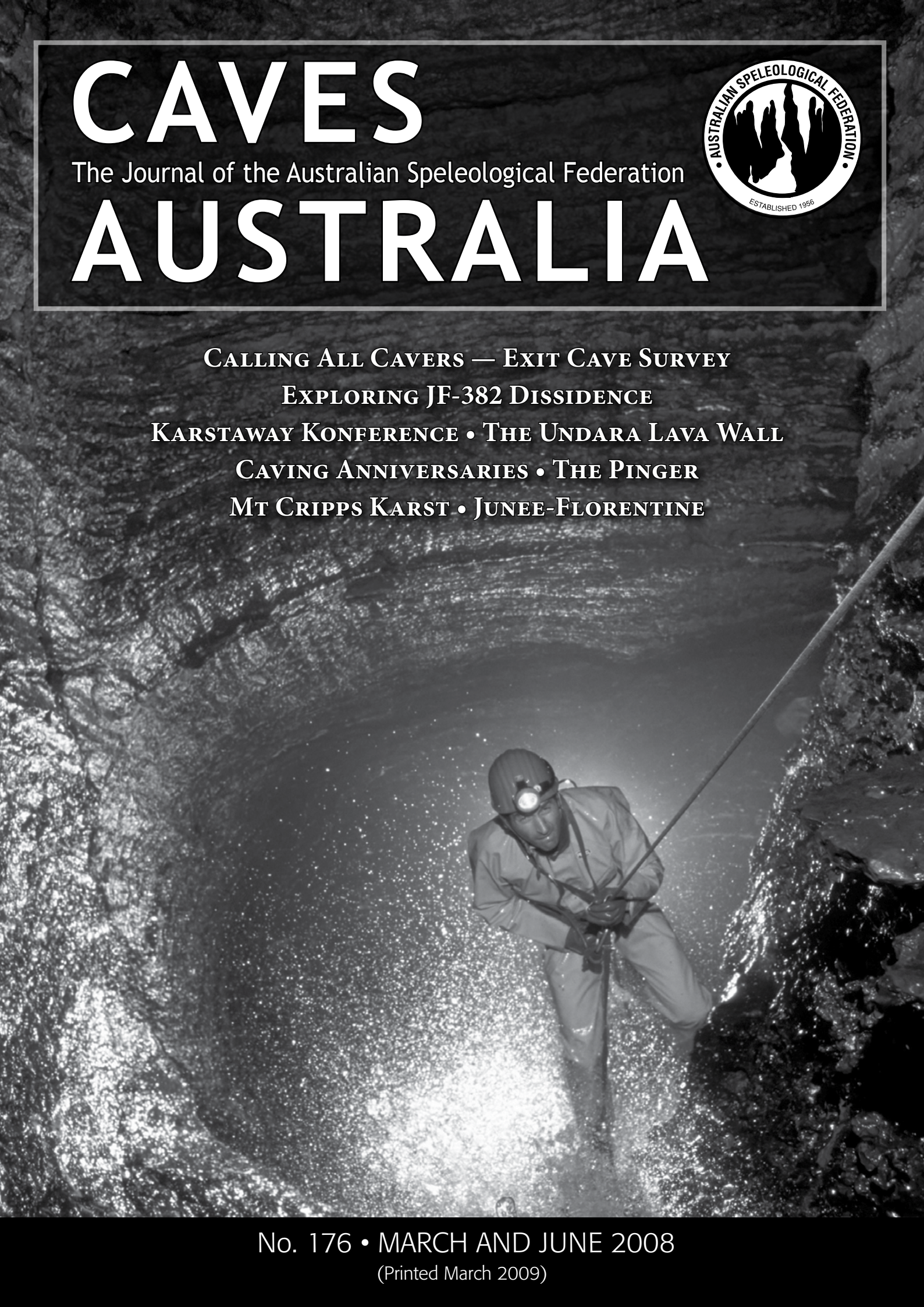
CAVES AUSTRALIA

The Journal of the Australian Speleological Federation



Calling All Cavers — Exit Cave Survey

Exploring JF-382 Dissidence

Karstaway Konference • The Undara Lava Wall

Caving Anniversaries • The Pinger

Mt Cripps Karst • Junee-Florentine

No. 176 • MARCH AND JUNE 2008

(Printed March 2009)

COMING EVENTS

In particular, this list will cover events of special interest to cavers and others seriously interested in caves and karst. This list is just that: if you are interested in any listed events, Elery Hamilton-Smith: elery@alphalink.com.au or Nicholas White, (Chair of the International Commission) nicholaswhite@netspace.net.au may have further information. The relevant websites also are useful. Details of other regional/ local overseas events can be found on the UIS/IUS website http://www.uis-speleo.org/. Although there are several things planned for 2010 the detailed dates are not available as yet.

2009

April 19—24

General Assembly of the European Geosciences Union (EGU), Vienna, Austria. There are three karst geomorphology sessions: Natural and anthropogenic hazards in karst areas (session NH9.2/GM7.3), GM7.1/NH9.3 Surface and Subsurface Karst Geomorphology and GM7.2/NH9.4 Karst systems: dynamics, evolution and paleoenvironmental recordings.
For details see http://meetings.copernicus.org/egu2009/

May 3—9

ACKMA Conference, Margaret River, Western Australia.
Convenor: Anne Wood. http://www.ackma.org/

May 12—17

Hypogene Speleogenesis and Karst Hydrology of Artesian Basins, Chernivtsy, Ukraine. The First Circular is available at http://www.network.speleogenesis.info/member/uploads/files/101/SGNDocs/Hypogene%20Speleogenesis%20Conf_1st%20Circular.pdf

July 7—12

ANZ IAG International Association of Geomorphologists Conference, Melbourne. A karst session and some karst field trips will be run during this conference. For details contact Susan White Email: susanqwhite@netspace.net.au www.anzgg.org/melbourne2009.htm

July 19—26

15th International Congress of Speleology, Texas, USA organised by the NSS. For the latest details see http://www.ics2009.us/
A number of Australians plan to attend.

September 23—26

Sustainability of the Karst Environment—Dinaric Karst and other Karst Regions, Plitvice Lakes, Croatia. organised by the Centre for Karst, Croatia. The basic objective of the conference is to apply an interdisciplinary approach to scientifically assess the issues of sustainable development of all forms of karst. The emphasis will be placed on Dinaric karst, though other karst areas worldwide will not be neglected. About ten of the world's top experts will be invited to give plenary talks.
Details from Ognjen Bonacci Email: obonacci@gradst.hr, or
Jadranka Pejnović Email: centar.za.krs@gs.t-com.hr.
For the latest details see http://www.cek.hr/.

CAVES AUSTRALIA

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

As no issues of **Caves Australia** *were able to be published in 2007, the publication dates will include the actual dates the issue is produced.*

Caves Australia 176 is a large double issue of 44 pages. The issue has a single number but covers the March and June 2008 issues.

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ASF

Contents

Cover: Rolan Eberhard ascends the sixth waterfall pitch in Khazad-Dum, Junee-Florentine, Tasmania. Photo by Stefan Eberhard, Rolan Eberhard, Stephen Bunton, Dave Noble.

ASF Executive

From the Editor

WELL, the push is on for new articles for future *Caves Australia* editions. For those of you who recently attended the Karstaway Konference in Sale, your positive feedback on the new look of the magazine and recognition of the work of the new publications team were gratefully received.

However, now is the time we need you to start putting the pressure back on us by sending your articles, reviews and topical events through.

Once again we have compiled a double issue to cover two releases due for 2008.

We hope you enjoy reading about lava tubes, trip organisation tips, significant adventures through a "draughting constriction," joint-venture cave mapping in Tasmania and much more.

Regards, Ed.

WANTED
ARTICLES FOR CAVES AUSTRALIA!

Whether caving, cave diving or general exploration, *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.

President's Report

IN OUR experience of caves and caving we have many highlights and thrills and many hours of blind leads and solid walls.

In our caving we have times where we go out there with luck on our side pushing the boundaries and our limits.

We all have come through with scrapes and strains, breaks and bruises, but we came through!

This year a significant thing occurred for ASF and a myriad of cavers both known and unknown. I and many others went to Mt Etna to witness a momentous event—the final relinquishing of a claim of one company to another organisation for the greater good.

This significant event represented the culmination of tens of thousands of hours of personal effort from a wide cross-section of the community around Australia to save a cavernous hill from being reduced to construction material.

What I have witnessed in this long campaign is much angst and passion with a battleground clearly defined and a list of casualties associated with the campaign.

When we think of what we have, we must remember the losses and move on to a greater understanding

Whereas Mt Etna captured the essence of conservation mindsets around the caving world, we have missed other opportunities to save caves and their unique associated fauna and flora.

We learnt a lot from Mt Etna and we benefited a lot from the legal and political milestones it created. However, it cost a lot of money and time and personal strength. Will such an event or situation happen again in this country? Possibly not, but around the world there are hundreds of similar battles being fought and lost or won.

TERRY REARDON

ASF is strategically placed to be a voice for caves, their managers and their visitors. We must also consider the natural physical processes that create them and ultimately destroy them. Similarly, the evolved biota unique to caves must be preserved and understood.

Caves are constantly evolving, as are we the occasional visitors to them.

I hope that ASF can continue to evolve as an organisation with a mindset to improve our effectiveness in policy and deliver to past, present and future cavers the support they need.

Likewise, as an organisation we must provide to all stakeholders in karst areas well communicated and professional support and advice.

In Caving,
Stan Flavel

E-SPELEO BULLETIN

A publication of the Australian Speleological Federation

SHARING CAVING NEWS AND EVENTS

■ In a hurry and need a quick update on topical ASF issues?
■ Got a club event or milestone you wish to share?
■ Want others to know about your interests in national and international events or conferences?
■ Know where to get a good deal on equipment?

Then get online and tell us!

***E-Speleo* is circulated bi-monthly by email only, so make sure your details are up to date with ASF via your club.**
ASF *E-Speleo Bulletin* Editor: Ross Anderson espeleo@caves.org.au
Article cut-off 25th every other month

Some Recent Explorations in WA
(The Jeff Butt Spirit Lives On…)

Paul Hosie
CEGSA

IN 2007 I received the inaugural ASF Jeff Butt Award for Exploration, mostly for discoveries made out on the Nullarbor. Since receiving this award I have tried to honour the legacy and spirit of Jeff, in his determination to explore underground … but this time a little bit closer to home!

So where do you look in WA when many areas have been thoroughly explored by WA clubs? I chose to focus my efforts on the WA coastal limestone north of Perth and early indications are that it promises to give many exciting discoveries for years to come.

The area of coastal limestone north of Perth between Ledge Point and Dongara has been divided by cavers into three karst regions: South Hill, Jurien and Eneabba. This stretch of coast is home to some fascinating hydrology, as a number of perennial lakes and rivers drain or disappear directly into the aeolian limestone before following tortuous subterranean paths to springs along the coast.

Some of the well known caves include Weelawadgi, Brown Bone, Tombstones and the Stockyard Gully system.

What is probably not as well known is that this same area is home to a stunning array of seasonal wildflowers which makes searching for new caves a very pleasurable experience. It was whilst on one of these cave hunting trips in October 2008, with the wildflowers in full bloom, that Peter Rattigan discovered a shallow sandy depression containing a blocked solution tube.

One month later, we excavated the solution tube and to our delight, the resultant hole was just large enough to squeeze down.

From the bottom of the solution tube 3 m below the surface, a short 2 m pitch dropped us straight down to the rocky floor of the cave's upper chamber. The 10 m wide chamber descends steeply to the west down a talus slope into a further two smaller chambers where at the bottom a small lead continues further downwards into as yet unexplored territory.

Although the calcite decoration is sparse, the wide, flat brown soil floor at the eastern end of the upper chamber contains some very unusual deposits.

The best description for these formations would be mud stalagmites, though it would be interesting to know the actual mechanism of their formation, as it was in no way obvious to a simple cave diver.

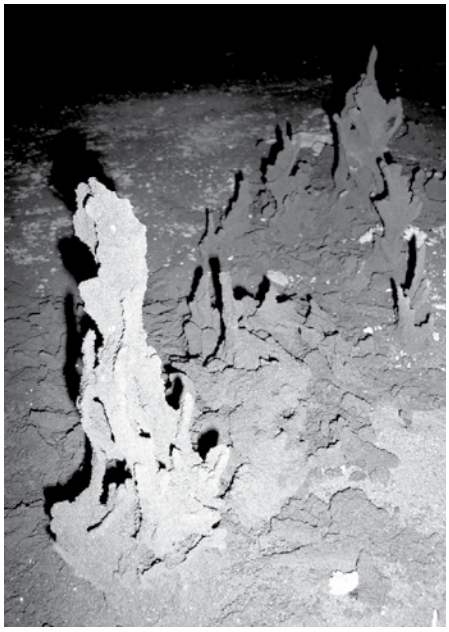
The height of the formations shown in the pictures here is a maximum of 150 mm and an average of 80 mm. Anyone wishing to help classify these features is welcome to email the author.

How many more caves there are to discover is a question that will surely remain unanswered for many years to come.

It is our intention to honour the memory of Jeff Butt with his inimitable enthusiasm for exploration and discovery and in so doing, hopefully inspire a new generation of Australian cavers.

PAUL HOSIE

Peter Rattigan commences the new cave dig



PAUL HOSIE

PAUL HOSIE

Two examples of soil stalagmites – the author is curious as to how these would form

Sustainability and Karst, Mole Creek, Tasmania

Nicholas White
Conservation Commission

ONE OF THE MANY overused modern environmental jargon words is sustainability, also used in the context of sustainable living, sustainable use and sustainable development. I have always been a sceptic about the way in which we have used land and forest in Australia. We expect karst to be managed in a sustainable manner, but are the present definitions and protocols adequate? Australia's National Strategy for Ecologically Sustainable Development 1992 (NSESD) defines ecologically sustainable development (ESD) as:

> *'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased'.*

We must remember, however, that people live on karst and it all cannot and should not be uninhabited.

A number of things have been occurring in Northern Tasmania in recent years and in particular concerning the management and sustainability of the Mole Creek karst area which I outline below.

Land Acquisitions

As a result of Federal funding provided to Tasmania under the Community Forest Agreement there have been some significant land acquisitions containing caves that will be added to the Mole Creek Karst National Park in due course.

One of these is the upland property containing Herberts Pot which feeds through the Wet Cave and Honeycomb system at Caveside. A process is soon to start to determine the future management of these areas and it is my understanding that cavers will be represented in this process. It appears that there need to be some budgetary provisions to get this planning process underway. The lands in question have not been transferred to the National Park as yet but they are under Parks and Wildlife control.

We will watch closely just which karst properties have been acquired and how this improves protection of the karst in the Mole Creek area.

Revised Planning Scheme

Meander Valley Council (which embraces the Mole Creek karst) is revising its Planning Scheme. Previously, all development works on the defined karst area required referral to the State Department of Environment to get approval, whether it be for a hay shed or a piggery.

As a result of a consultant's report threats to karst values were identified and it was recommended that the karst area reflect the karst hydrological boundaries and that low and high karst sensitivity zones be adopted. For low sensitivity areas, where there are no karst features in proximity, most development applications can be determined by Council with some clear and appropriate guidelines and planning controls to do with waste disposal and runoff etc.

For the high sensitivity zone the buffer zones are wider (at least 100 metres from features) and applications would be referred to the Department of Environment for determination. There would be increased clarity in the whole scheme as a result of the proposals. Should the report be adopted it will be the first time that karst values are deliberately made part of a planning scheme in Australia. (see: www.mvc.tas.gov.au/). This is not to say that other planning schemes are deficient in environmental protection measures but that this is a case where the karst values and their protection have been defined in the planning process as considerations in determining development proposals.

Tip Trouble

There is concern that the Mole Creek refuse tip, which is in a sinkhole, should have some rehabilitation work. One proposal is to cover it with a clay capping to reduce water flow through the refuse into the karst aquifer. The other alternative is to excavate and remove the contents to a non-karst area.

Both treatments are obviously expensive. The fear is that the refuse tip, which was an unregulated site, contains dangerous quantities of agricultural chemicals, From my perspective, I do not think there is enough information and there should be further investigation and probably trial excavation to determine the best course of action before expenditure on either of these two alternatives. It might be that some water monitoring is warranted on a continuing basis as part of this evaluation process.

Karst Brochure

NRM North is an organisation with responsibility for the strategies for natural resource management of the eight Northern Tasmanian Council areas including the Mole Creek Karst System in the Meander Valley Council area.

As part of its strategy for the region and its responsibility for protecting the geodiversity and landscape values of the Mole

DAVID WOOLS-COBB

Karstcare volunteers, supervised by goat, with old cabling removed from Gunns Plains Cave.

Creek karst system it has issued a brochure, "NRM North Living on Karst". The brochure explains karst and the surface landforms which occur in karst areas as well as the caves underneath, together with examples of cave biota.

It then describes the attributes of a healthy karst environment and how it can be maintained so that downstream water users are not subjected to "polluted" water and the cave and karst ecosystems remain intact. It is well illustrated with effective diagrams and photographs. The brochure was prepared by Serena Benjamin (STC) and is certainly one of the first such brochures in Australia directed at local residents contending with karst. It provides contacts for further information, including the Tasmanian Speleological Liaison Council. I believe NRM North could give this brochure a more lasting presence by putting a PDF of the brochure on its website.

Forestry

Forestry questions are never far from the news in Tasmania. There are two issues that affect the Mole Creek karst and concern the resident population.

The first is the conversion of agricultural land to agroforestry plantation in recent times. As these forests grow there will be less water accession into the karst which may affect karst ecosystems in various ways and especially the stream risings on which other farmers may be dependent. A loss and benefit analysis is problematic for changes such as these.

It has to be remembered that as cavers and speleologists watched the grazed pastures in the past we loosely blamed the new collapses in the paddocks as being the result of the original clearing and inadequate buffers around obvious karst features. This question of replacing farm land with plantations is also perceived as disrupting existing communities.

The other problem is the timbered back paddock or upslope paddock that was considered by farmers as the superannuation fund for when they retire. Due to controls on native forest clearing and the forest code for karst areas, the logging of such areas is not 'as of right' and these farmers perceive this as an injustice.

If such values and controls are right, then owning such uncleared blocks should be represented in valuations and there may be other solutions, particularly if blocks concerned have karst features.

Gunns Plain Cleanup

Karstcare is an organisation working under the auspices of the Parks Tasmania Wildcare program. It is led by David Wools-Cobb and involves the Northern Tasmanian cavers and friends in a program which started with the Kubla Khan Cave cleanup programs but has extended to include projects in many of the other show and wild caves of the region.

One of its most effective recent exercises was a cleanup and removal of old wiring in the Gunns Plain Cave following its relighting with a LED system designed by Neil Kell. This project was organised in a hurry so that the cave would be presentable for an official re-launch or opening following the lighting changes.

Conclusions

Whether these changes in and around Mole Creek represent a move towards sustainable land use in the area is a moot point but there are certainly changes in community attitudes that over time should result in the karst values being better recognised and appreciated.

SUSS 60th Anniversary Celebrations

Chris Norton
SUSS

1948 WAS QUITE A YEAR. The beginning of the Berlin blockade; the introduction of the first Land Rover, the birth of the Italian Republic, as well as the Democratic People's Republic of Korea. But, more importantly, a small group of unruly vagabonds, united in a pastime seen by many around them as antisocial and disreputable, decided to form a club—a club that would grow in stature and repute (some good, some ill) to be, today, known around the world.

I'm talking, of course, about the Hell's Angels Motorcycle Club. However, half a world away, Jak Kelly was presiding over the inaugural meeting of the Sydney University Speleological Society, the first speleological club in mainland Australia—and now, the oldest.

Sixty years on, in the ballroom of Caves House, Jenolan, Jak Kelly presided once more over the society he helped found six decades ago, this time as principal guest speaker.

The celebratory dinner was the highlight of a weekend bringing together SUSS cavers from six decades—from our earliest members through to young children who will hopefully continue to carry the club forward.

Other activities included:

- A presentation in Cathedral Cave by top cave and open water diver Ron Allum on his work with James Cameron diving on the wreck of the *Titanic*.
- A barbeque by the Hydro Lake.
- Caving trips for cavers of all ages and levels of experience.
- A "ghost tour" of the show caves.
- Discount show cave tours.

Around 150 SUSS members past and present, friends and relatives enjoyed not only the surrounds of a world-class karst area but also the chance to catch up with old companions and meet some of the club's legendary figures.

The Society gives particular thanks to:

- Jenolan Caves Reserve Trust staff, in particular Grant Commins, for assistance with organising activities in the tourist caves and offering discount accommodation at Caves House.
- Stephen Meehan of the Department of Environment and Climate Change for authorising permits for this special event.
- Dinner speakers Jak Kelly, Patrick Larkin and Keir Vaughan-Taylor, Master of Ceremonies Don Matthews, and Ron Allum for his *Titanic* presentation.

DEBORAH JOHNSON

Grant Elliott, Tina Willmore, Geoff McDonnell, Louise Johnson, Richard Kennedy and two others in Barralong Cave.

DEBORAH JOHNSON

Alan Pryke shows honorary life member Henry Shannon some new mapping.

BILL CROWLE

SUSS in 1967: Shirley Hodsdon, Mary Mitton, Bill Crowle, Ted Rogers, John Hodsdon, Mike Gray and Barry Muir in The Dome, Mullamullang Cave.

WASG: Celebrating 50 Years

Fran Head and Jay Anderson

ROSS ANDERSON COLLECTION

In 2008 the WA Speleological Group celebrated its 50th anniversary. In July 2008, 84 past and present members from all eras got together to celebrate their shared achievements in cave exploration, survey and mapping of caves, cave conservation and a wide variety of cave sciences, as well as a whole lot of fun.

The WASG was formed in 1958, when enthusiasm was running high following the discovery of Jewel Cave at Augusta and several other highly decorated caves nearby. Notably, the founding president and "chief motivator", Lex Bastian, is still an active member today! WASG began as a subgroup of the WA Naturalists Club, but was separately constituted from the start, and was to become fully autonomous in 1968. The Group was incorporated on 28th July 1981 and the WASG "birth date" is taken to be the first official meeting (17 July 1958). Our motto is *Telluris Operta Subire*—that is, to pass beneath the hidden (or covered) places of the earth.

The early days were a time of discovery and rediscovery. Members relocated the 'lost' tourist caves run by the Caves Board in the south-west in the 1900s; built on the work of earlier explorers such as S.A. Rudduck, a Midlands farmer who explored caves every summer from his holiday cottage at Witchcliffe in the 1920s and 30s; and followed leads from landowners in areas as disparate as Dongara, Yanchep, Mandurah, Yallingup and the south coast. The importance of keeping records and documenting the Group's achievements is a key component of speleology.

Caves were also surveyed and drawn up into finished maps showing plan and elevation. Survey and mapping really took off in the 1970s, and many of the maps held by the Group are masterpieces of detail and accuracy. Surveying has been improved by the advent of the Disto laser measuring device, which removes the need to walk around in sensitive locations, contributing to the protection of cave floors.

It has become harder to find new caves close to home (although the Yanchep area is perhaps the exception). WASG runs regular expeditions to Cape Range, the Nullarbor and the Kimberley. The Cape Range has proved particularly fruitful since the 1980s, with recorded features now up to around 800. During the 1980s members collaborated with other members of the Australian Speleological Federation to document the values of the Nullarbor and propose the area for World Heritage Listing. Expeditions and regular trips to karst areas continue to contribute to knowledge on each cave and karst area.

Safety was an early concern for the Group. Official trip leaders were introduced early to ensure that members had the necessary skills and experience to look after themselves and the caves.

Some of the more special cave discoveries were gated to prevent inadvertent damage, and today a system of limited entry by permit from the Department of Environment and Conservation helps to protect the caves in several karst areas. Members of WASG are still actively involved in cave management—from providing advice to DEC through the Cave Management Advisory Committee and the Caves Access Committee, to participating as volunteers in cave restoration projects.

The scientific aspect has always been of importance. Early members, students of geology or biology teachers, set the example by sharing their knowledge with others.

Down the years, members have published their observations on geomorphology, paleontology, biology and hydrology in the club's

annual journal, *The Western Caver,* or in scholarly publications. And there has always been a tradition of collaboration with the WA Museum and with PhD students and scientists working in relevant areas. It started with a collaboration with the Museum in 1960 to remove the thylacine skeleton found in Jewel Cave and continued through various archeological excavations, water flow investigations, climate observations and fauna collections; some ongoing.

Most recently, WASG attracted a Federal grant for a subterranean fauna survey on Christmas Island with the Museum (2006) and participated in DEC's Northern Agricultural Area biodiversity survey, *Hidden Treasures* (2007). Members of WASG are regularly involved in documenting cave values and assisting with the study of subterranean fauna in conjunction with the WA Museum.

WASG is a not-for-profit community group that has strong environmental values at its core. This can be seen in the Group objectives:

1) Foster preservation of WA caves in co-operation with other interested organisations.
2) Promote and encourage responsible speleology in WA, in all its aspects.
3) To record and, if suitable, publish results of any investigations of the Group.

Caves today are under pressure from human visitation, mining and from urban expansion.

WASG members work as volunteers with DEC, assisting with projects which will reduce the impacts of human visitation on caves.

They also participate in festivals and displays, and in running seminars to educate the general public on the realities of living on karst. That is, not just that the wonders beneath our feet can be so easily destroyed, but that the whole ecosystem and its interactions need to be considered in planning and in management of karst areas. Caves are beautiful places, unique and interesting, and members of WASG continue to visit caves and to share their beauty and values with others.

Ultimately, it is our love of caves as special places that drew us all back together to celebrate the past, present and future of our group.

Contact WASG via:
Website: www.wasg.org.au
Email: wasg@wasg.org.au
Telephone: (08) 9341 7505.

Extract reprinted with permission of WASG, from an article supplied to the Conservation Council of Western Australia during 2008.

Welcome, Stranger!

By Stephen Bunton

Once I picked up a hitch-hiker who asked where I'd been.
I told him I'd been to Mole Creek caving.
He asked had I done much.
"Ah lad I've done a bit"... *(This needs a Yorkshire accent.)*
So where else have you been?

(You all know the tune...)
I've been to;
Cocklebiddy, Odyssey, KD, Cutta Cutta,
Bone Cave, Bat Cave, Spider Cave, Pitta Patta,
Cauldron Pot, Tassy Pot, Lost Pot, Colong,
Kohinor, Borenore, Nullabor 'n' Molong.
Abercrombie, Abrakurrie, Weebubbie, Snake Pit,
Yagby, Junee, B-3 'n', Quetzalcoatl Conduit.
I've caved everywhere man, under this brown land man,
mostly on my knees man. I've been everywhere.
I've done:
Comet Pot, Devils Pot, Herberts Pot and Wet Cave,
Rat Hole, Wolf Hole, Henry's Hole, Blowfly Cave.
Glass Cave, River Cave, Rift Cave, Hennings Hole,
Phoenix Cave, Niggly Cave, what a rave! Warhole.
Y-11, J-11, Murra-el-Elevyn, B-4 / B-5.
The Berger, Jaunter, Bendithera, MC-85.
I've been everywhere man. Into every cave man,
any way I can, man. Never got a tan!
I've visited:
East Deep Creek, Tunnel Creek, Billys Creek, What a freak!
New Zealand, New Guinea, Piccaninnie, Mystery Creek.
Easter Cave, Xmas Cave, Croesus Cave, Kubla Khan.
Tuglow, Waitomo, Mexico, and Genghis Khan.
Mt Anne, Mt Eccles, Mt Arthur, plus Mt Owen
Yorkshire Drain, Servalane, France 'n' Spain. I still keep goin'.
I've been everywhere man. I've now lost all my hair, man.
My trog suit's got a tear, man, from when I did The Chairman.
I've ticked off:
Exit, Burrinjuck. In Beginners Luck I got stuck!
Marakoopa, Li Nita, Yessabah. No-one really gave a F#@!
Cliefden, Jenolan, Wombeyan and Wyanbene,
B-41, Threefortyone and another one somewhere in between.
Serendipidity, Shishkebab, Dogleg, and the Batu.
Timor, What a bore! I'm sure there's more—Mamo.
I've been everywhere, man. Had the odd few scares, man.
Taken lots of care, man. I've been everywhere.
You know nothing rhymes with
Naracoorte, Bungonia, Gregory, Mullamullang;
'possibly something just near Nambung?
I've been down every pit, man.
Wallowed in bat shit, man.
I'm done with Leech Pot, Owl Pot,
Plus some others I forgot.
So you think that I may have lied
About the ones I've been inside
Oh Well! Who can tell?
We'll argue when we go to Hell.
'cause Bunt's been everywhere.

Mount Cripps Karst

Lindsey Gray
Paul Darby
SRCC

THE Savage River Caving Club (SRCC) was formed in 1988, when we were asked to investigate the karst in the Mt. Cripps rainforest area that had rarely been visited. Little was known of the caves and not much was recorded. This was an opportunity to thoroughly document this area as we went about our exploration. Lyndsey, one of the founding members of the club and known to be obsessed with keeping records, was naturally elected as record keeper in the beginning. We have spent 20 years investigating and are continuing to do so. We still feel that there are secrets yet to be found, both above and below ground.

AREA DESCRIPTION

General Location

The Mount Cripps Karst area lies 80 km south of Burnie in the North West of Tasmania. It is bounded to the north by Mount Cripps (941m) and to the south by Lake Mackintosh—an impoundment formed when the Hydro Electric Commission flooded the Mackintosh and Sophia river valleys. The maximum supply level of Lake Mackintosh is 229.5m above sea level. To the east is the Vale River and Mount Remus, and to the west is the Southwell River and Mount Charter.

Access

Access is off the Cradle Mountain Link road on to an unsealed forestry road. Three kilometres in there is a locked gate. SRCC holds the key. Once through the gate there is a further 5km before the road comes to an end. The road is rough and care must be taken when driving along it in 2WD vehicles.

PAUL DARBY

Formation in CP234 Palaeos Passages

PAUL DARBY

Traverse above the pool in CP101 Optical Ole

Accommodation

We have built a hut to stay in when spending time in the area. The hut is small and would accommodate 6 people.

Outside the hut there are several areas where tents can be erected. There is a long-drop loo.

Services

The area is a bit remote as it is more than 40km from the nearest small towns (Tullah and Cradle Valley.)

Fuel and basic food supplies are available at Tullah. There is an ample supply of fresh water from the hut tank.

There is no reliable mobile phone service.

LAND MANAGEMENT

Prior to 1991 the Mt. Cripps karst area and its surrounding forest was managed by APPM Forests, Burnie, as part of its 1926 forest concession. The Forestry Commission located limestone during their forestry assessment, as did APPM Forests during their exploratory road programme in 1986 and 1987.

As a consequence, all operations were stopped pending a survey to establish the likely extent and nature of cave and karst development in the area. On 4th December, 1991 the Mt. Cripps area became a deferred forest with the passing of legislation. Deferred land was protected from wood production for 10 years pending the defining of conservation values on that land. As a result of submissions to the Public Land Use Commission (PLUC) from SRCC and other bodies, the Reynolds Falls Nature Recreation Area was gazetted early in 2001. This area covers approximately 25 square kilometres and protects from logging the significant karst system; 12 square kilometres of which contain the known caves.

GEOLOGY

General

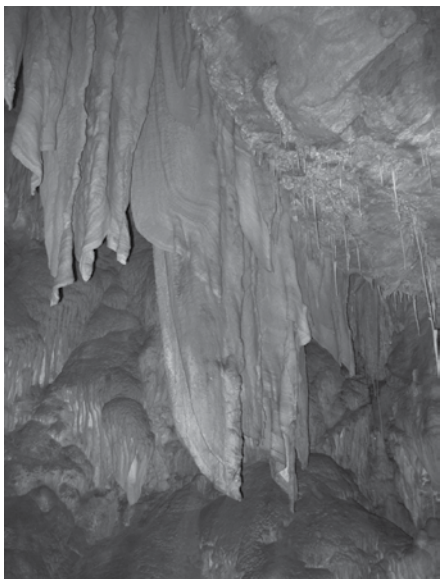
The Gordon Limestone is contained locally in a syncline disrupted by faults including the E-W trending Mt. Cripps fault. The area being examined is from the Mt. Cripps fault southwards to Lake Mackintosh. In this area the new official map (Ref. Mount Read Volcanics Map No.1 of the series – Geology of Mt. Charter/Hellyer area 1:25,000) recognises Eldon Group sandstones overlying limestone but some of this material has proven to be quartzite gravel and may be thick glacigenic sediment of Pleistocene age. South of Lake Mackintosh the Crotty Quartzite and higher units of the Eldon Group make up a large syncline core.

Most of the limestone area to the west was bevelled off under the Sophia River button grass plain, which is now submerged beneath the Mackintosh impoundment. Part of the eastern limb is still accessible at White Hawk Creek and upstream along the Mackintosh and Vale River valleys to Fury Flats, with interruptions to the outcrop because of talus, till or basalt cover. Upstream of Fury Flats, the limestone on the eastern limb can be followed to the head of Mackintosh Creek (formerly Mayday Creek) where it goes below basalt cover. The western limestone belt follows the Southwell River to the Mt. Cripps fault. Limestone may also exist to the east of Mt. Cripps. Further limestone occurs in the Vale of Belvoir, 18km to the north east of the Mackintosh-Southwell confluence, but this latter outcrop is in a different syncline.

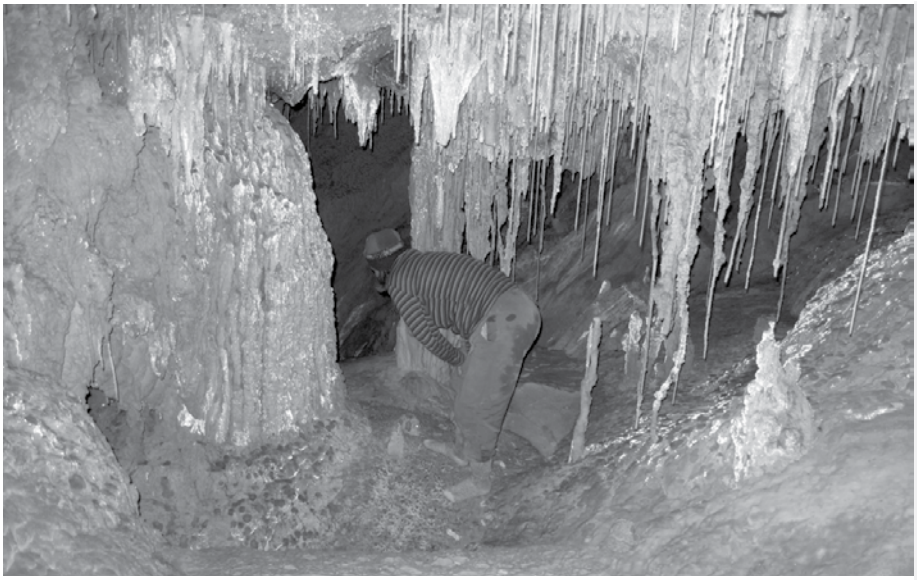
Surface Karst

Chains of dolines extend along the valley axes but stream sinks that engulf large permanent creeks are rare. At its most extreme, the surface karst comprises a net of ridgelines above large complex karst depressions. The form is essentially polygonal karst similar to that described from the tropical karsts of New Guinea (Williams 1985) but not to our knowledge mapped in Australia until now.

The less extreme surface karst has full underground drainage diversion through abundant dolines that interrupt gully lines. The big depressions show up clearly on the



PAUL DARBY



PAUL DARBY

Formations and Shawls in CP50 The Sanctuary

aerial photographs. On one of the exploration tracks well-developed rundkarren are apparent. Despite the dense forest in the area, it is possible that some former soil cover has been lost; however, some rounded karren forms may develop beneath a moss or lichen cover.

EXPLORATION

Many cavers were involved in the early exploration days, but after five years family commitments dominated members' priorities, and so membership and enthusiasm slowly dropped off.

Today we keep the records rolling and are slowly ticking off the jobs of tagging, surveying and documenting all elements of the karst environment. We have had visits from other clubs: Mole Creek Caving Club, Newcastle & Hunter Valley Speleological Society, Northern Caverneers and Sydney Speleological Society, to name a few. They have happily helped with a few surveys and some exploration.

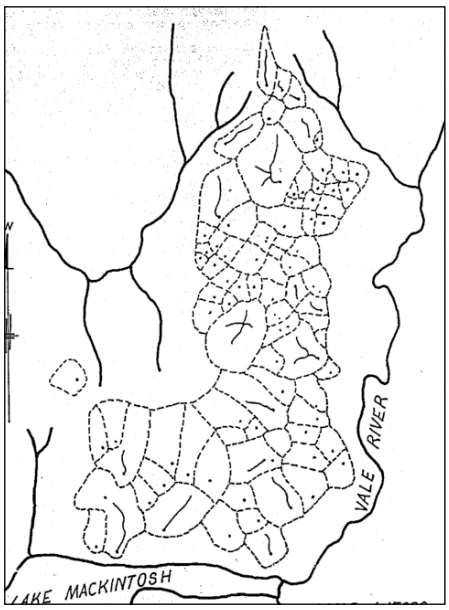
PUBLICATIONS

Our first publication on the area came out in 1996: *Beyond The Light, The Caves and Karst of Mount Cripps.* This was updated in 2007 with *Beyond The Light, The Caves and Karst of Mount Cripps, Eleven Years On.*

RECORDS

Lyndsey has faithfully kept the club records from the start and here we quote a few statistics from them:

Caves—Holes must be 10m long or deep to qualify as a cave. 226 have been identified and named. (216 with one numbered entrance, 9 with two numbered entrances and one with three numbered entrances.) All caves have been tagged and 195 caves have been surveyed. String lines have been placed



Drainage divides in the Polygon Karst

PAUL DARBY

From the road looking towards Lake Mackintosh

inside sensitive caves to protect formations, bones or other features. The longest cave is 650m; the deepest cave is 65m; the longest single drop is 42m and the longest straw formation is 4.5m.

Karst Features—To be listed as a karst feature the formation must be significant. Sixty-two have been identified, named and given a reference number. No numbers have been attached.

Minor Formations—Minor formations are of lesser significance; 29 have been identified and named.

Landmarks—These are identified to enable us to find our way around the area and also as a descriptive item; 28 have been identified and named.

SURFACE SURVEYING

Henry Shannon, with Lyndsey as an assistant, started our surface survey lines and when he left after surveying over 5km, Lyndsey took over the job with Paul as her offsider. The idea is to link all caves, karst features, minor formations and landmarks into the surveys. This project is close to being completed. We have surveyed five surface lines. The first three are our major exploratory lines. Line 1 is 5.4km long, Line 2 is 9.0km and Line 3 is 22.5km. GPS navigation and logging of karst feature locations is unreliable in many situations due to the steep southerly terrain and dense rainforest cover.

OTHER OBSERVATIONS

Over the years we have taken an interest in other aspects of the area: megafauna remains, flora, fungi, lichen, surface fauna, cave fauna, bones and calcified remains, and birds. We have quite extensive lists on all our observations and finds. We have had various experts visit Mt. Cripps in order to expand on our observations and understanding of the whole karst ecosystem.

REFERENCES

Beyond The Light, The Caves and Karst of Mount Cripps, 1996

Beyond The Light, The Caves and Karst of Mount Cripps, Eleven Years On, 2007

The Management of the Mt. Cripps Karst Area (SRCC-Unpublished document)

Savage River Caving Club Inc.—Records

Junee-Florentine, Tasmania

Australia's premier sport caving area

Stephen Bunton
STC

THE JUNEE-FLORENTINE is Australia's premier sport caving area. It contains the majority of this country's deepest caves as well as Australia's most impressive insurgence cave, Growling Swallet. The large stream which sinks into Growling Swallet appears again over 8 km away at the Junee Resurgence, near Maydena in Tasmania's southwest.

The caves which form part of this system, are this area's deepest and most exciting, although there are other caves scattered over the lower slopes of the Florentine Valley. Not all of the connections into the system are known and the potential for future exploration is virtually unlimited. The search for the "Junee master cave" is still inspiring regular visits to this area and new discoveries are being made monthly.

Growling Swallet has been known since the 1800s, when packhorses travelled within 50 m of the entrance as they passed on the way to The Settlement via McCallums Track.

The cave was explored to Sump 1 in 1957 and at a depth of 171 m, Growling Swallet became Australia's deepest cave. In the early 1980s a by-pass to this sump through Windy Rift resulted in the cave being extended to 11 km in length. In the early 1980s, Ice Tube was pushed to -345 m and it became Australia's deepest cave. When connected to Growling Swallet shortly afterwards, the potential for a master system through to Junee Cave was becoming a tantalising reality.

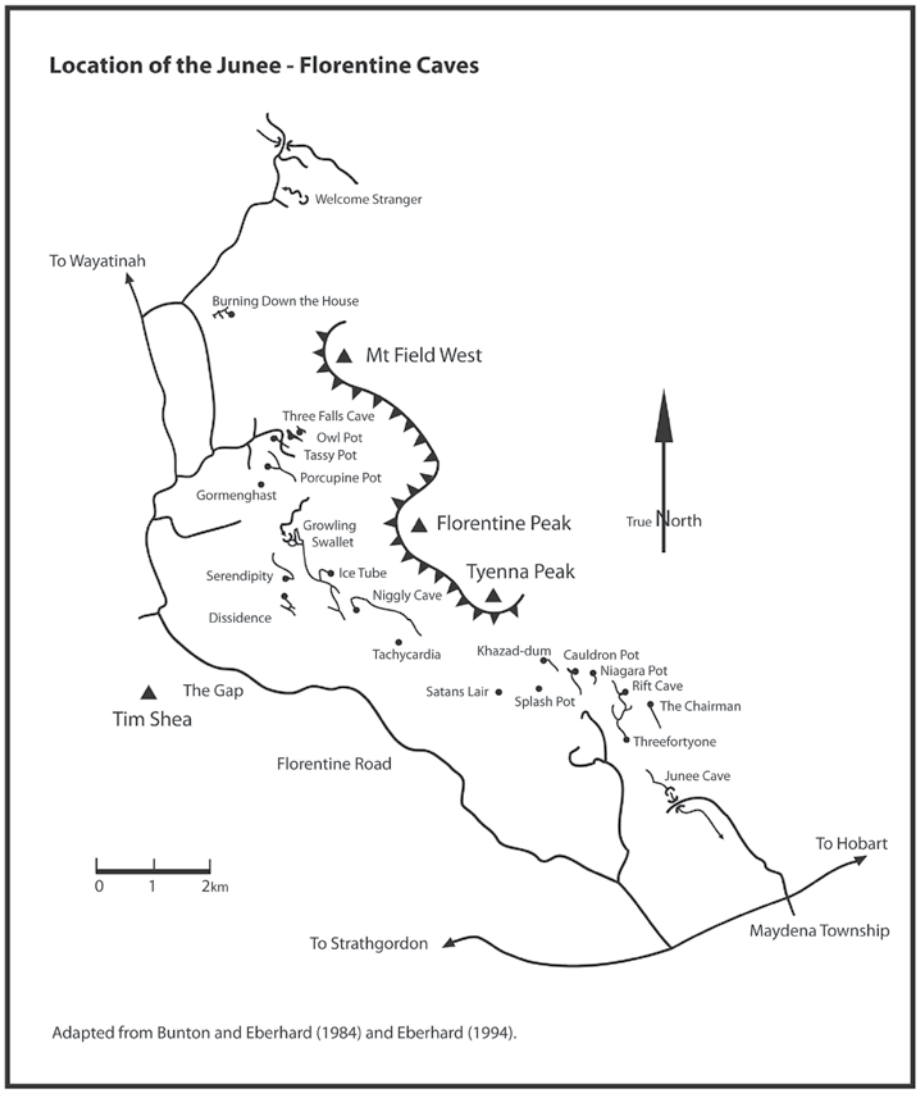
STEPHEN BUNTON

The entrance to Growling Swallet in flood

This led to other caves in the no-man's-land in between being discovered and explored with the hope that they too would connect. Diving upstream in the Junee Resurgence is a physical, mental and technical challenge, at the limit of what is possible for cave divers.

The major find of the early 1990s was Niggly Cave and at -375 m it became Australia's deepest cave. With a final pitch of 191 m, The Black Supergiant, still Australia's longest pitch, Niggly took on the reputation of a fearsome sporting cave. Only seven people have been to its deepest point! Even

PHOTO: DAMIAN BIDGOOD



fewer have bottomed Tachycardia since it overtook Niggly as Australia's deepest cave in 2006 by a mere 60 cm. Tachycardia also has an awesome pitch in its nether regions; The Bermuda Triangle (171 m).

The deep caves of the Junee-Florentine have long been test-pieces for vertical cavers and the objective of many visits from mainlanders.

Caves such as Tassy Pot, Cauldron Pot and Khazad-dum were done in fine alpine style but now the increased depth and seriousness of the new generation of deep caves has determined that these are sieged over a period of time.

The caves of the Junee-Florentine are mostly located in Mt Field National Park but they are accessed through State Forest on the southern and western slopes of the Mt Field massif.

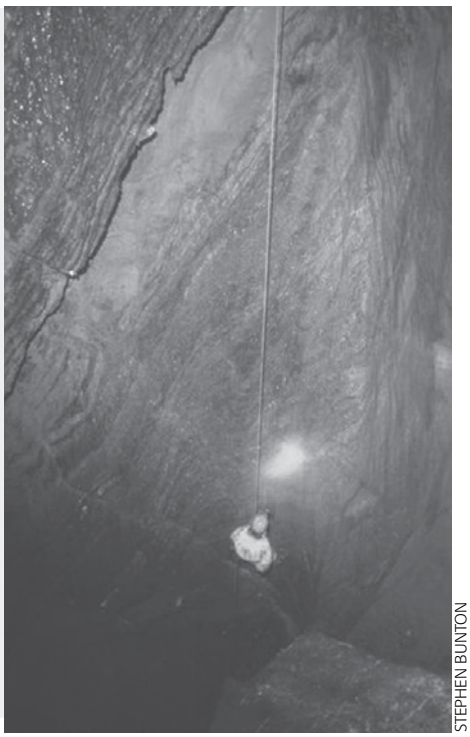
Visitors to Tasmania will be familiar with the distinctive dolerite columns which form the summits of many of its mountains and Mt Field is no exception. In the Junee-Florentine this dolerite overlies Ordovician limestone (Eberhard, 1994). The copious rainfall, produced when the Roaring Forties crash into Tasmania's rugged mountains, runs off this impervious cap-rock and percolates into the limestone, mostly at the contact. Searching along the contact is still proving fruitful and the latest cave to be found, JF-429 (-34 m) was only tagged, explored and mapped in the latter part of 2008.

Effectively, this vertical playground has no access restrictions although cavers should have a National Parks pass. The dense rainforest, poorly marked tracks and maze of forestry roads, some of which are temporarily closed off, make finding the caves problematical.

Visiting cavers should contact Southern Tasmanian Caverneers who are more than willing to accommodate extra people on their trips. There is a range of touristy options but the locals are not selfish about including visitors on exploration trips. Who knows? You may be involved in a significant new discovery.

This could even change your life; more than one visitor to the "Extinction Isle" has stayed on to become a resident.

It used to be the Apple Isle, then the Woodchip Isle; now it's the demise of our great mammalian icon that has put Tasmania on the map, when all along this island



STEPHEN BUNTON

Carey Barlow descending the 70 m bottom pitch in Tassy Pot

STEFAN EBERHARD

Rolan Eberhard ascends the sixth streamway pitch in KD

DAMIAN BIDGOOD

The entrance to Growling Swallet

state should have been famous for its great sporting caves—"The Caving State."

My own personal favourite is Khazaddum (-292 m), not just because it was a life-changing experience for me; it is just a great cave.

For two decades it was Australia's deepest cave, a one-day test-piece involving thirteen pitches; a couple of respectable lengths but six short ones which punctuate a classic clean-washed streamway.

This cave highlights the special requirements for visiting the Junee-Florentine caves. These include a waterproof trogsuit and thermals, plus a truckload of rope and rigging gear. The caves consume almost the same amount of rope as their true depth. A good level of SRT skills is essential considering all the caves are multiple pitches.

If you have the skills, don't mind a bit of a splash in the face with cold water and revel in the possibility of making a discovery, naming a passage or a pitch and thereby becoming a part of Australia's cave exploration history, then the Junee-Florentine is your must-visit caving area.

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Bunton, S and Eberhard, R. 1984, *Vertical Caves of Tasmania—A caver's guidebook,* Adventure Presentations, Miranda, NSW.

Eberhard, R. 1994, *Inventory and Management of the Junee River Karst System, Tasmania—A report to Forestry Tasmania,* Forestry Tasmania, Hobart, TAS.

Jackson, A. 2006, JF – 270 'Tachycardia—a brief history of Australia's new deepest cave', *Caves Australia* No 171 pp. 7-10.

Calling all Cavers …

Southern Tasmanian Caverneers (STC) Exit Cave Project

Amy Robertson

ROLAN EBERHARD

Grand Fissure, Exit Cave

FIRST EXPLORED in 1954, Exit Cave is one of Tasmania's finest caves. Located in the 'deep south' of the state, Exit Cave barrels through the centre of Marble Hill, whose limestone slopes form much of the known Ida Bay Karst area.

Among its claims to fame, Exit Cave has:

- more than 17 km of surveyed passage;
- held the Australian depth record during the late 1960s;
- held the Australian length record for over 20 years from 1968;
- passages ranging from 30 m wide halls to the 110 m freehanging Mini-Martin pitch;
- more than 10 entrances, all on the southern face of Marble Hill; and
- several passage limits tantalisingly close to caves entered from the northern side of Marble Hill, including proven hydrological connections.

STC is commencing a project, collaborating with the Tasmanian Parks and Wildlife Service and the Department of Primary Industries and Water, to better map Exit Cave.

Appeal for information

An initial stage of the project is to collect and collate all information relating to the cave. While much of this information is in STC's archive, some may exist with people

or clubs from other parts of Australia (or the world) who conducted exploration, survey and mapping work during previous caving trips to the area.

Detailed surveys exist for many parts of the cave, but have not been collated and mapped at an overall level; the outline map (right) has been the standard navigational and scientific map for many years.

Photos, trip reports and personal recollections could all provide details on changing conditions in the cave and clues for future exploration.

If you have data, trip reports or photos relating to Exit Cave, please forward these to:

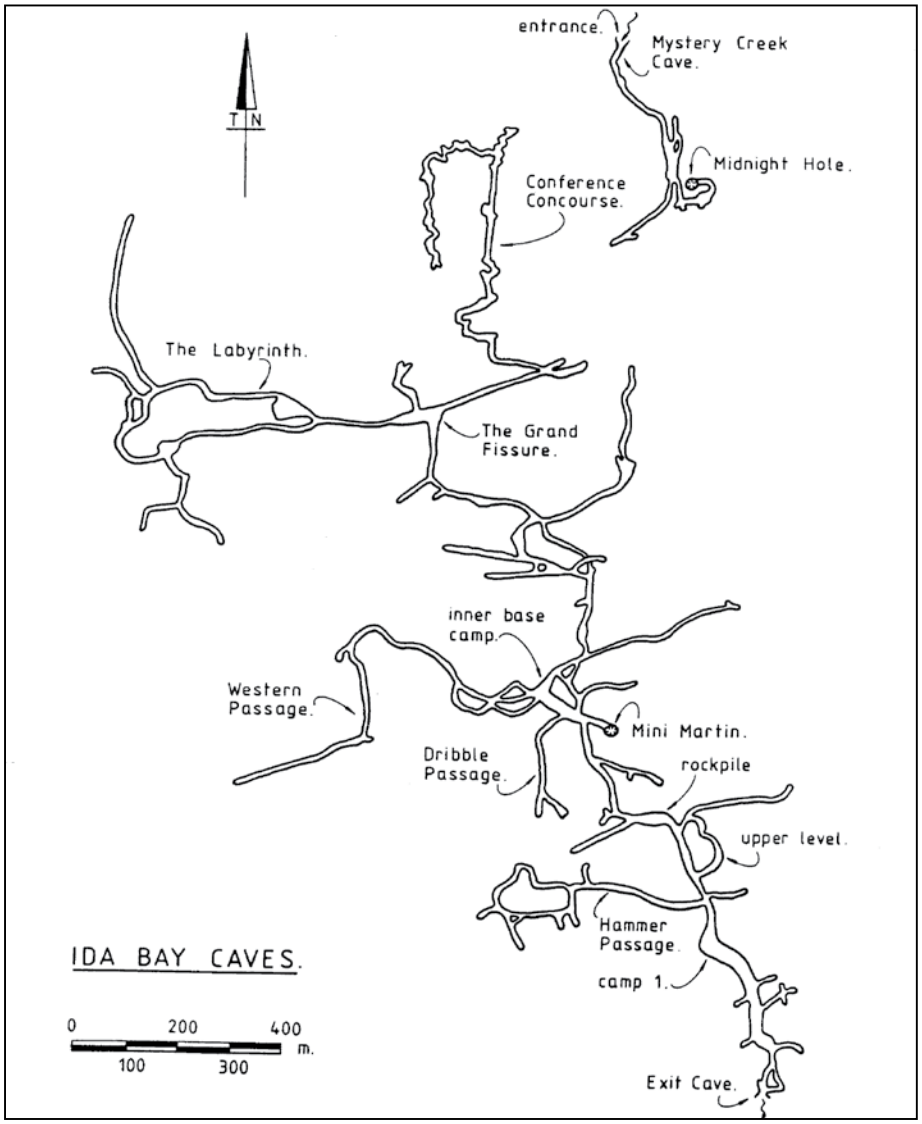
STC—Exit Cave Project
PO Box 416
Sandy Bay TAS 7006
or contact STC President Matt Cracknell at: mattc0@postoffice.utas.edu.au

Appeal for surveying help

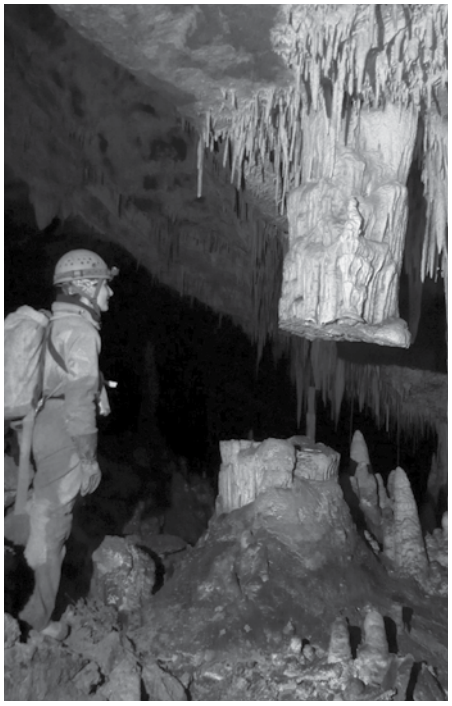
Future stages of the project will involve checking and adding to underground survey information.

Areas of focus are likely to include the more distant or less easily accessed passages, so volunteers with good caving fitness and surveying skills would be welcome to join in.

You may be interested to donate some time on an individual trip to Tassie, or to organise a visit from members of your ASF club. This may even coincide with the 'off-season' for ASF conferences in January 2010. Please contact STC if you are able to help.

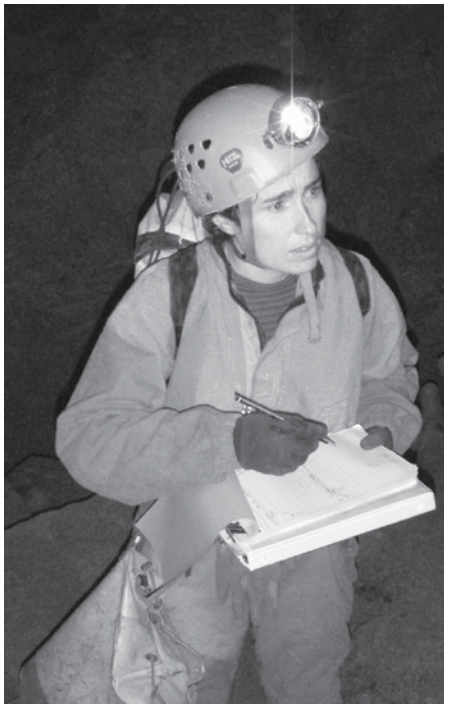


From Bunton, S. and Eberhard, R. 1984, Vertical Caves of Tasmania—A Caver's Guidebook, *Adventure Presentations, Miranda NSW.*



GREG MIDDLETON

Jane Pulford admires the scenery on a recent project trip.



MATT CRACKNELL

Sarah Gilbert undertaking recent surveying for the project.

MATT CRACKNELL

Greg Middleton negotiating one of the smaller passages in Exit Cave.

Exploring JF-382 Dissidence

Alan Jackson
STC

TIMES had been lean at Southern Tasmanian Caverneers (STC) since the glory of JF-270 Tachycardia (which was pushed to -375 m in 2006; see article in *Caves Australia* 171.) We'd spent a year prospecting in a variety of areas, particularly the Junee-Florentine, turning up plenty of new caves, but with nothing much over 40 m deep to get excited about. We even had another go at Tachycardia, pushing some horrendous leads at the -300 to -350 m mark. The punishing ways of this cave soon demoralised us and we shut up shop for good in this shit-hole to end all shit-holes.

A new dose of enthusiasm was required and it came in the form of an Englishman—Andy McKenzie. All he could talk about was his recent multi-day trip in Bulmer (NZ) and grand stories of football field sized caves in Vietnam.

It was time to find something good for the impending summer and prove to him that Tasmania still had something to offer the hardened caver. The long-theorised bolt traverse on the 113 m pitch in JF-10 Splash Pot was on the cards but the 45 minute chest crushing squeeze, Close to the Bone, was proving to be an effective psychological barrier.

One pleasant day in the Junee-Florentine, while searching for new and old prospects alike, Serena Benjamin stumbled across a cave tagged JF-382 and in an instant our summer was fully booked.

JF-382 was discovered in the mid 1980s by one of the Eberhard brothers (most likely Stefan). With the myriad of other caves being discovered at the same time in the immediate area (e.g. JF-344 Serendipity,

ANDY McKENZIE

Sarah Gilbert illuminates a section of Union Jack

JF-338 Lost Pot, JF-371 Flick Mints Hole) it would appear that JF-382 was placed low on the priority list. Until our rediscovery of it in September 2008 there was only one reference to the cave, in *Speleo Spiel* 207 – July 1985. It was described as:

> *"JF-382: Unnamed cave. Thirty metres downhill of JF-381. Entrance size about 5 x 1.5 metres, total depth roughly 15 metres to a draughting constriction. The tag was placed on the right just inside the entrance."*

The words "draughting constriction" were enough for us. The tight slot at its base was backed up with the most horrendous crap—a mobile mixture of dead animals, rainforest humus and limestone-derived clay. It took three digging trips to clear and widen the slot. The roaring draught kept spirits high.

Our forward probe, Serena Benjamin, was the first to negotiate what was to be named Renegade Squeeze. She confirmed going passage and more pitches, so the dig was widened further (just because Serena fitted didn't mean anyone else was likely to). It was game on.

The cave started out in typical JF fashion – a series of vertical drops in small to medium sized passage (pitches of 8, 8, 6, 17, 5, and 12 m.) The cave then underwent a dramatic transformation when an immense canyon of vadose origin was intersected (later named Union Jack).

The passage averaged around 8 m wide and 40+ m high for some 130 m (dropping around 70 m vertically over that distance). At the end of this mega-passage it split in two. The higher fossil passage led to a 42 m pitch for which we didn't have enough rope. The active streamway in the other direction dropped over an 8 m pitch. This was descended and it brought us to the brink of an enormous chamber with the exciting sound of rushing water in the depths below. Unfortunately, the 55 m drop into the chamber proved an end to the day's exploration.

Subsequent trips descended the 55 m pitch (dubbed Vertical Euphoria) into the most magnificent of chambers: towering vertical walls in superbly sculpted and banded rock and several streams entering. The streams combined and tumbled down a 21 m pitch.

At this point the gradient flattened and a nasty wet crawl was followed for about 100 m. On a later survey trip into this area a particularly tight section could not be negotiated by our English comrade. Unable (and unwilling) to continue exploration on my own, we turned back. We had reached -257 m.

ANDY McKENZIE

Alan negotiates Renegade Squeeze

Subsequent trips focused on the fossil route above the big pitch. The 42 m pitch was also superb, being formed in the same visually striking limestone beds as the 55 m. At its base, the water in Vertical Euphoria could be heard and it was assumed that to drop the next 13 m pitch would simply provide a round trip.

Instead we focused on a higher level fossil passage which was attained via a few hairy climbs on poorly consolidated sediments. Surprisingly, this led to an extensive network of narrow vadose canyons in both upstream and downstream directions. The main passage terminated with a 23 m pitch into a large collapse chamber with a healthy stream falling from a high aven and scurrying into impregnable breakdown.

A strongly draughting phreatic tube at the far end of the chamber was attempted but enthusiasm waned before enough digging was completed. This chamber bottomed out at -252, so a new deepest point was not attained.

With all the good leads finished in this section we turned to the mopping-up phase; checking side leads and systematically surveying them all. The day came to drop the 13 m pitch and survey the connection back into Vertical Euphoria (VE). In the end we could see the window into VE but a 7 m vertical sediment bank stood in our way. Instead, the pitch had led us to a whole new section of cave. We had stumbled upon the largest passage yet—a vast breakdown chamber about 120 m long, 50 m wide and 40+ m high! Our minds boggled at the scale of things.

At the lowest point we followed the draught and our noses through the break-

ANDY McKENZIE

Alan rigs the 21 m No Country for Old Men pitch

MATT CRACKNELL

Looking out the entrance (ladder) pitch

MATT CRACKNELL

Andy McKenzie covered in muck from the dig

down, ultimately intersecting solid passage again. It was all fossil passage but the draught was encouraging. A climb up into a large dry chamber filled with dust and encrusted with pretties lay in stark contrast to the otherwise decoration-barren cave. A second climb up, gained access to a much smaller passage and a narrow climbdown. The drat roared from a particularly nasty slot and we declared game over. In a single day, when least expecting it, we had discovered and surveyed 650 m of cave and extended our deepest point to -284 m. Visiting Irish caver Niall Tobin had joined us on this trip and, having never done exploration caving before, was blown away by the day's discoveries.

Subsequent trips tidied up the survey and pushed numerous side leads. The connection back into VE was completed via an airy bolt traverse. The dry phreatic dig was not returned to; the going streamway below the 55 m pitch received similar treatment and two other leads were marked on the survey with "undescended pitch".

JF-382 Dissidence (so named due to our inability to agree with one another's naming suggestions or caving practices in general) had transformed from a "roughly 15 metres" deep cave to a 1.85 km long, 284 m deep classic of the Junee-Florentine. In the end it pipped Serendipity for eighth place on Australia's deepest cave list, but failed to reach its theoretical maximum around the -330 m mark.

In the end even the seemingly boundless enthusiasm of the Englishman ran out. We'll give it a year or two to mature (both the cave and the Englishman) and then head back for a second look.

Reply to Australia's Lowest Caver?

(Caves Australia 174:7-9)

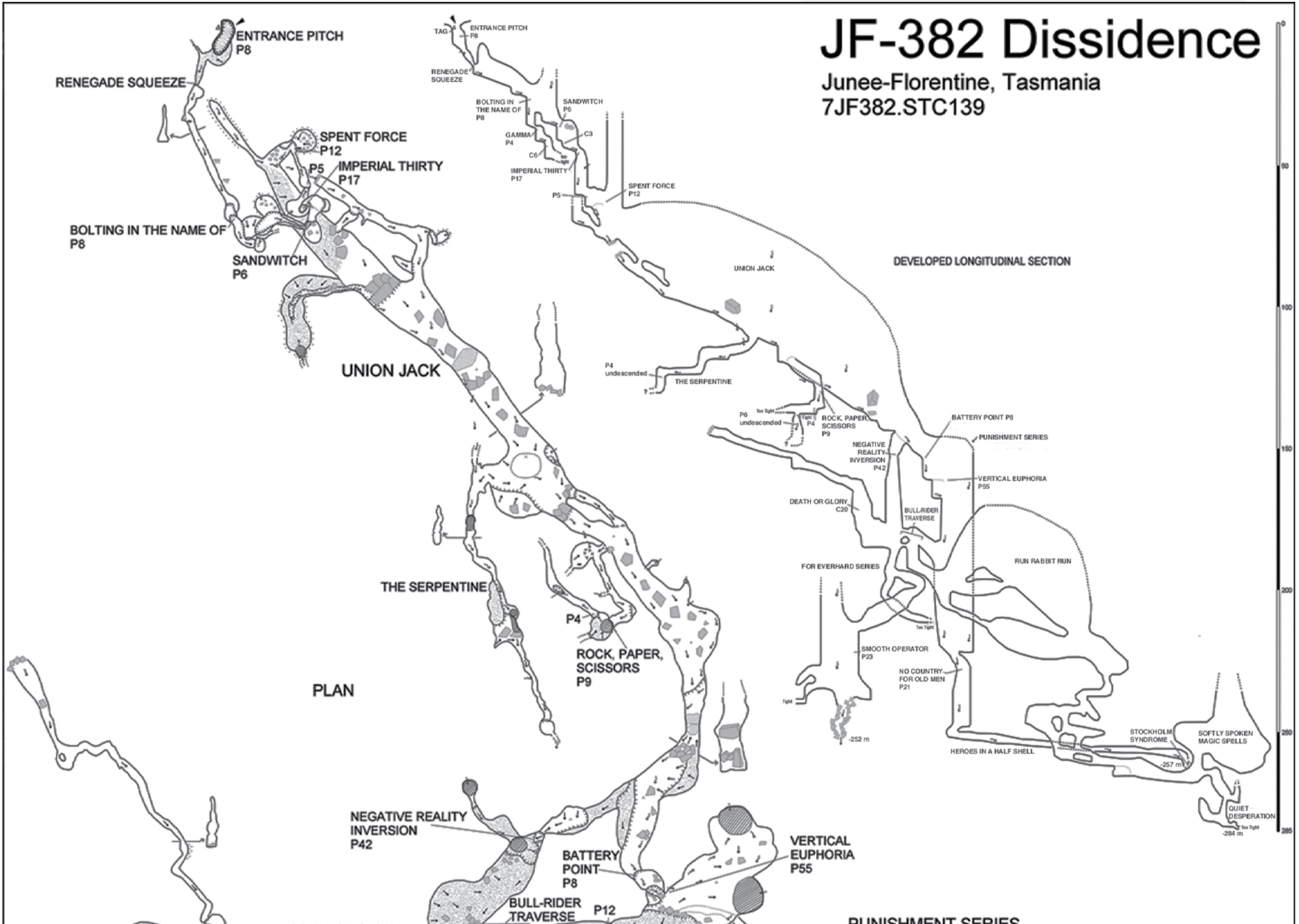
STEPHEN BUNTON will be pleased to learn that David Stenson is still alive and still caving, canyoning and teaching young people respect for the environment we enjoy.

I well remember KD, which I quite enjoyed, despite the equipment problems with lights. I did learn not to lend my primary light source to fellow cavers who cannot look after their own equipment.

Unfortunately I do not share your passion for the highest, deepest, longest etc., but I do have a passion for preservation, training and safety.

Good luck plumbing the depths.

—David Stenson


JF-382 Dissidence
Junee-Florentine, Tasmania
7JF382.STC139
DEVELOPED LONGITUDINAL SECTION
PLAN
ENTRANCE PITCH P8
RENEGADE SQUEEZE
SPENT FORCE P12
P5
IMPERIAL THIRTY P17
BOLTING IN THE NAME OF P8
SANDWITCH P6
UNION JACK
THE SERPENTINE
P4
ROCK, PAPER, SCISSORS P9
NEGATIVE REALITY INVERSION P42
BATTERY POINT P8
VERTICAL EUPHORIA P55
BULL-RIDER TRAVERSE P12
PUNISHMENT SERIES
TAG
GAMMA P4
C6
C3
P17
P6
undescended
Too Tight
Tight
DEATH OR GLORY C20
FOR EVERHARD SERIES
RUN RABBIT RUN
SMOOTH OPERATOR P23
NO COUNTRY FOR OLD MEN P21
-252 m
HEROES IN A HALF SHELL
STOCKHOLM SYNDROME
SOFTLY SPOKEN MAGIC SPELLS
-257 m
QUIET DESPERATION
-284 m
0
50
100
150
200
250
285

Surveyed by Southern Tasmanian Caverneers:
Serena Benjamin, Gavin Brett, Alan Jackson,
Andy McKenzie, Janine McKinnon, Amy Robertson
Niall Tobin, Ric Tunney, Trevor Wailes
(October 2007 - January 2008)
Drawn by: Alan Jackson
Symbols: IUS 1999
ASF GRade 44
Surveyed Length: 1850 m
Surveyed Depth: -284 m

Expedition to Undara Lava Wall

Les Pearson
Chillagoe Caving Club

THE PURPOSE of this trip was to walk the terminal section of the Undara Lava Wall, which is a significant feature of the Undara Lava Flow, to ascertain whether there were any indications of lava tubes being involved in the formation of Edmonds Lagoon and to develop some explanation of how the wall was formed.

The group present were Anne and Vern Atkinson, who are local graziers with an intimate knowledge of the Undara Lava Tubes, the National Parks Regional Director, Greg Wellard with his family, and the author and his wife Beth.

The timing of the expedition was set for September 1992 when it could be expected that fires would have diminished the grass cover for easier walking on the wall and the outdoor temperature not yet too high.

THE UNDARA WALL

The Undara Wall is part of the Undara Lava Flow on the McBride Volcanic Province in North Queensland near Mt Surprise. The Undara Volcano was active approximately 190,000 years ago and it was estimated to have erupted 23 km^3 of lava, which flowed mostly in a north-westerly direction down the natural drainage of the area to the junction of Parallel Creek and the Einasleigh River, some 164 km route distance from the crater.

The wall is a flat-topped lava structure north-west of Mt Surprise which extends for some 35 km and with varying widths up to at least 500 m. It must fall slightly in its length and, except for some boulder piles on the southern rim near the western end, with no perceptible variation from flat on transverse sections, except perhaps near its beginning south of the Mt Surprise to Forsayth railway line. The sides of the wall dip down at approximately 45 degrees at the sides, which are about 20 m above the surrounding landscape for much of its length. Some six kilometres from the end of the wall there is a gap across the width of the wall and the road used for access crosses the wall for a second time in this gap to provide access to a property homestead to the north of the wall.

There are other similar gaps in the 20 m high wall back towards the first road crossing of the wall which are visible on aerial photos, where a low level lava tube formed between the open channel sections, which became involved in wall building.

The lava which formed the Undara Wall had travelled some 60 km and lost 450 m of head before approaching the Undara Wall where the terrain flattened out, falling less than 75 m in the 35 km from the vicinity of Mt Surprise to the end of the wall. These drops are taken from contour maps and the fall quoted is for the original ground level, so that the fall in the length of the Undara Wall is probably considerably less than 1 in 1000.

For most of the distance from the crater to the beginning of the lava wall the lava would have been largely within a closed lava tube which would insulate the lava and maintain its temperature of approximately 1200°C. In the upper section of the tube from the vicinity of Yaramulla Station to Barkers Knob some parts of the tube have either collapsed or possibly there were some sections which may have always been unroofed open channels. It is expected that the lava entering the wall would have still been very fluid.

Aerial flights had noted a depression at the western end, named Edmonds Lake, which holds water in the wet season, but when we visited it was a dry reed bed.

The presence of this depression suggested a possible lava tube roof collapse may have occurred inside the wall. This would be consistent with an alternative theory that the wall was raised by molten lava pressure in a lava tube forcing the roof upwards. I do not subscribe to this theory, as there is a high probability that in its considerable length the lava pressure would somewhere have burst the envelope and this failure would be very obvious. Also, an inflated tube would tend to bulge on top and not be so flat-topped nor have such a distinct change of slope at its edges.

It is not unusual for a full lava tube, when heated by hot lava, to bulge upwards as the roof approaches melt temperatures. On the first road crossing from Mt Surprise the lava was carried in a tube and the top of this tube bulges up above surrounding terrain, but there is no apparent bulge on the top of the wall where we walked.

ANNE ATKINSON

Undara Lava Wall

THE EXPEDITION

The party set out early and breakfasted at the base of the wall after driving to, and through, the gap containing the second road crossing of the wall. The first road crossing had been examined and from the evidence of the road cutting, was obviously a lava tube which was full of lava when the flow ceased.

The second crossing of the wall was through a wide gap in the wall. The top of the wall was flat on both sides of this gap and the sides of the gap were sloping down

similar to the outer sides of the wall. This gap obviously must have been formed by the lava channel roofing over, breaking the flow into separate lava channels connected by a tube which flowed below the gap.

After climbing to the top of the wall on the terminal section, we headed towards the western end some six kilometres away across what was obviously a lava flow that had cooled, leaving a very flat rocky top. There was no perceptible slope across the width of the wall and use of a string line and line level confirmed the top to be flat across its transverse section.

For most of the terminal section the width varied from 300 to 500 metres and there was no evidence seen of any breaches, or holes, on the side walls.

At the second road crossing a branch of the wall heads southeast alongside the roadway and some people have interpreted this as a breakout, but it is more likely to be where the lava flow has run back up the channel of a main tributary creek and this has become part of the lava wall. The country on both sides of the wall at its base for hundreds of metres outwards was covered with a flat basalt sheet.

WALL FORMATION

From examination of the topographical and geological maps (see map and aerial photos below) it is quite apparent that the westward lava flow which encompasses the wall flowed down the prior drainage of the area initially flooding across the creek valleys. The wall appears to be on the drainage sections where the terrain had flattened out and the creeks tended to meander. In the present landscape both creeks have developed again, one on either side of the wall.

My belief is that the outer edges of the wall are an approximation of the location of the outer banks of the original creeks that are now replaced by Junction and Elizabeth Creeks which generally run parallel to the wall. The flow ran initially down Elizabeth Creek to the vicinity of the second road crossing of the wall where it was joined by Junction Creek and the lava flow continued down Junction Creek. On the western side of this junction the lava flowed about one kilometre back up Junction Creek and also for short distances up small tributaries of Junction Creek leaving a side branch heading southeast from the main wall.

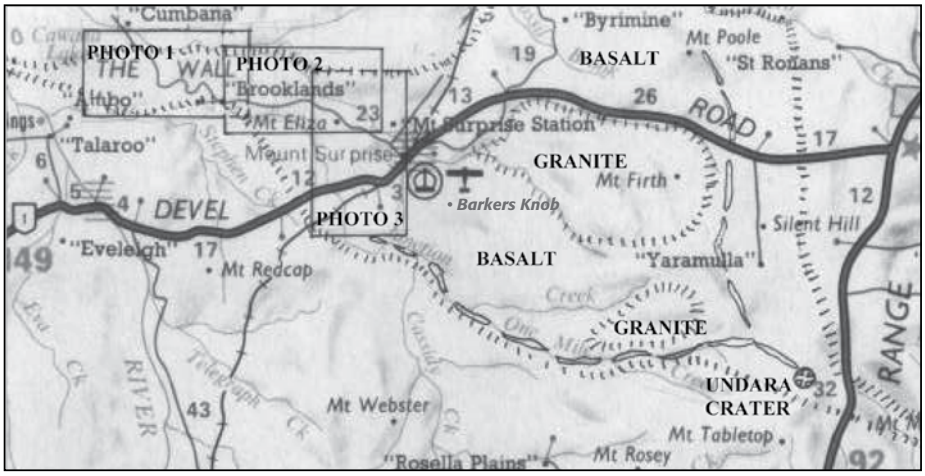
It appears that the initial lava flows ran down the creek beds and overflowed, covering the original landscape for up to a kilometre on either side. Because of the width of the overflow of lava coming down the creek beds and, bearing in mind the size of the tube supplying this system, the flows outwards from the creeks on both sides must have been quite shallow and would have cooled more quickly than the deeper flow in the creek beds. This would result in the early flows solidifying except in the area close to the original creek beds beneath the flow. Because of the greater lava depth in these areas the lava would have remained fluid within the channels of the creek beds.

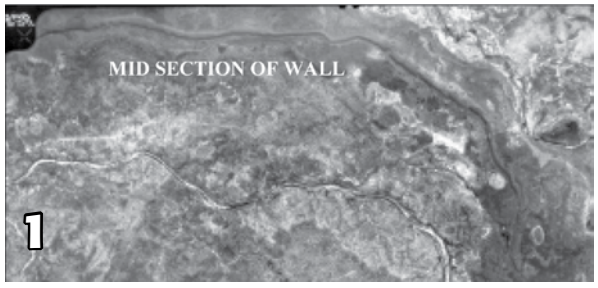
Despite the surges in lava that occurred during the overall period of the outflow, the channel or channels which formed along the creeks would have carried the flow as the tubes from the crater to the beginning of the wall would have been a significant restriction on the flow, and would have produced a more uniform lava flow. In Atkinson (1988a), there is description of lava lakes adjacent to the tube line which apparently filled during times of high lava flow and drained when the flow diminished draining to maintain a steadier flow in the input tube to the wall.

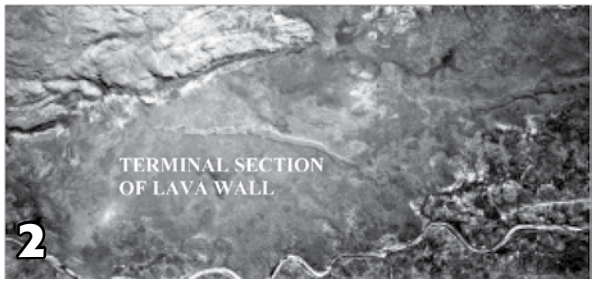
Once the flow was established as a channel it would cope with normal flows from the volcano. However, during surges the channel would overflow, but because of the flatness of the country and the long perimeter of the channel only a thin film of lava would overflow over edges of the channel and would quickly solidify, gradually building up the sides of the channel to a uniform height above the surrounding initial flow.

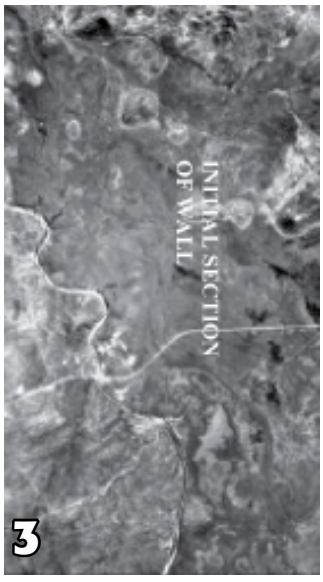
Parts of the channel have obviously roofed over, becoming lava tubes. Examining the length of the wall on aerial photos, there are a number of sections where this occurred leaving a series of lava tubes separating open channels. Lava tubes appear to have occurred more on the steeper initial parts of the original Elizabeth Creek stream bed where no doubt the channel was narrower and more deeply incised. There are also some short sections of lava tube between the two station road crossings of the wall

Once such a lava pond or series of ponds extends to have a perimeter of 50 km it is believed that, if the original terminal tube draining the ponds became blocked, the lava would overflow over the total perimeter and would not represent a large overflow at any point and would solidify quickly so that the incoming lava flow would continue to build the outside walls. This is consistent with the flow beyond the end of the wall which, while it continued for about 60 km beyond









ANNE ATKINSON

Termination at western end of wall (see rocks on edge of wall on right hand skyline)

the end of the wall, has no large outpourings over the country beyond the wall. It seems that the wall has retained a significant part of the flow from the lava tube beyond Mt Surprise. It must have been somewhat like a series of enormous bathtubs with a huge air contact which would have reduced the lava temperature considerably.

It is not evident exactly what caused the wall building to commence. However, beyond the termination the flow appears to have been in a closed tube. Because of the distance the lava had travelled, the temperature of the lava must have dropped, making roof building more likely. Alternatively, the creek bed may have been steeper or more deeply incised than in the area where the wall developed.

Once a lava tube formed at the far end of the wall it could easily become a restriction or even become totally blocked, forcing the lava level to rise on the open lava channels and with the volume of lava flowing over the more than 50 km of perimeter of the wall, only a weep of lava would spill, then rapidly solidify and commence building the edge upwards.

There is no indication of the pattern of lava outflows from the volcano, but in some parts of the lava tubes there are tide marks on the walls which suggest widely fluctuating flows. In Barkers Cave the floor shows a residual lava flow at the bottom of the tube. Should such lava deposits build up inside the tube beyond the termination of the wall it could finally cause a complete blockage. This blockage seems to have occurred, as there is no sign of a raised rim on the perimeter of the wall as would occur if the lava lake had been able to drain away through the terminal tube after inflow ceased. There are, however, some isolated basalt boulders above the rim near the termination for which there is no obvious explanation of how they were formed. One possibility is that lava rafts formed on the lava lake surface and with the fluctuating flow in the lake caused some kind of raft jam which pushed the edge lava rafts up onto the rim.

In the event of the flow from the volcano decreasing or ceasing for a time, the lava in the lake, which must have some slope to make the lava flow to the terminal end, would tend to drop to the level of the termination. As the level dropped progressively from the commencement of the wall, the length of rim over which it spilled would decrease towards the terminal end and it can be expected that with this shortening of the spilling lip, the flow rate over the remaining wall edge would progressively increase and may exceed the amount that would solidify and build the rim of the lava lake. Such spillages must have occurred, as there is a pronounced step ramp at the termination. This has been believed to contain an outlet tube, but logic says the outlet would have remained at the bottom of the lava lake while it remained open to flow. On the oblique aerial photo of the terminal there appear to be two parallel lines of boulders running west on the southern end of the rim and then continuing down the terminal step ramp which have all the appearance of being remnant walls on a lava spillage channel. While those nearest the rim might be explained as resulting from a lava raft jam, the outer ones are less likely so.

I tried to see if there was any evidence on the aerial photos of any depressions on wall sections upstream, without result. However, in this search I came across a bifurcation on the upstream end of the wall. It is possible that the tube was fed at different times by whichever tube was then operating. There is less evidence of the southern lava tube and it appears to have been in use earlier than the main lava tube. However, the apparent second branch on the upstream end may only be due to the junction of two creeks, where the one not in the main lava stream also fills back upstream and can commence wall building.

It is also possible that in the latter stages of the eruption effusion of lava could intermittently stop and start, resulting in an oscillation or wave system developing in the lava inside the wall. This again could result in more spillage of lava at the lower terminal end.

It is considered that a step must have formed on edge lava rafts along the terminal wall as described below for Godwins Depression and this formed a shelf leaning slightly to the west, parallelling the sloping profile of the lava lake such that any fluid lava coming over the wall would tend to drain along it towards the west. This flow appears to have developed to become a channel, perhaps explaining the outer line of boulders.

A further consideration is what happens to the rim during this spilling of hot lava when the lava inflow reduces and the lava level drops progressively along the wall, steadily reducing the length in which

ANNE ATKINSON

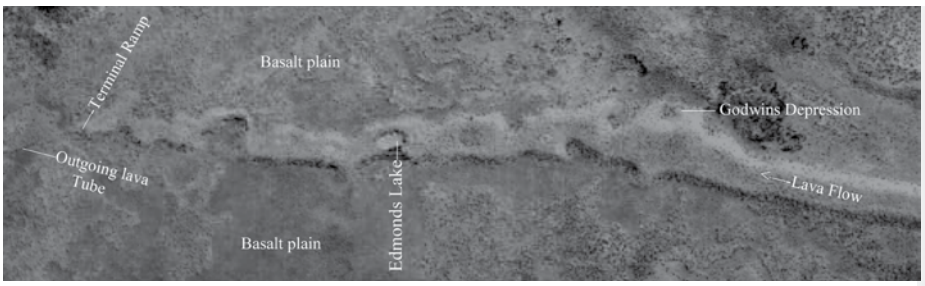
Rock piles on edge of wall near Termination

ANNE ATKINSON

Typical view of flat top of wall

ANN ATKINSON

Aerial view of western end of wall showing step on southern edge at termination



Final Section of Undara Wall before it again becomes a lava tube

spilling occurred. It is probable that some melting of the rim could occur, slightly lowering this western end of the rim and allowing further loss of lava. Should this occur, then on resumption of lava flow into the wall formation there would be continuing loss of lava in larger amounts over the lowered rim at the termination. From the apparent spillage at the termination this appears probable. When this happened, building of the rim would slow down or cease. Also, if this overflow developed to a significant overflow then lava rafts would tend to drift with the current resulting in a raft jam mentioned above.

If the above theory is correct there should be some signs on the wall near its beginning that the lava has drained to slightly lower than the rim if this has survived the 190,000 years since the eruption. This has not been site-checked as an opportunity has not presented itself. This is mentioned above in regard to the lava tube south of the railway.

Some discussion has occurred on what stopped the wall continuing to build. Clearly, this was due to the lava supply being greatly reduced or ceasing. There is no indication whether the eruption ceased or if a breakout occurred in the lava tube on the western side of Barkers Cave. There are no known lava caves west of Barkers, but the lava flow seems to have quite complex flow ridges which could be from a welling up of lava out of a tube break-out.

GODWINS DEPRESSION

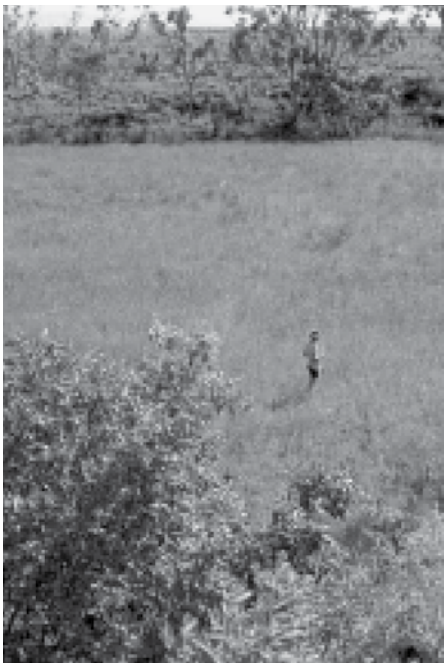
Near to Edmonds Lake on the northern edge of the wall there is a three to four metre step on the side of the wall some 200 metres in diameter with sloping inside walls similar to the outer edge of the wall. The step appears flat, like the top of the wall, and was named Godwins Depression after Mick Godwin, who spent three months with Operation Raleigh working on surveys at Undara and Chillagoe. For this feature to form, a substantial lava raft or shelf would have to develop attached to the side of the wall and overflowing lava on its inner edge, commencing wall building on the inner side of the raft and ceasing on its outer edge.

There were also further deeper depressions on the edge near the termination, but these were not investigated due to lack of time.

EDMONDS LAGOON

We then examined Edmonds Lagoon, which is not far from and of similar depth to Godwins Depression. We were looking for any indication that the floor slab had dropped, as could happen if there had been a tube below. There are no vertical or undercut walls as would be expected in a collapse, nor is there any indication of any rock fall due to the sides of the lagoon falling in. The side walls of the lagoon appear to have similar slope and appearance to the outer edges of the wall suggesting a similar method of formation.

Some consideration of how Edmonds Lagoon formed is necessary; if it did not occur as a tube roof collapse, then how was it formed? My belief is that this feature could be the result of an anabranch on the original Junction Creek with an island section between the main stream and the anabranch being below Edmonds Lagoon. Some small overflows on the walls of the lagoon could have resulted in the flat basalt floor of the lagoon, hiding any original evidence of a hilly island.



ANNE ATKINSON

Depression known as Edmonds Lagoon

WALL TERMINATION

Despite our early start, some of our party found the going tough. Anne had recently broken her ankle and, although it had mended, it began causing her some problems. The basalt rock on the top of the wall was heating up, the sun was much higher in the sky and we began to dehydrate and sunburn so when we arrived at the termination of the wall we were more interested in getting into shade than spending a lot of time looking about.

However, we did note that at the end there is not much evidence of any outgoing lava tube. There were some suggestions of lava overflows and some southern edge rock piles as described above.

We were pleased to find that Vern was at the bottom of the wall termination in his four-wheel-drive offering us lots of cold water and a lift back to our cars and more cool drinks.

CONCLUSION

This paper provides some ideas regarding formation of the Undara Lava Wall. This would provide an interesting subject for computer modelling to confirm whether my suggested method of wall formation is valid. However, to do any proper analysis it would be necessary to obtain a detailed survey of the levels along the wall.

Unfortunately, my photographs taken of the various features seen on the wall have vanished, making any illustration difficult without the kind assistance with photos by Ann Atkinson.

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Remote Area Expedition Planning

Paul Hosie
CEGSA

PETER ROGERS

The Olwolgin cave diving expedition

IT HAS been my privilege to run some thoroughly enjoyable and rewarding caving and cave diving expeditions to remote parts of Australia over recent years. It hasn't all been smooth sailing for this sub-surface explorer and I have also been involved in and run some trips that were a little disappointing.

Both the successes and the not-so-successes have valuable lessons for future trips. This short article aims to help you capitalise on some successful strategies as well as avoiding some of the main pitfalls associated with organising or participating in an expedition to a remote area.

What does it take to 'pull off' a great expedition?

In two words, Planning and Communication.

PLANNING

By heading off on a caving trip without properly planning you are choosing to leave the outcome of the trip to chance. It might go like clockwork, but when it doesn't, are you prepared to deal with the problems? In remote areas, a cave diving trip that you have booked leave for and spent considerable sums of money and time to get to, might be jeopardised because a $5 spare spark plug for the compressor wasn't packed and is simply unobtainable! Most risks can be foreseen and mitigation strategies put in place before the trip commences—it just takes a level of planning commensurate with the type of trip you're running.

The amount of planning you do for a trip or expedition should be weighed up against the overall risk and complexity of the trip. An expedition to a shallow, fully mapped, walk in a cave near a population centre will be very different to a deep, remote, unexplored cave requiring helicopter access and mix gas diving. The checklist on page 29 is not exhaustive, but covers the main points of consideration for an effectively planned and executed trip or expedition.

COMMUNICATION

The unspoken expectations of trip participants can be the greatest obstacle to achieving a satisfactory outcome from a trip—early, effective and regular communication with all the team members is paramount. Open, honest and effective communication skills are the greatest asset an expedition or trip leader can have.

To understand what each person expects to personally achieve from the trip and what you expect them to contribute should be the first step you take as a leader in selecting your team. Being 5 km into a cave in a remote, isolated area is no place to find out that there are personality conflicts between team members—too late! The onus is also on you as a team member, to ensure that your expectations or concerns are clearly understood by the leader/organiser before the trip!

For those interested in a deeper and wider analysis of running expeditions, the 2004 edition of the Royal Geographical Society's *Expedition Handbook* edited by Shane Winser is highly recommended. The book has a brief chapter specifically on caving, but all other aspects of leading, planning, executing an expedition, as well as follow-up activities, are covered in detail.

Expedition Planning Checklist

OBJECTIVES
☐ Realistic ☐ Achievable ☐ Agreed ☐ Prioritised ☐ Fun!

RESEARCH
☐ Area ☐ Maps ☐ Journals ☐ Books ☐ Karst Records ☐ Cavers ☐ Locals ☐ Land Owners

TEAM MEMBERS
☐ Trust ☐ Skills ☐ Experience ☐ Fitness ☐ Conflicts ☐ Objectives and Expectations

PLANNING
☐ Duration ☐ Dates ☐ Funding ☐ Sponsors ☐ Refine And Prioritise Objectives ☐ Roles

PERMITS
☐ Phone Land Manager ☐ Traditional Owners ☐ Insurance - ASF/Other ☐ Indemnities ☐ Letters ☐ Response

EQUIPMENT
☐ Caving ☐ Diving ☐ Camping ☐ Photo/Video ☐ Scientific ☐ Surveying ☐ Communications ☐ Redundancy ☐ Vehicle

LOGISTICS
☐ Transport ☐ Accommodation ☐ Air ☐ Oxygen ☐ Spares ☐ Food ☐ Fuel ☐ Water ☐ Quarantine ☐ Alternate Sources

EMERGENCY PLAN
☐ Members Details ☐ Next of Kin ☐ Casualty Management ☐ Evacuation ☐ Recompression and Medical Facilities ☐ Transport
☐ Rescue Services

CONDUCT TRIP
☐ Safety ☐ Communication ☐ Rest Days ☐ Objectives ☐ Priorities ☐ Diary ☐ Flexibility ☐ Conflicts

END TRIP
☐ Inform Next of Kin ☐ Emergency Points Of Contact ☐ Land Managers And Local Authorities
☐ Data/Photo Co-Ordination Between Trip Members

QUICK REPORT
☐ Trip Summary ☐ Email or Newsletter ☐ Club ☐ ASF-CDG ☐ Land Manager ☐ Supporting Organisations ☐ Mailing Lists – Ozcavers
☐ DiveOz ☐ CDAA Etc

TRIP REPORTS
☐ Peer Review ☐ Recognition ☐ Photo Credits ☐ Sponsors ☐ Club & ASF Journals ☐ ASF-CDG ☐ CDAA
☐ Diving/Outdoor/Geographic Magazines

THANK YOU LETTERS
☐ Land Managers and Traditional Owners ☐ Assistance ☐ Organisations ☐ Sponsors

DATA MANAGEMENT
☐ Survey Data ☐ Maps ☐ Video ☐ Photos ☐ Samples and Kid Updates

LESSONS LEARNT
☐ Post Trip Review ☐ Diary ☐ Field Notes ☐ Members Feedback ☐ Equipment ☐ Logistics and Communications Problems

AND ANOTHER THING…
☐ Objectives for next trip!

PAUL HOSIE COLLECTION

The Mullamullang expedition team

PAUL HOSIE COLLECTION

The Kija Blue expedition team

Roy Skinner

Brief recollections on his contribution to caving

Arthur Clarke and John Dunkley

CAVERS in Tasmania, Australia-wide and internationally will be saddened to hear of the death of Roy Skinner, former Superintendent of Hastings Caves in southern Tasmania (c. 1954-1974). Born in Victoria on September 22nd 1926, he was in his 83rd year.

Roy Skinner died peacefully in his sleep at Dover (at the Esperance Multi-Purpose Health Centre), in the early hours of Sunday morning, February 15th 2009. He had been out to dinner with his wife Pat and family at the Dover Hotel, about eight or nine hours earlier.

Remembering back to earlier days, Roy's son, Andrew, reflected on how isolated it was living totally on site at Hastings Caves, where his father had to be "Jack of all trades" while looking after the caves and thermal pool. Roy's first wife Emily (mother of Andrew and Fiona) was required to run the Chalet restaurant, often struggling to make a profit. Their only visitors after hours were family and close friends; amongst these were the very welcome visits by cavers, chiefly members of the Tasmanian Caverneering Club (TCC) and later the Southern Caving Society (SCS).

Aside from his endeavours and achievements at Hastings Caves, initially as Assistant Guide, then third appointed Chief Guide and later as Caves Superintendent, Roy Skinner and Andrew assisted TCC cavers in planning the route and constructing the second major access track to Exit Cave during 1966. Lovingly referred to as the Brooker Highway, it ran along the D'Entrecasteaux Plains from the Catamaran Road. Four years later, Roy greatly assisted the field trips following the 1970 ASF Conference in Hobart. Indeed, one of the noteworthy features of his time at Hastings Caves was the excellent caver-manager relationships, and also in Tasmania generally, compared (at the time) with those in some other states and territories.

ARTHUR CLARKE 2002

In 1971 he successfully applied for a Churchill Fellowship, to inspect and report on tourist caves in New Zealand, Japan, USA, Great Britain, France, Switzerland, Austria, Lebanon and South Africa. Hein Gerstner, from Cango Caves in South Africa reported that in mid-September 1972, Roy was one of the first visitors into the new Cango Two system, shortly after its initial discovery; he was certainly the first foreigner to visit Cango II. In his own words, Roy said: "I was most fortunate in that my visit to Cango coincided with a breakthrough into a new section of the cave".

The annotation on this 1967 photograph by Albert Goede reads
'Colonnades Chamber, Exit Cave, Ida Bay
'Cave Superintendent Roy Skinner with broken stalagmite
'Extensive shattering of massive formations of upper levels suggests damage due to possible earthquakes after upper levels had already come into existence.'

In the years after his Churchill Fellowship, Roy lamented that the Tasmanian Government Tourist Bureau and the Scenery Preservation Board paid little heed to his suggestions for improved methods and more advanced concepts to promote the presentation and management of show caves in Tasmania. However, on the positive side, it would be fair to say that it was Roy's new vision and enthusiasm with the knowledge gained from his Churchill Fellowship experiences that led the way to the commencement of cave management conferences. Significantly, it was Roy who gave the keynote address at the first Australian cave management conference organised by ASF at Jenolan in July 1973; it was the first such conference held anywhere in the world. In discussing his findings about the administration of tourist caves overseas, Roy concluded with these words that bear repetition and consideration even today, 36 years later:

"It seems to me that the actual method of administration and operation is not of vital importance, but in all cases two factors emerge as being paramount to a satisfactory tourist cave enterprise:
a) That administration must be well informed in speleological philosophy;
b) That well informed, competent and enthusiastic personnel must be employed at local level."

In 1975, after leaving Hastings Caves, Roy commenced an adventure caving business in Exit Cave (at Ida Bay) in southern Tasmania. Elery Hamilton-Smith has reflected that Roy Skinner's tours to Ida Bay demonstrated a totally new approach to cave tourism in Australia. In 1981-1982, Roy commenced the planning of a new route to Exit Cave from the saddle between Marble Hill and Lune Sugarloaf, behind Benders Quarry. Formed as a level and contoured pathway across the surface karst at Ida Bay, and constructed with the aid of various local or visiting cavers and NPWS rangers, it became the third walking track to Exit Cave. Still known today as the Skinner Track, it remains the most popular and regularly used route to access the IB-14 efflux entrance of Exit Cave. This track was also directly responsible for the discovery of, and provides access to, around 50-60 new caves in the Ida Bay karst on the south-eastern side of Marble Hill, including several entrances to Exit Cave.

Roy Skinner was a key host and one of the organisers for the second Australian cave management conference held at Hobart in May 1977. Organised by ASF and the former Tasmanian NPWS, this was ten years before the formation of the Australasian Cave & Karst Management Association (ACKMA) in 1987. ASF introduced its Certificate of Merit award in 1982, and Roy was presented with one of the very first round of awards for services to cave management and assistance to cavers. ACKMA presented Roy with two awards: firstly as one of the inaugural three life members appointed on May 21st 1993, and then electing him as a Fellow of ACKMA on May 4th 1995.

Although ten years later he was in a nursing home, just across the road from the Dover RSL Club dinner venue for the 2005 ASF Conference in Tasmania, Roy was too ill to attend, but several conference attendees were able to visit him. At a private funeral service for Roy Skinner, conducted at the Mornington Crematorium in Hobart on Friday February 20th 2009, cavers were represented by Roy's son, Andrew, daughter-in-law Ros, Albert and Judy Goede and Arthur Clarke. Rob Wass (the District Ranger for Hastings Caves) and his wife Hazel were also present.

Karstaway Konference Report

Marg James
VSA, Convener of the KK Organising Committee (and therefore totally biased)

DARYL CARR

In early January 2009, the citizens of Sale in Gippsland, Victoria, woke up to find the town full of mysterious street signs directing people to the Karstaway Konference.

DARYL CARR

ASF President Stan Flavel opens the conference

Oi? Well, the visiting interstate cavers knew what it was—the biennial ASF Conference, that's what. It was Victoria's turn to be host, as there hadn't been an ASF Conference there since Vulcon in 1995, held amid the limestone and volcanoes of the Western District. Now it was the turn of Eastern Victoria with its much older hard limestone.

Cavers made their way to Gippsland Grammar School (which proved to be a wonderful conference venue) for registration on Sunday 3rd, then discovered that the advertised accommodation was right next door. The Showgrounds just over the road incorporated a good campground, adjacent (as luck and good planning would have it) to a very acceptable watering hole. The school's new boarding house was over on the other side of the school. So everything was central to everything else, all within walking distance.

On Sunday evening the local Wellington Shire Council provided a welcome BBQ for the conference, hosted at the Sale Information Centre. We were made even more welcome by the Mayor, who amazed us by being able to intelligently and entertainingly discuss all the fantastic projects undertaken by ASF. Everyone appreciated the fact that he had done his homework so thoroughly and then stayed on to chat with us all afterwards.

DARYL CARR

Keynote speaker Alan 'Mr Vertical' Warild

The formal conference program ran over five days, from Monday 5th to Friday 9th January. The keynote speaker was the legendary Al Warild, the recipient of *Australian Geographic's* Lifetime of Adventure Award for 2008. His wonderful presentation on "Extremes of Latin American Caving" confirmed that he comprehensively deserved that award!The rest of the program was varied and interesting, which is a terrific reflection on the broad interests and expertise of cavers, especially those who offered papers and workshops.

The suggested focus on showcasing systematic long-term projects produced some fascinating documentation (Nullarbor, Pungalina, Drik Drik, Thailand, cave diving, the Jenolan survey, caring for caves and karst, among others).

Other papers and workshops covered various explanations of speleogenesis and dating in different areas, hydrology, cave fauna, cave photography, history, risk management, documentation, conservation, indigenous relations, a wonderful hands-on art workshop, and more. Importantly, except for a very few workshops, there were no clashes so everyone had the opportunity to go to pretty much everything they wanted to. Presentations and workshops were of a high standard, proving yet again that you don't have to be paid to produce top quality professional work.

Program Organiser Susan White cleverly arranged for most papers to be delivered in the morning, "because everyone might be awake then". (Hmphh!) Although that probably wasn't such a bad idea, given the fantastic catering which might have sent everyone to sleep after lunch. So the more interactive workshops and other events were scheduled in the afternoon.

GARRY SMITH

Jodie Rutledge with her award of distinction

These included the almost mandatory speleosports, the almost equally mandatory prussiking competition, a team trivia competition, the absolutely mandatory Caveman's Dinner, assorted social events, and the ASF Gift Fund fund-raising auction (so mandatory that organisers feared that ASF Treasurer Grace Matts might send around de boyz wid de toecutters if there hadn't been one scheduled).

Throughout the week there was also an excellent display of cavers' photographic prints, culminating in a People's Choice Competition.

The lighter side

All these events remind us that it's always an interesting yet productive exercise to try to balance the earnestness of the conference content and program with occasional opportunities to be less serious. Perhaps this is what distinguishes caving conferences from some others. School staff thought it hysterical (and somewhat sobering) that the adults competing in our speleosports competition were having so much more fun on their senior playground equipment than their own school's students seemed to.

Perhaps one of the most important things was that there was heaps of time built into the program for informal networking. Or (if you prefer plain English to Organisationalese) conferring with people you don't normally meet, talking about stuff you don't always hear about, and exchanging information about all sorts of things across the usual boundaries.

With people coming from as far afield as Kununurra, Far North Queensland, several different parts of WA, and every other state in between, this is one of the most important things that can happen in a conference like ours.

All this was interspersed with assorted ASF Executive, Council and Commission meetings. Stan Flavel ran the Council meeting so efficiently that there was hardly any business left over for the programmed second half of the meeting on Friday, so all the delegates were able to leave early.

Farewell, CCV

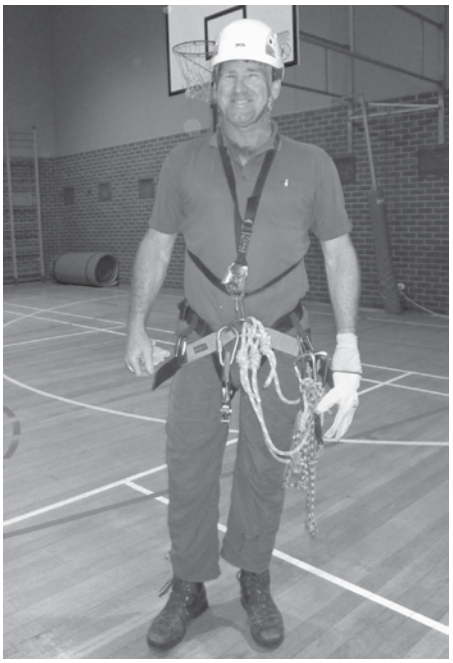
One of the saddest items of business was the demise of the Caving Club of Victoria. This was formally announced to the broader conference at the closing ceremony by secretary Greg Leeder.

Treasurer Bruce Downes presented a cheque to the ASF Conservation fund which represented the financial assets of CCV. All physical assets were sold or auctioned and the proceeds donated to the same fund.

One of the important and visible things that ASF does is to publicly acknowledge members who have made significant contributions to caving or ASF. This year was remarkable in that two Edie Smith Awards were presented for outstanding contributions to speleology: to Ken Grimes (VSA) and Mike Lake (SUSS). Awards of Distinction and Certificates of Merit were announced and presented to those awardees present. Details of the awards will be in *Caves Australia* 177.

After the formal conference ended, many participants headed off to the post-conference field trips.

These concentrated on Limestone Creek, Indi and Buchan, with coastal caving at Walkerville for some on their way home westwards. Everyone appeared to have a



DARYL CARR

Prussiking and abseiling competition: Ian Collette

DARYL CARR

Joe Sydney—the auctioneer!

wow of a time. One of the interesting things for Victorians was listening to how impressed many interstate visitors were with Buchan as a caving area, which was apparently an unexpected surprise for some. Ditto Homeleigh, the cavers' accommodation at Buchan, run by the Rimstone Co-operative (Victorian cavers wearing yet another hat). Thanks to Garry Smith for his donation of photos to adorn the walls at Homeleigh.

Overall the conference was a rip-roaring success. As one email put it, "The only complaint seemed to be on participants' expanding waistlines from eating too much". Ah yes, that marvellous catering again! If you'd like to see some of what happened, check out the conference website which has been updated to show details of papers and workshops, and some of the events: www.caves.org.au/conf2009/.

My highlights?

(Apart from the catering!) Hearing interstate cavers comment on how active Victorian cavers are compared to some of their own clubs, especially in running two full scale expeditions every year. The idea that local ABC regional radio would want to talk to the organisers about something as esoteric as caving. Managing to find good wine and port for the conference bottling. Ditto really good quality conference shirts. And let's not forget having a liquor licence in my name so that we could sell conference wine without being arrested: I'm thinking of framing it.

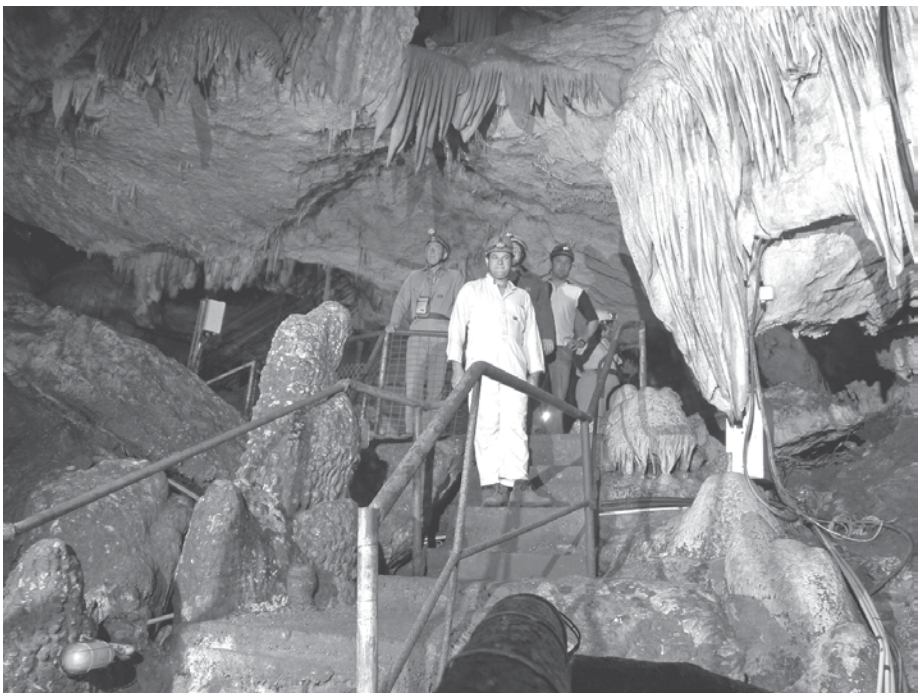
Lowlights?

Having to arrive before 7.00 am for a live radio interview (ugh)! And that hideous lergy that some devious dastardly interstate caver surreptitiously imported to the Buchan post-conference field trip, knocking out almost everyone in the process. (Stinker!) And having to wrestle with only two keys to the school boarding house, although everyone managed to cope with that.

Learnings?

A conference doesn't have to be organised by just one single caving club. A group of people drawn from different competing organisations can work together effectively to organise and run a conference. All four Victorian ASF-affiliated caving clubs were involved with this event, three as part of the organising committee, with the other coming in to help with field trips at Buchan. It worked!

The 2011 will be held at Chillagoe, but thankfully not in January, which is cyclone season. Instead it will happen at Easter. We all look forward to being there!



DARYL CARR

Buchan field trip: Shades of Death Cave. Miles Pierce, George Young and Tom Aberdeen

GARRY SMITH

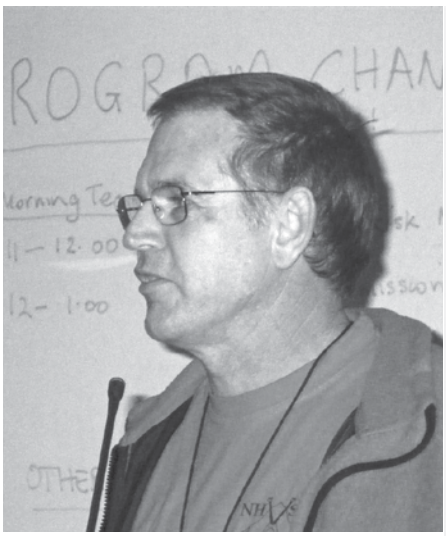
Limestone Creek field trip

GARRY SMITH

Buchan field trip: Federal Cave entrance. Sonia Taylor-Smith and Miles Pierce

DARYL CARR

Some likely suspects: Joan Crabb, Grace Matts, Anne-Marie Meredith and Cathy Brown

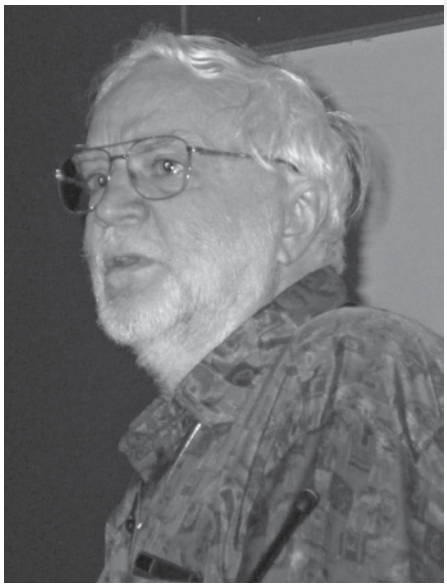


DARYL CARR

Garry Smith: photographed, not photographer

DARYL CARR

Elery Hamilton-Smith receives his award from ASF President Stan Flavel



DARYL CARR

John Dunkley

13th International Symposium on Vulcanospeleology

Jeju Island, Republic of Korea

Cathie Plowman
Northern Caverneers

ED WATERS

Waterfall in Socheongul.

JEJU is about 100 kilometres south of the Korean peninsula. At 32 kilometres across and 70 kilometres in length, it is about as big as King Island (Tasmania). Other useful statistics are a population of 560,000 and more than 300 volcanic cones. At some time lava has flowed from many of these cones, resulting in Jeju's 120-plus lava tubes.

The symposium was held at the Sunshine Hotel at Hamdeok, where the view from the hotel was ocean and palm trees. The hotel rooms cost about AUS $70.00 per night and the event organisation and hospitality of the Korean people were exceptional. Over 70 people attended, from 22 countries, including nine Australians. The Tasmanian contingent was Greg Middleton (STC) and from NC, David Wools-Cobb, David Butler and myself. The symposium included three days of paper presentations, two days of field trips, two banquets (one hosted by the Governor of Jeju) and a karaoke evening plus five days of field trips following the main event.

Using the word 'large' to describe the lava tubes is inadequate to describe their size. For example, Manjanggul is 7.5 kilometres in length, big enough to drive a double-decker bus in and has three levels.

We had three trips in this tube and still did not see it all. I have the same problem attempting to describe beauty. There are textures and forms caused by flowing and dripping lava; there are white walls so bright I looked about for light holes.

Yongcheondonggul is overlain with carbonate sands and has exquisite karst features such as delicate straws and cave pearls, as well as remains of pottery vessels and tools from when humans used the cave, before sands blocked entry about 600 years ago.

Enjoyment of the caves was coupled with being with friends and making new ones. Our new cave friends include Ed Waters and Hayley Clark from the UK. Ed is pretty skilled at cave photography and has kindly shared the accompanying images.

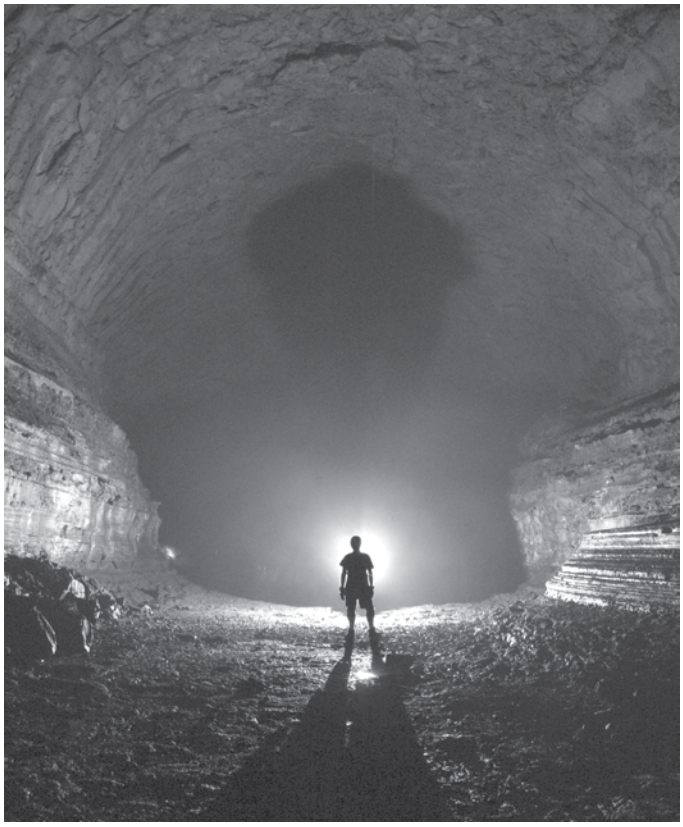
The 14th volcanospeleological symposium will be at Undara, Queensland in 2010 with a trip to the lava features of western Victoria following it.

Kalmsa ham nee dah (thank you in Korean) to our Korean friends Kyung Sik Woo, Kim Lyoun, Don Won and all their assistants for organising the event; Andy Spate for encouraging us to go to it; and to Ed Waters for the use of his photos. Enjoy.

Reprinted from Troglodyte *18 (2) De*cember 2008

ED WATERS

David and Cathie in Manjanggul. (This was the only 'squeeze' in 7.5 kilometres of cave!)



ED WATERS

USA caver Harry Marinakis in Manjanggul

ED WATERS

Straws in Yongcheondonggul

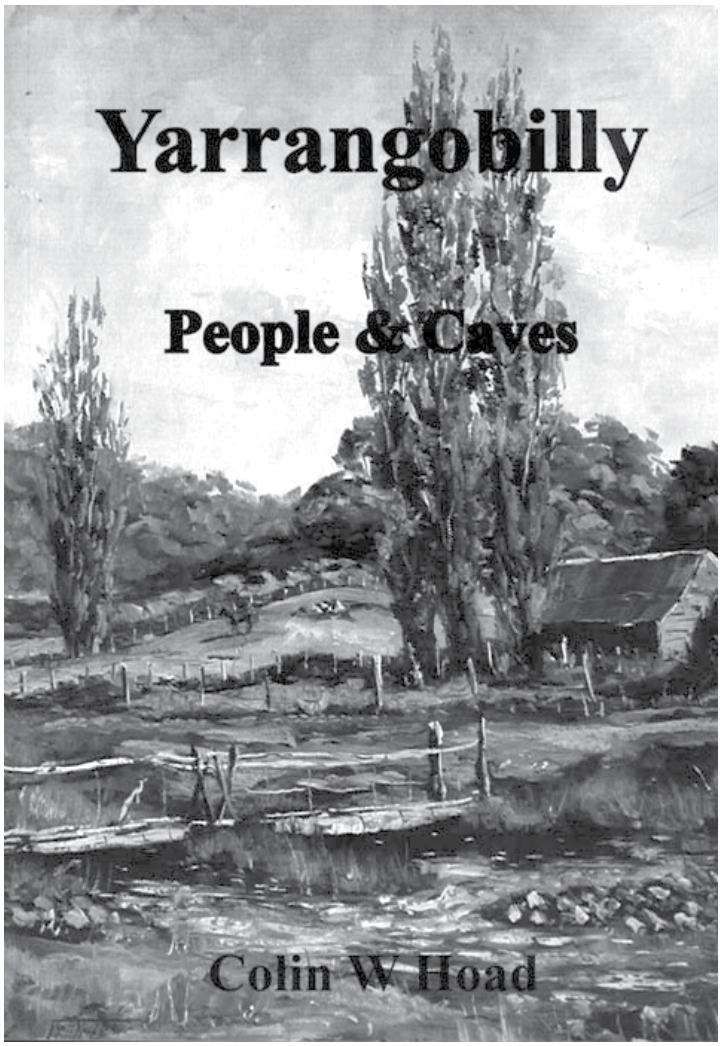
Book Reviews

Susan White

Caves Australia *175 had reviews of publications highlighting historical cave tourism and photography at Buchan in Victoria. This issue reviews books concentrating on aspects of three areas of NSW: Yarrangobilly, Jenolan and Timor.*

Yarrangobilly: People and Caves: A personal history of the Yarrangobilly Caves Resort.

Colin Hoad



A COMPREHENSIVE history of the Yarrangobilly caves area from the 1830s to 1954, which concentrates on the European exploration and settlement of the caves and the surrounding area.

After a brief discussion of the pre-European use of the area, a chronological series of short chapters interweaves the chronological events with the individuals involved.

These include the discoveries of the various caves from 1836 onwards and the various settlers of the area.

As the author spent a significant part of his life at Yarrangobilly, the descriptions of people and their activities are particularly vivid.

The book is well laid out, has interesting illustrations of the people and events described and a very useable index.

There are many interesting stories; two I found of particular interest.

The information on Oliver Trickett's time at Yarrangobilly (1847-1934) and his association with the author's family made Trickett more alive than I had found from previous accounts.

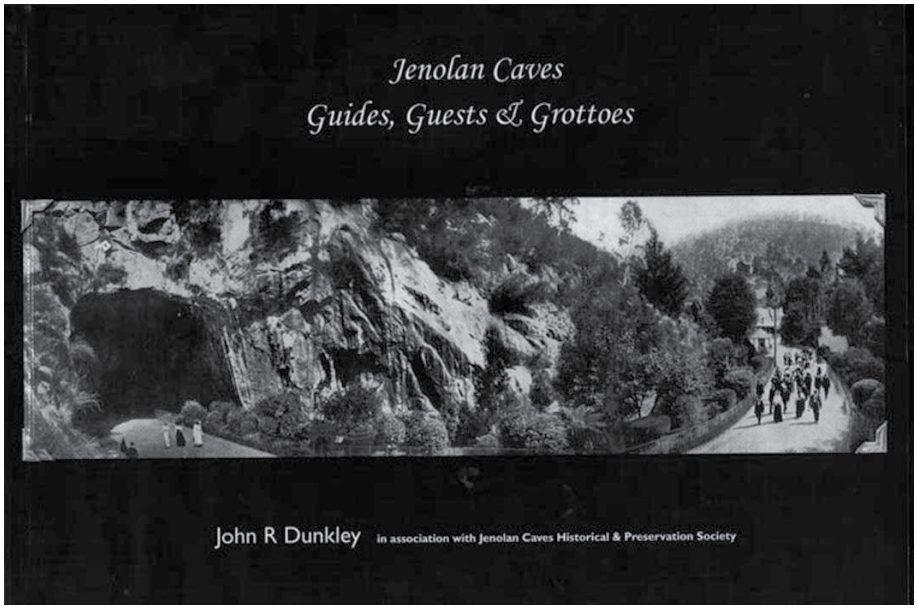
For ASF members, especially those who heard Brian O'Brien's own account at the Bunbury conference (2003), the story of Brian's rescue in 1953 gave a local's perspective on cave exploration and rescues.

I am not sure where it is available but an internet search gave me some leads through AbeBooks at a cost of $30 plus postage. I found it a very interesting read.

Published by the author (2004).
B5 Portrait format, soft cover, 138 pages.

Jenolan Caves: Guides, Guests & Grottoes.

John R. Dunkley



A SMALL but fascinating book with a range of characters: explorers, pioneers, guides, guests, businessmen, bureaucrats and politicians set in one of our best known and most visited tourist cave areas. Structured around the Government Guides, Guests (tourists) and Grottoes, the book is an informative tour through the history of cave exploration and tourism at Jenolan in the late 19th century and the first half of the 20th century.

This book is mainly about the first century of European visitors to Jenolan Caves, from about the 1830s until the 1940s. It is predominantly focused on the black and white woodcuts, engravings and photographs from the Jenolan Caves Historical and Preservation Society, the National Library and individuals, including the author.

These are appropriately placed in the text along with extracts from articles and reports of early travellers. These illustrations include tourist brochures as well as views of the caves and landscape with interesting social aspects of tourism: transport, clothes, lighting and facilities. Visits to the caves were an adventure even by the standards of the day and the book uses extracts from reports and publications of the day to provide the narrative.

The rather flowery speech of late Victorian and Edwardian times vividly describes people and places. The centre pages reproduce in colour the last map of Jenolan by the doyen of Australia's cave surveyors of the early times, Oliver Trickett.

This is an excellent memento of the caves and has been published in several versions in Trickett's various guidebooks. The various versions had new caves added as they were discovered and mapped.

There is no index but this is not necessary for such a small book. The sources of the material used are clearly given. Clearly written, easy to read and nicely printed on good paper, this is an excellent addition to your caving library.

Published by ASF Inc. in association with the Jenolan Caves Historical & Preservation Society (2007),
RRP $19.95 plus postage; available from ASF Publications Commission and the author.
B5 landscape format, soft cover, 72 pages.

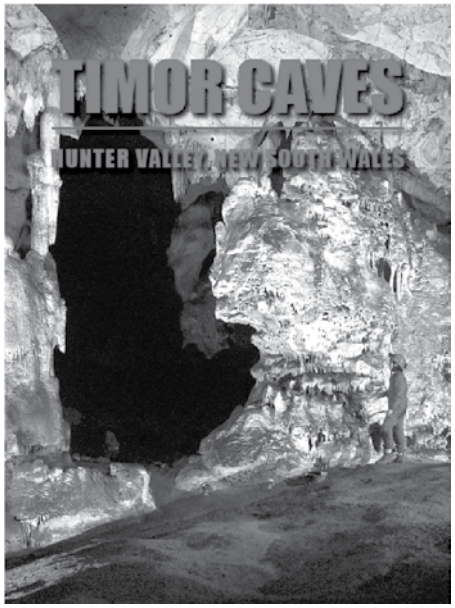
Timor Caves: Hunter Valley, New South Wales.

Jodie Rutledge, Garry K. Smith, Meredith Brainwood and Andrew C. Baker (eds)

The most recent of these three books on areas of NSW is the Timor Caves publication. This is the culmination of a lot of hard work by NHVSS, which has drawn on the work undertaken over the past 40 years at Timor. It was facilitated predominantly by a grant from the NSW Government Environmental Trust Fund, supplemented by a small grant from the ASF Environment Fund.

The book has ten chapters: How caves are formed; A journey through time with the Timor Limestone; Cave descriptions and maps; Cave invertebrates; Bats at Timor Caves; Timor karst vegetation; Birds of the Timor Caves area; Palaeontology at Timor; Cave mapping techniques; and Environments and education opportunities.

The ASF minimal Impact Code, Cave survey and map standards, a glossary of caving terms and a geological timeline conclude the book. However, there is no index, a limitation given the obvious intention for the book to be used for environmental education. The glossary solves some of this, but not all. Overall, the book is clearly written. The major chapter is the cave maps and descriptions. The maps are clear but I do not like florid lettering for map titles. A plainer font would be less messy, but this is a personal preference. There are some minor inaccuracies, and not just from the need to keep information simple for a general public. The use of the Geoscience Australia map, which is now over 10 years old and contains some minor errors and is somewhat dated, is a limitation. These are relatively minor problems and will be able to be corrected easily if a reprinting is done.



Timor Caves has excellent potential as a resource to promote environmental education and an entire chapter is devoted to this. I am always enthusiastic about material which does not just concentrate on biological environment.

An excellent book and NHVSS members are to be congratulated for its production.

Newcastle and Hunter Valley Speleological Society Inc. (2008)
$35 plus postage, available from NHVSS.
A4 Portrait format, soft cover, 104 pages.
Order form overleaf

RESOURCES

Book Order Form

Step 1: Your Order

Name:			
Address:			
Suburb:	Postcode:		
Email:	Ph:		
		Number required	Unit Price
Timor Caves- Hunter Valley, New South Wales Includes a bonus poster "Karst Environments of NSW"			$35
NHVSS Members ONLY Price			$30
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This project has been assisted by the New South Wales Government through its Environmental Trust.

Environmental TRUST

New Deepest Cave in Thailand

TERRY BOLGER (now living in Vientiane, Laos) reports that a trip in mid-February 2009 has explored Tham Pha Phueng in Nan Province to a depth of 306 m, making it comfortably the deepest cave in Thailand.

Exploration in 2005 had stopped at a deep pitch with a waterfall. This has now been bottomed after 125 m (including 109 m free) in a shaft 10 m in diameter at the top, belling out to about 30 m at the bottom.

The entrance is at 1,325 m elevation in Doi Pukha National Park, and the cave is 1,350 m long. We hope for a more detailed report in the next issue.

—John Dunkley

GORY CAVING MOVIE

JUST when you thought it safe to enter a cave after *The Descent,* they bring out *The Descent 2.* If you're into caving with lots of blood and guts then this is your kind of movie:

"Distraught, confused and half-wild with fear, Sarah Carter emerges alone from the Appalachian cave system where she encountered unspeakable terrors.

"Unable to plausibly explain to the authorities what happened—or why she's covered in blood—Sarah is forced back to the subterranean depths to help locate her five missing friends.

"As the rescue party drives deeper into uncharted caverns, nightmarish visions of the recent past begin to haunt Sarah and she starts to realize the full horror and futility of the mission."

To see the movie trailer visit this site:

http://www.firstshowing.net/2009/02/13/must-watch-early-promo-trailer-for-the-descent-2/

Pics courtesy of Moviegab

No release date yet for Australia. Stay tuned!

—Joe Sydney (HCG)

The Pinger
A Simple Underwater Radiolocation System

Ken Smith

CAVE MAPPING

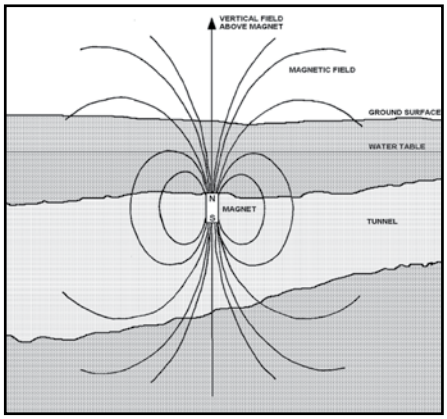
The traditional method of mapping an underwater cave is to take compass bearings and water depth at every point where the guideline changes direction. The length of each section of line is also measured. This allows the position of points in the cave to be determined with respect to the starting point. Unfortunately, in a complex cave, like Tank Cave near Mount Gambier in South Australia, many readings are required to reach the more remote sections of the cave. This can give a significant error in determining the position of the remote sections.

A radiolocation system allows a point in the cave to be found from above ground. Conventional above-ground surveying techniques can then be used to locate the point very accurately. This allows remote sections to be correctly positioned on the map.

Location using a Magnetic Field

Normal radio frequencies cannot penetrate through water and rock. However, a magnetic field can penetrate water and limestone very easily. The diagram shows a simple idea for locating a point in an underwater cave. A bar magnet is hung vertically from the roof of the cave, and an observer on the surface measures the magnetic field until he finds a point where the field is vertical. This point is directly above the bar magnet in the cave, and is called "ground zero".

The observer can also measure the thickness of rock below his feet. He looks for a point on the ground where the magnetic field emerges at 45 degrees to horizontal. By measuring how far this point is from ground zero and multiplying this distance by 1.77, the depth of the bar magnet below the surface can be found.



Magnetic field produced by a bar magnet in a cave passage.

Unfortunately, this method would not work in practice. The magnetic field from the bar magnet will be too weak on the surface and it will be swamped by the earth's magnetic field. The field from a bar magnet is called a "dipole field" and this drops off very rapidly with distance from the magnet. It diminishes in strength as the cube of the distance. In other words, twice the distance means one-eighth of the field strength.

Principle of Radiolocation

Instead of a bar magnet the radiolocation system uses a coil, which is energised with alternating current at an audio frequency. The magnetic field produced by the coil is the same shape as the field of a bar magnet, but it is now an alternating field. This field can be picked up by a second coil, which is connected to an amplifier and headphones. The operator can now "hear" the magnetic field. The earth's magnetic field has no effect, since it is not changing with time and does not generate any sound.

The magnetic field direction is determined by a process of "nulling". The receiver coil is turned until the signal can no longer be heard. This is called the "null" position. At this point the axis of the receiver coil is at right angles to the magnetic field. At ground zero the magnetic field is vertical and the receiver will null when the coil is horizontal. To find ground zero exactly the coil must null horizontally, no matter in which horizontal direction the coil is pointing.

The nulling method can also be used to find the 45° point in order to measure depth.

Design of the Pinger Transmitter

Adrian Richards and I have constructed a simple radiolocation system. We call it "The Pinger" because of the sound it makes.

For underwater use the transmitter needs to be small and easy to handle. Unfortunately, the traditional designs of radiolocation systems use quite large coils, typically 600 mm or more in diameter. The size of the coil can be reduced by winding it on a core of material with a high magnetic permeability. However, a core of laminated iron (like a transformer core) may not be suitable because of excessive losses at the audio frequencies used.

The pinger uses a core of laminated mu-metal with a length of 310 mm and a cross-section of 12 x 10 mm. This allows a long thin coil to be wound with characteristics similar to a much larger "air cored" coil. This coil, together with driver electronics and batteries, fits into a 600 mm length of 50 mm diameter PVC tube. The tube is permanently sealed at one end and has a threaded O-ring cap at the other. The inner workings can be removed via the cap for battery replacement or maintenance.

The pinger is weighted at one end and has a slight positive buoyancy so that it floats upright in the water. At the top end is a central nylon spike which is placed on the roof of the cave. The pinger can be left floating in this position and it will hang exactly vertically to give the correct orientation of the magnetic field.

The pinger is small and simple to use. It is fitted with two plastic rings for clipping to the diver in a similar manner to a stage bottle. Three identical Pingers have been made to this design so far.

KEN SMITH COLLECTION

Divers with a pinger prior to diving.

KEN SMITH COLLECTION

Pinger attached to a diver in the water.

The driver electronics for the pinger were designed with simplicity in mind. The coil is connected in parallel with a capacitor to form a tuned circuit which resonates at 1.16 kHz. A tuned circuit allows a large alternating current to be generated in the coil, which in turn generates a strong magnetic field.

A simple oscillator provides the 1.16 kHz signal and this is amplified by a single chip audio amplifier and fed to a driver winding on the transmitter coil. Eight alkaline C cells provide the 12 volt power supply required. The current drain when transmitting continuously is about 190 mA. The current consumption was reduced to about 70 mA by adding a circuit to pulse the signal on and off with an on time of about 33%. With this modification the battery life is more than 24 hours.

The pulse rate is different for the three pingers that have been made. This allows each pinger to be uniquely identified by its signal.

Design of the Receiver

The receiver uses a coil identical to the transmitter coil. It is also tuned to resonate at 1.16 kHz. Use of a tuned receiver minimises interference from other signals, such as power lines and electric fences. The signal from the receiver coil is amplified by a single chip audio amplifier and fed to the headphones. The electronics are housed in a small die cast box, which can be mounted on a waist belt.

The receiver coil is mounted in a PVC tube. This is carried in one hand when searching for the pinger. The tube is fitted with two spirit levels. One indicates when the coil is horizontal, for ground zero determination. The other indicates when the coil axis is at 45º, for depth measurement.

At Tank Cave there is almost no electrical interference and the distinctive "beep beep" of a pinger can be heard at up to 90 metres from the transmitter. The pulsing of the signal assists in finding the pinger. It seems to be easier to hear a weak pulsing signal than a weak continuous signal. Plenty of signal strength was available for measurements at Tank Cave, since the pingers were rarely more than 20 metres below the ground surface.

Using the Pingers

Placing of the pingers is usually done by volunteer divers. As the diver is preparing to enter the water, the pinger is switched on and the end cap screwed on. The pinger can

KEN SMITH COLLECTION

Locating the 45º point for depth measurement.

KEN SMITH COLLECTION

Using the receiver coil to locate ground zero.

be clipped to the diver's vest. One or more pingers can be easily carried without any interference in the enjoyment of the dive.

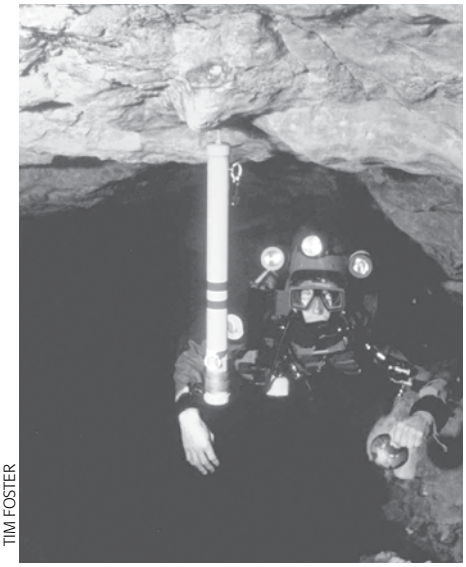
The diver is asked to place the pinger on the roof of the cave above a specified survey point and also to measure the roof and floor depths at this point. Metal clips must not be left on the on the pinger. They can cause the pinger to sink, or not hang vertically. Clips are normally left on the guideline nearby for use when the pinger is collected.

On the surface we can estimate when the pinger will be placed and we have a reasonable idea of where to find it. The pinger can easily be heard within 50 metres of ground zero.

With a bit of experience the orientation of the magnetic field can be used to find ground zero quite quickly. Within five minutes the position and depth have been recorded and we can go looking for another pinger.

Later in the day the pingers can either be moved to new survey points or brought out of the cave.

Bringing them out at the end of the day is preferred because the batteries can then be turned off and saved for more pinging on the next day.



TIM FOSTER

A pinger in place underwater

Recent Developments

The range of the pingers has now been extended to about 150 metres.

They have recently been used to track divers swimming in the third sump in Cocklebiddy Cave. A diver carrying a pinger can easily be located based on signal strength even though the diver is over 100 metres below the ground surface. When the diver places the pinger on the roof of the cave the pinger can then be precisely by using field angle.

Unfortunately two of the three pinger transmitters were lost in a car fire when returning from the Nullarbor in August 2008. Construction of some new smaller transmitters is currently under way.

Thanks and Acknowledgments

Thanks are due to:

Adrian Richards for the construction of the receiver and other useful help and advice.

Tony Carlisle, whose Nullarbor cave radio, first used in 1991, gave inspiration for this project.

Brian Pease, whose informative web site gave me much needed technical information. Doing a web search for "Brian Pease" is probably the best way to find out about radiolocation.

See http://radiolocation.tripod.com/

All of those who have helped by carrying pingers underwater and making surface measurements.

Landowner Rob Dycer, for allowing us to have so much fun in, and underneath, his paddock.