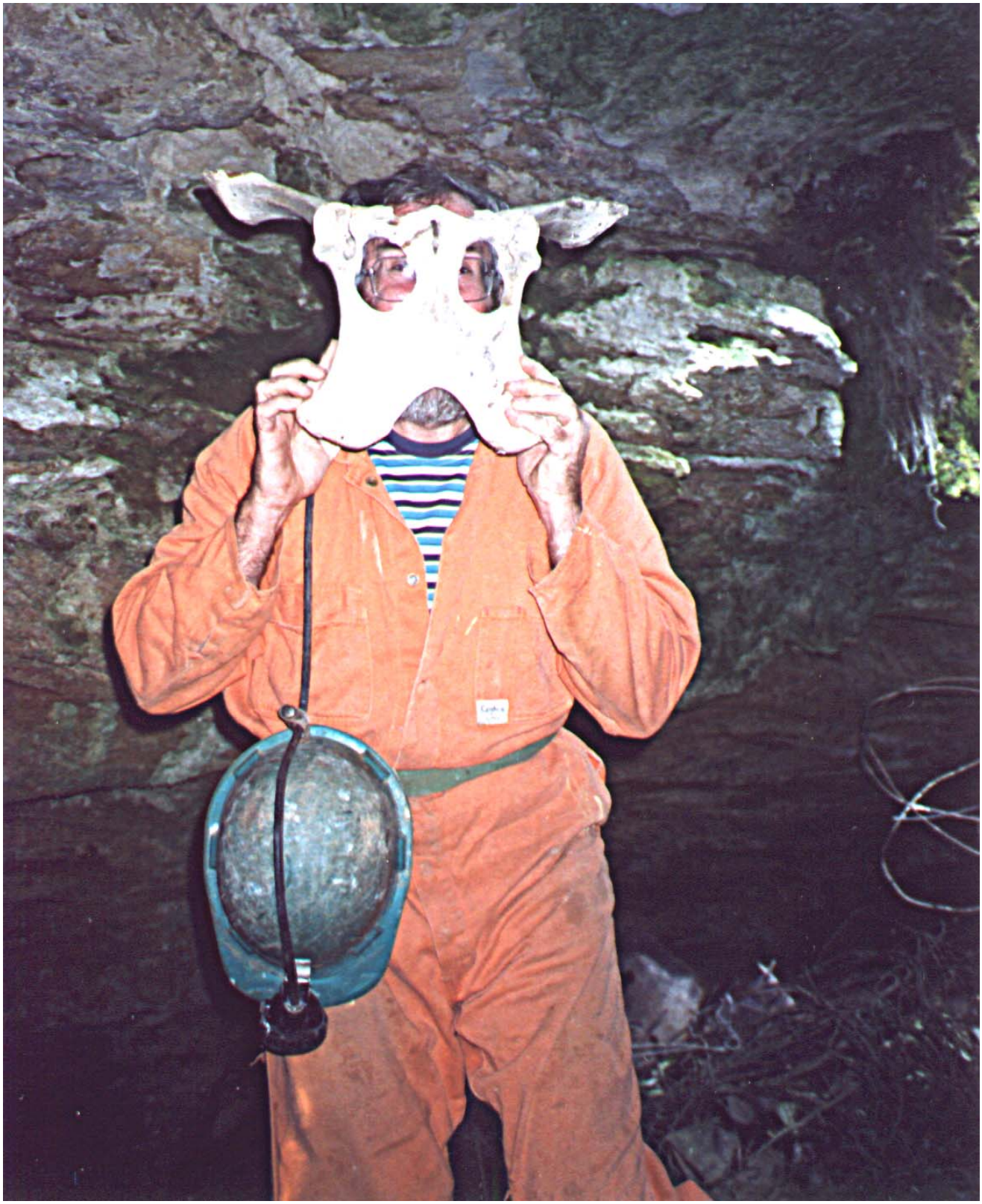
CEGSA NEWS

Newsletter of the Cave Exploration Group (South Australia) Inc.

Volume 47 Number 4 Issue 188 NOVEMBER 2002



CAVE EXPLORATION GROUP (SOUTH AUSTRALIA) Inc.

PO Box 144, Rundle Mall, Adelaide, South Australia, 5000.

http://www.users.on.net/smilner/index.html

Meetings held on the fourth Wednesday of each month, except December, at 7.30 PM usually in the Royal Society of South Australia meeting room, Natural Science Building, South Australian Museum.

2002 Committee

President / Training Coord. / Trip Liaison (Logbook) / Fundraising Coord. / SASC	Marie Choi	(H) 8322 0895 (W) 8326 1777 (M) 0429 696 299 (E) battymariec@picknowl.com.au
Secretary	Peter Horne	(H) 8295 6031 (E) ppuddles1@yahoo.com.au
Museum Representative	Terry Reardon	
Publications	Athol Jackson	(H) 8337 8759 (E) atholjax@senet.com.au
Public Officer / SASC Rep.	Graham Pilkington	(H) 8395 6713 (W) 8396 3044 (E) pch@chariot.net.au
Search & Rescue	Frank Hankinson	(H) 8322 4300 (M) 0413 428 078 (E) speleo@chariot.net.au

Other Office Bearers

Treasurer / Membership	Chris Gibbons	(H) 8258 9847 (E) rachgibbons@bigpond.com
Quartermaster / Key & GPS Holder	Paul Harper	(H) 8270 2359 (W) 8222 5615 (E) pharper@mail.rah.sa.gov.au
Visitor / New Member Liaison	June MacLucas	(H) 8261 4180 (E) junemacl@senet.com.au
Librarian / Records	George MacLucas	(H) 8261 4180
Safety Officer	Tim Payne	(M) 0427 103 618 (W) 8259 5724 (E) tppayne@bigpond.com.au

Area Coordinators

Nullarbor Plain, Eyre Peninsula	Max Meth	(H) 8625 2700 (E) maxmeth@arcom.com.au
Upper & Lower S E, Glenelg River	Kevin Mott	(H) 8723 1461 (W) 8735 1131 (E) mott.kevin@saugov.sa.gov.au
Adelaide & Kangaroo Is.	Grant Gartrell	(H) 8556 9100 (F) 8556 9142 (E) blueberrypatch@ozemail.com.au
Flinders	Eddy Rubessa	(H) 8336 4775

Representatives

ASF	Peter Kraehenbuehl	(H) 8278 4531 (E) krunchy@bigpond.com
	Graham Pilkington	As Above
SA Speleological Council	Graham Pilkington	As Above
	Marie Choi	As Above
Leadership Standards - Working Group	Peter Kraehenbuehl	As Above
	Marie Choi	As Above

Cover Photograph: MOO MUX MOTT in 5L476 Photo: Marie Choi.

CONTENTS

Volume 47 Number 4 **Issue 188** **NOVEMBER 2002**

QUARTERMASTERS NOTE.

High usage equipment will now be stored at the quartermaster's residence. Please make arrangements with the QM well in advance of required date for equipment. The QM can be contacted at the telephone numbers on the previous page.

NEWSLETTER MATERIAL

The deadline for copy or background material for Volume 48 Number 1 (Issue 189) must reach the Editor by Wednesday **12th February 2003**. Material not meeting this deadline may be retained for possible use in a following issue. The preferred method is via E-MAIL at atholjax@senet.com.au as an attachment or on 3.5" IBM floppy disk, in Word or ASCII text format. Of course other forms of communication will still be gratefully accepted.

PRESIDENTS SPOT

Well it's hard to believe but another year is almost over and another interesting year it has been as usual. The most significant discovery of the year has to be the fossils found out on the Nullarbor and recognised by Ray Gibbons. Its just a pity that in South Australia that find didn't receive anything more than a few lines on page 12 of the advertiser, yet received front page colour coverage interstate.

The new insurance measures have seen an influx of new 3-month members with some joining up permanently.

Committee members have worked hard again this year and now is the time for others to start considering a role on the committee for next year. Special recognition must go to Athol for his continued hard work on the newsletter and his regular presentations at meetings and also Peter who has worked tirelessly this past year trying to ensure our records of club minutes are intact and up to date as well as being in electronic form.

This year has seen a bit of a baby boom with the birth of at least one baby and with 4 more expected in the next few months. Cavers of the future we hope.

I hope every one has a safe and Happy Xmas and New Year and look forward to all the holiday caving stories.

Marie Choi.

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WEB SITES

A couple of years ago I wrote about a gear site The Inner Mountain Outfitters well if your interested in LED lights they have a few interesting ones including a 24LED replacement for the Petzl Duo along with a range of others. Lets hope the Aussie dollar keeps rising to make these more affordable. They can be found at www.caves.org/imo

Another website that people might like to try especially for gear is an UK site Dragon caving gear. I recently purchased several videos from here and can vouch for their quick service. They can be found at http://www.dragon-speleo.co.uk/.

Another site that I have also purchased a selection of items from over the years both over the net and in person when I was in the US is Speleo Books. This is an excellent site for gifts, books, jewellery and Tshirts along with other items. They can be found at http://www.speleobooks.com/index.html the owner is known to many as the caver who was rescued out of Lechuguilla cave in the Mysteries Underground program.

Marie Choi.

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"Hundreds of hours of historic newsreel footage can be viewed free of charge on the Internet after Pathé put its archive online.
The bi-weekly news bulletins, which played in cinemas from 1910 to 1970, have been released via the Pathé website thanks to a grant from the National Lottery.
More than 3,500 hours of footage is available."
For the full story see: http://news.bbc.co.uk/go/em/fr/-/2/hi/entertainment/2490639.stm
Try a search of cave or some such thing and all the great old caving clips are downloadable from caves world wide.
Try this link to the site: http://www.britishpathe.com/index.cfm

Enjoy

Damian Grindley.

TRIP REPORTS

Sellicks Hill Cave (A5) 25 Aug 2002

Party: Grant Gartrell, Graham Pilkington, Ray Gibbons and Frank Hankinson.

A quick visit to assess the progress on the deepening of the slot. The area was cleared in preparation for making more rubble and a larger team to help remove the rubble.

I heard that a team of six visited the site on the 6 Sep and made good progress.

Graham Pilkington.

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Sellicks Hill Cave (A5) 8 Sep 2002

Party: Grant Gartrell, Graham Pilkington and Ray Gibbons.

The day was looking a bit damp. Ray and I decided that it was too wet to be outside so we went for a drive down Sellicks way. What a grand view we saw from the main road south of Sellicks – we just had to stop for a better look and pulled over into a parking bay. While there, who should turn up but Grant!

Since we were so close to A5 and the scene had clouded over we decided to visit the cave. Grant went down 5m. Ray & I followed to get out of the drizzle. We all shuffled rocks for an hour to make it more comfortable to be there but Grant dropped my hammer which was heard tumbling down and down and down. Time to leave the cave to see if the weather had improved.

It hadn't. Back down we went. This time to the deepest accessible spot – a full 6m. After another pleasant half hour or so, we again exited. At last, a few spots of blue could be seen but the wind was cold. Obviously it was best to go back down while the day improved.

This time a way on was present and Grant got down to about 17m, I stayed at 6m with Ray up at 4m. No point going too far in when all we were doing was staying out of the cold wind. When Grant had had enough of being alone he came back up and we left the cave. Where had the blue gone? It was drizzling again.

Oh, well. Back in. Grant as usual took the lead and descended 22m. I followed to 16m with Ray at 13m. Talk about daring. Or maybe it was just to warm up after getting slightly damp outside! Like the other times today we all held our places for an hour, mainly moving our arms around handling/hauling things from one to another. Grant gave the command to ascend yet again and out we trooped.

No good. This time we were lashed by heavy rain. Grant even went back to his vehicle but didn't stay in there long enough to benefit. We obviously needed to get out of the rain. How convenient, there was a cave next to us. We dashed back down to the same spots that we had occupied last trip. However, after "sitting" there for an hour the chills set in for Ray & I. Grant was OK he was continually exercising. Neither Ray nor I could move much or some rocks might have been down with Grant or even worse we would have. Ray left, got changed and sat in his vehicle to warm up. Grant had stopped hanging onto the ladder with one hand and followed some rocks down to the next level. I came down as well, partly to get warm, but also to find the dropped hammer. I finally located the hammer buried under debris at 34m at the bottom of the third ladder.

Getting out of Sellicks Hill Cave was a lot easier than I remembered.

Graham Pilkington.

Corra Lynn 21 Sep 2002

Party: Graham Pilkington, Paul Deer, Marie Choi

and 18 Associate members (17 from Mercedes College including teacher Steve Warlewski)

A four hour adventure tour to introduce the new members to caving. The group was organised into two teams. I led one group on a "climbing" tour including areas such as ***Bushwalkers*** and ***Crystal Maze*** that involved a few ups and downs in rifts and chimneys with the occasional horizontal tight bit. Marie led the other group to ***Grand Central*** with emphasis on the ***Rat Squeeze***.

Graham Pilkington.

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Sellicks Hill Cave (A5) 22 Sep 2002

Party: Grant Gartrell, Graham Pilkington and Frank Hankinson.

There was going to be six of us but two couldn't make it and Jim turned up too late too join us. With only three of us it made rubble re-positioning difficult but not impossible. First we unblocked the upper dig just below the third ladder. The ruffians of the previous trip had obviously dislodged boulders from higher up. Then we spent about 6 hours bending and twisting and lifting. All it lacked was the music to do the aerobics to, not that we operated synchronously. Half a metre of depth might have been added but right at the end of the trip Frank and Grant concluded that a large rock poised above the dig spot was too dangerous to leave in place and gave it a big nudge. We did not hang around to see what fell.

Graham Pilkington.

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Sellicks Hill Cave (A5) 13 Oct 2002

Party: Grant Gartrell, Graham Pilkington and Frank Hankinson.

There was going to be six of us, again, but ended up with just the three.

A visit into the higher dig site. Grant and Frank played sloppy-daw-daw filling up gaps with cement. I was told that the hanging rock from last trip was still in place and had been made "secure". At the top of the dig, Grant made a neat wall of stones across a fissure to hold the debris back and create a safe place to deposit yet more debris.

A quick trip was made down to the lower dig site. Minimal depth hade been added since my last trip because Grant had had the idea that by travelling along the fissure it might be possible to go around the blocking rock slab. We had reached the end of the rock but the fissure was full and the air stale. Just 2m back the air is fresh above the original open 100mm slot. I still think that that is way to go.

Graham Pilkington.

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MAJOR BREAKTHROUGH.!

"Happy world" found in Californian Cave.

On Sat Aug 30. An international group including Peter Bosted, Bill Farr, Art Fortini (All USA), Daniel Chailoux (From France), Gary & Jenny Whitby (From OZ) and Damian Grindley (CEGSA) entered Lilburn Cave in the High Sierra. Daniels swanky twin 35mm stereo camera and M3B flashbulbs where put to good use photographing green stal, golf ball sized cave pearls and the exquisite marble banded Enchanted River.

Lilburn's Giant Cave Pearl Photo: D Grindley

Water levels where low and the falls where rigged with 10m of old goldline. Peter, Daniel and the Whitbys surveyed an upper crawlway for 40m. Art ,Bill & Damian attempted to bypass the terminal Sump. The obvious high level passage proved inaccessible. However Art was able to make a 12m middle class 5 climb into a roof tube. This soon opened up into walking passage with many leads. One looping back to the obvious high-level passage. Bolts were then set to enable free hanging access to the new area.

Since this mini expedition four further survey trips have been made yielding some 1.6 km of passage called happy world (don't ask!). Including further areas of water washed banded marble, a new section of main streamway and many remaining leads. A full report to follow. This has extended the system to over twenty miles and moved it up several spots in the worlds longest.

Damian Grindley.

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Lower South East

August 31st – September 1st

Marie Choi, Linda Deer, Paul Deer, Dave Glowacki, Fred Aslin.

Day 1 Saturday

5L309

The time had come to return to the infamous L309! After unlocking the newly installed gate, we rigged the cave before Dave entered the shaft. I followed shortly after. Whilst Dave initiated the mapping, I took video footage of the first chamber and first main passage. The passage turned out to be 90m long complete with a myriad of bones including a whale vertebra and possibly thylacine jaws and limbs. The majority of the bone within the cave are poorly preserved and are partially altered to clay. Dave and I mapped the first passage before heading to the surface for lunch. Paul and Fred worked on the entrance shaft for the majority of the day. After a light lunch (I didn't eat too much for fear of not being able to get back into the cave!), we headed underground to complete the survey and video. Still photos were also taken of various aspects of the cave The second passage was another 90m long It terminates in a rock pile with slight potential of further passage however, the area is relatively unstable. The water content had visibly increased since our previous visit in April 1999. It appears that the water tank above ground has at some stage over flowed and created large erosion channels in the sand cone at the beginning of the second passage along with additional water pools.

The cave has lost none of its splendour or beauty in the 3 years since our first visit.

L309 Entrance Gate Photo: Marie Choi

Linda Deer.

Day 2
Sunday
Bottle Shop Cave
Fred took Dave, Marie and Paul off into the forest to checkout a couple of holes he had on his list. After leaving Dave to survey a triangular hole in the ground and explore any leads, Fred, Marie and Paul went to check out the other crack in the ground. After a bit of rock removal and crack widening we found the top of a very large pile of bottles mostly intact, and mostly XXX brand longnecks. After carefully getting to the bottom of the pile the small cave was explored and found to only go for about 10 meters all up, although it did go further than we could see and fit. Little chance of it extending very far.


Fred & Paul at Bottle Shop Cave. Photo: Marie Choi

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October Long Weekend 5th – 7th October

Marie Choi, Chris Fischer, Paul Deer, Adam Branford, Ian (Pom2) Farhill, Kevin Mott, Karren Laudenbach & Brigid

Saturday


Paul & Chris in Tindales. Photo: Marie Choi.

Tindales E – After trekking around in the dew filled section of pine forest in which the cave was situated, it was found by Chris while the others kept getting wetter and wetter. Once it was realised the cave was found everyone got ready and the two security locks were removed. Ian rigged up the ladder and was picked on for using crummy English rigging techniques. Once we all entered the cave we spent a bit of time looking down the drip holes at the exposed bones beneath. The decoration in the entrance chamber was still dry in most places but there were some active straws and shawls around. We went for a quick explore down the main passage and as we went further in the decoration became wetter and less damaged. Some photos were taken next to a funny looking stal and we then progressed past it into 2 parallel, nicely decorated crawling passages with small lakes covered with calcite rafts and small patches of baby dog tooth spar. There were a few translucent Helictites in one of these passages and they both ended up being choked closed with decoration. Karren, the forest ranger then had to leave to do ranger stuff so Paul led her out, leaving the others in there to explore the other passage, and went to find Adam and one of his venturers that were meant to meet up with us. They had been tricked by the place we parked the cars and hadn't been able to find the cave. When Adam, Brigid and Paul returned Marie and Chris came out of the cave and Brigid went in to look around with Ian. When they came out she seemed a bit shaken after being left alone with Ian, but nothing a few years of therapy cant fix. From here we travelled off to Mt burr and Adam had a fun time taking people for a ride in his ute down a large sand hill along the way. Marie just loved it.

Mt Burr – Upon entering Mt Burr cave we headed straight for the birth canal and most people avoided the mud hole successfully. Some others on the other hand didn't try very hard. After a bit of squeezing we all made it through the hole and continued on to the opposite side of the cave to try and find a particular passage. Paul was sent down one passage and disappeared for a while. When he returned he hadn't found anything so other smaller passages were explored to try and find the

path Marie was looking for. In the end we didn't find it and just ran around in the main tunnels for a bit longer and left. There were only about 5 bats that we saw in the initial chamber, but there was fresh guano in places as Marie had reported seeing large numbers of bats in there a few weeks prior.

We returned to the Mount where we enjoyed a meal at the local pub and then retired to Mott's house to watch a selection of Caving Videos and take embarrassing photos of Marie and Ian who had fallen asleep.

Paul Deer.

Sunday.

After a lengthy wait at the scout hall, and numerous phone calls to Motty and Fred, (Who was unfortunately ill.) we headed out to the Snake Hill area. Currently under harvesting, the area is now looking a little devoid of pines and really looks quite different. Paul and I arrived a little later than the rest as we had to take a few small fun four-wheel drive 'detours' along the way. We arrived, geared up and went into the cave. I had a map of Snake Hill and was determined to locate some new bits that I hadn't seen on my last two dozen or so trips through the cave. We entered, had a bit of a look around and soon found a small squeeze, which was a little tight for my more than ample frame. Paul and Chris however managed to pop through with little effort. Following this we had a look around the area that usually contains bats but only found a few dozen or so.

Taking a long route around some wet crawly stuff we ended out near where we did some rubbish removal a few years ago, at the end of the longest chamber. It was from here that Paul and I did some exploring and found a few new ways to get to different parts of the cave. These had certainly been used before but they were all new to me. As we were looking around, Paul and I could hear what seemed to be an aeroplane buzzing the hill that the cave is located in. Paul had a look above ground, saw that Motty had finally turned up and went to chat to him. I went back into the cave to Marie and Chris. Chris meanwhile had decided to push himself through a nice little squeezy section and came up much cleaner that the other two mud dwellers, which took the usual route. The rim pools still had water in them from the winter rains and therefore looked quite good. Following this we exited the cave and went to find out what all the racket was, going on above ground. Chris and Marie had a quick little look in Moonmilk cave whilst Motty, Paul and I went for a bit of a stroll to see if we could find any more features of speleointerest.

Upon exiting we could see a large orange weather balloon, which was on a length of string, higher than the tops of the pines. As it all turns out, the noise was coming from a plane, which was spraying the pines with little white balls of superphosphate. The plane was making some really low passes just above the tops of the pines. The weather balloon indicated to the pilot which pine blocks were the right ones for spraying. We spent the rest of the day around the Snake Hill area, only getting peace and quiet when the plane landed to take on fertiliser or fuel.

After lunch we took some tools and did some scratching around a doline that had some potential of actually going somewhere. Chris likewise started on another small dig. The rest of the afternoon was taken up with these digs, which so far have come up with no real results but still have potential to lead. Hopefully some of the rain, which is coming down as I type, is making its way into the digs to soften up the soil and filter through into some sort of cavities. I'll keep you posted as to what happens with these.

Monday

This morning held the promise of a new cave, which had been cleared of most of its rubbish by Trevor and Work for the Dole people, and had never really been looked into. With bated breath Marie and I followed Motty down to Myora forest to find the cave. Once in the pines, and after Paul and I had pushed Motty's van off of a small sandy lump, which it had become beached on, (I'll say no more here…) we went around the blocks looking for the cave. Motty stopped and jumped out with a perplexed look on his face. After politely pointing out that we were on the wrong road (I'll say no more here either…) we soon found the cave.

5L476 is situated right on the side of the track. It still has some rubbish in it and a large pine trunk sticking out on one side. We put a ladder in as a safety precaution and had a poke around in the cave. One of the most striking features about this cave was an old leather horse collar, which was on the floor. This rubbish gave rise to the logical name of Horse collar cave. Apart from the delightful stack of old rubbish, crumbly limestone, no potential leads, and a lifetime's supply of gnats, it certainly was a great cave to explore. After completing a quick survey with Kevin we exited, cleaned up and went on our way.

Adam Branford.

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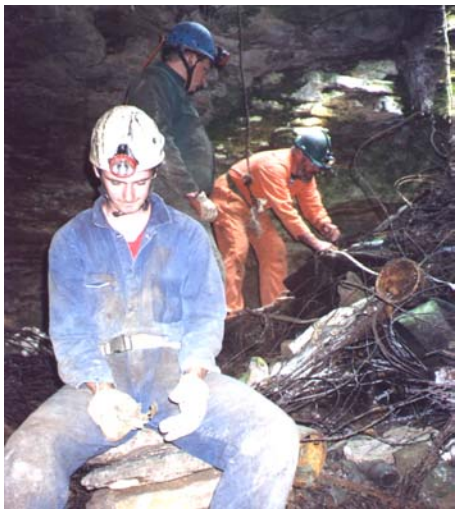

Paul, Adam & Motty in L476.
Photo: Marie Choi.

Corra Lynnn Cave

Through The Eyes of an almost Virgin Caver.

Saturday 26th October 2002.

6:00am, time to get up….. DOH!
Today was a planned trip to Corra Lynn with CEGSA. I planned to meet Marie & co at the White Horse Inn to catch a ride up to the Yorke Peninsular for a day underground. We met, we drove and we were there. After putting all our protective gear on (thank god for knee pads ((and elbow pads)) we were off to the dark depths of Corra Lynn. This was my second time underground so I knew what to expect so I wasn't as emotional.
Our first adventure below was off past Grand Central and we scaled up a little incline. We come to a little chasm that went up and Marie thought possibly we could climb up it. She decided to sus it out first to see if she could see where it went. After a bit of scratching around we decided we might go elsewhere. Cant say I was upset (looked a pretty narrow gap) AND going up! Too much energy required at this stage.
Regardless, we moved on to another section where we crawled on our bellies looking around. Not much was up there so we crawled on out of there.
Our next adventure was to go to Rope crevasse and to find Bushwalkers Run. I had been through Rope crevasse before so I knew what to expect and was looking forward to perfecting the plunge without going more than 10km an hour down the rope! On our way there though we came to (chasm) the one that goes down and you have to step/climb over it. I made the mistake of looking at it and not just doing it. I had no trouble last time but hesitating killed me. With some guidance I made it over.
My descent down Rope crevasse was a lot more steady and we were on our way to Bushwalker's way and to the most challenging bit of the day. It was quite tight! Marie mentioned rolling could be a good way to get through here. Hey I'll give that a go, wwhhhooohhh. Four or five rolls are quite enough then a little break is in order. After some huffing and puffing on my behalf we were in Bushwalkers chamber. After walking past there, the others decided to do a bit more exploring and I had a little sit down. Whilst taking in my surroundings I spotted a formation that looked quite like a human foot! Glad it was made of dirt!
The others came back and we were on our way out. A bit more rolling through Bushwalkers way, a bit more crawling past rope crevasse and a bit of a climb and it was all but over.
It's a freaky thing being underground, it's so different, sitting here writing this I imagine what it's like being underground and it's hard to recall. I think sitting in my brightly lit room all the shadows and the sights seem too unreal. It's such a foreign thing but I look forward to exploring more of the underground world!

Helena Willmott.

TECHNICAL and OTHER ARTICLES

MEMBERSHIP

Change in Membership details:-

Peter Ackroyd **0108** 46 Drummond Street, HORSHAM VIC 3400
P O Box 734 HORSHAM VIC 3402
(H) (03) 5382 7447 (E) pja@mira.net

Max Meth **7101** Delete P O Box address
Postal address – 1 Morrison Avenue, CEDUNA SA 5690

Bill Binks **9412** Change address to:-
29 Hyland Terrace, ROSSLYN PARK SA 5072

Tim Moulds **0209** Address should be:-
1B Free Street, NORWOOD SA 5067

Ray Gibbons **9403**) (E) rachgibbons@bigpond.com (F) 8258 2023
Chris Gibbons **0005**)

Would all members please advise, if not already done so, of any changes in membership details (telephone numbers, e-mail, mobile phone numbers) as soon as possible for inclusion in the Annual Report Membership List for next year.

Welcome to New Members:-

A Helena Willmott **0210** 22 Batten Crescent POORAKA SA 5095
(H) 8349-5407 (M) 0418-807-366
(E) helenawillmott @yahoo.com.au

A Chris Fischer **0211** 15 Shaftsbury Terrace MARINO SA 5049
(H) 8296-5730

MEMBERSHIP FEES

CEGSA MEMBERSHIP FEES FOR YEAR 2003

These fees are due on 1st January, 2003. If not paid before 1st April a new membership form and a joining fee may be required.

Full Membership	$ 42.00
Full Country Membership	36.00
Associate Membership	34.00
Long Term Associate	42.00

ASF LEVY FEE FOR YEAR 2003

Single	$ 56.50
Family	106.50
3 Month Introductory	18.25

YEAR 2003 FEES

	CEGSA	+ASF	TOTAL
Full Membership	$42.00	$ 56.50	$ 98.50
Full Country Membership	36.00	56.50	92.50
Associate Membership	34.00	56.50	90.50

Variation for Family Membership

1st Full Member + 2nd Full Member			
Less $16.00 for only 1 CEGSA News	$68.00	$106.50	$174.50
1st Full Member + 2nd Associate Member			
Less $16.00 for only 1 CEGSA News	$60.00	$106.50	$166.50
1st Associate Member + 2nd Assoc Member			
Less $16.00 for only 1 CEGSA News	$52.00	$106.50	$158.50

Enclosed with the Newsletter is your account for the 2003 Fees. Please make sure your payment of fees includes CEGSA and ASF if applicable.
Thanks.

Chris Gibbons
Treasurer/Membership Officer

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LIBRARY AND RECORDS

Monographs handed in:

From Ken Sanderson of Flinders University sent to CEGSA

- *Microclimatic conditions in Maternity Caves of the Bent – Wing Bat, Miniopterus Schreibersli: an Attempted Restoration of a Former Maternity Site.* from *Wildl. Res., 1994, 21, 607-19* by R.V. Baudinette, R.T. Wells, K.J. Sanderson and B. Clark.

- *Cave Temperatures at Naracoorte Caves,* from Helictite (2002) 38 (1):pp7-10

- *Bats and Cave Fauna in Naracoorte Caves in the 1990s,* from South Australia Nat. Vol.75, No.1-2 pp 8-10 by Ken Sanderson.

From Steve Bourne

- *The Discovery and Discovery of Victoria Fossil Cave* from ACKMA Journal No. 48 page 17-19 by Steve Bourne.

New Maps handed in:

- Tim Moulds, map of Maternal Chamber, Bat Cave, Naracoorte 5U2, CEGSA 3141.

- Ken Boland, map of Leaena's Breath Cave 6N2200, CEGSA 4023.

- Kevin Mott, location sheets of Lower South East Karst features.

Photographs handed in:

- Peter Ackroyd handed in photographs of karst features that were tagged during September 2002 Nullarbor trip carried out by Ray Gibbons and Peter Ackroyd.

Magazines bound:

- At the last working bee several magazines were bound by Athol Jackson Graham Pilkington and Ray Gibbons. Magazines included were –
  5 books bound from Helictite, Vol 1. No. 1, 1962 to Vol.10, 1972.
  1 book bound from CAVEX , Vol 1, 1989 to Vol. 9, 1997.

George MacLucas.
Library & Records Officer.

Corroded and Redeposited Speleothems (Rims) in Thampanna Cave.

M.A. Sefton

One of the many attractions of the caves of the Nullarbor is their variety of unusual speleothems. Thampanna cave (6N 206) contains many fine gypsum formations, particularly in the 'Enigma Chamber' and 'Railway Tunnel' (James 1991), as well as extensive deposits of 'coffee and cream'.

Figure 1 Photo: M Sefton

Beyond the western end of the 'Enigma' chamber, a convoluted upward traverse amongst boulders breaks out into a second chamber, at the end of which a floor step descends into the 'Mudmen Chamber'. The early explorers coined the name 'Mudmen' for the old degraded stalagmites found here, particularly to the left (looking in) of the base of the floor step (Figure 1). The chamber also contains several gypsum stalagmites and stalactites, and the roof undulates, possibly as a result of fretting. Stalactites (particularly gypsum) are sometimes formed at low points on the roof, either because drip water has gravitated to these points, or else because the deposition of these speleothems has also consolidated the matrix of the roof material in the vicinity and stabilised it against fretting. A rock slab near the bottom of the floorstep is covered with a layer of old, sand-coated calcite, curled up at one end like dried mud. At the far end of the chamber, at the entrance to a crawlway, are numerous old black stalagmites and stalactites, and an excellent example of a black and white striated flowstone floor, the cross section of which has been exposed in two places by fracturing following floor movement.

The Whathehelarwes (Mudmen)

A common feature of the chamber are the numerous corroded stalagmites, many of which are partly encrusted with 'popcorn' coralloids. The most outstanding examples are to be found to the right of the floor step (looking in). They have been described by Boland (1992) as 'sand-blasted or partially dissolved in some wind blown fashion, and also redeposited by the same wind'. Some of these degraded speleothems are shown on the front cover of issue No 134 (1993) of 'The Australian Caver', where they are named the 'Whathehelarwes', and are described by Boland as eroded and redeposited decoration. The name 'the Mudmen' (which was given to the group of stalagmites, both corroded and uncorroded, in this chamber) is somewhat misleading, as they appear to be formed mainly of calcite.

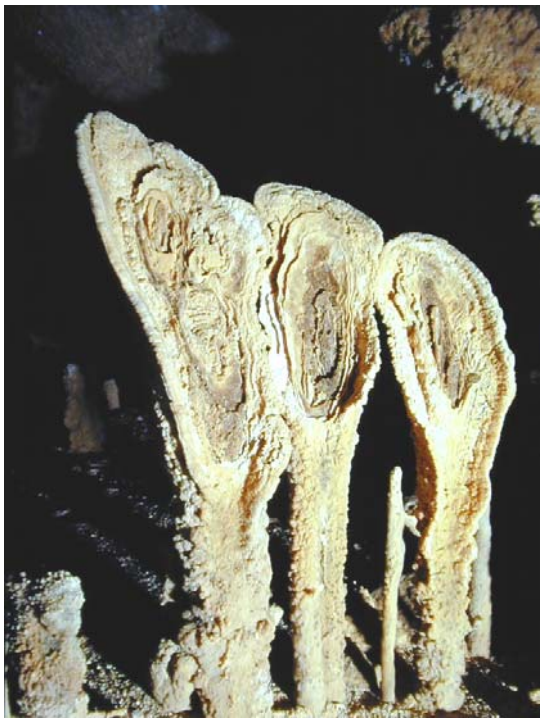

Figure 2 Photo: M Sefton

The Whathehelarwes are located on the floor, across a 3 - 4 meter wide, 20 - 60 cm high entrance to a low alcove (or side passage). Three of these, shown in the photograph by Boland, are grouped together and can be described as resembling 'donkey's ears' (Figure 2). The concave side of these 'ears' faces into the 'Mudmen' chamber, while the 'tips' of the ears 'lean back' in the opposite direction. The base comprises the largely unweathered part of old stalagmites, while the upper part is essentially redeposited 'popcorn'. The severely corroded remains of the upper portion of the original stalagmites can be seen on the inside of the 'ears' and have evidently been corroded largely, if not entirely, on the side facing the Mudmen chamber. Corrosion and redeposition are clearly greatest at the top. They are approximately 30 cm high.

Figure 3 Photo M Sefton

To either side of these 'ears', are several formations, which are similar in morphology, except that no trace of any original stalagmite remains, and the curved, redeposited material is as broad at the base as at the top (Figure 3). Again, the concave sides face the 'Mudmen' chamber. At least one inactive, uncorroded stalagmite and associated stalactite are situated at this point. All of these corroded formations are of a similar height and most do not have stalactites associated with them, which suggests that they might once have been a set of small columns prior to the roof being raised by fretting. Stalagmites that are further to the side and away from the entrance to the alcove are not corroded.

Approximately two meters back from the Whathehelarewes (towards the centre of the chamber) are a group of several stalagmites coated with 'popcorn' that is concentrated around the top; some of these are thin and 'straw-like'. The majority are partly corroded, with slightly more corrosion on the side facing into the Mudmen Chamber (Figure 4), and slightly more popcorn deposited on the opposite side. Several are hollowed at the top. Again, these speleothems are all of a similar height (approx 25 cm), indicating that in this area too, the roof may have been raised by fretting.

Figure 4 Photo: M Sefton

Similar corroded stalagmites with popcorn deposits are also found in other sections of the Mudmen Chamber. These include both sides of the approach to the Whathehelarwes, and the rock slab, referred to above, at the base of the floorstep. In all of these the corrosion is greater on one side, and popcorn deposition greater on the other. The orientation of the corrosion/deposition on these stalagmites is the same as for the Whathehelarwes, that is the corroded side faces into the chamber.

At the far end of the Mudmen Chamber, where the black and white striated flowstone floor has been exposed by fracturing, several stalagmites at the entrance to a crawlway are also partly corroded on the side facing the centre of the chamber and popcorn is deposited on the crawlway side.

Before discussing the likely mode of formation of the Whathehelarwes, it is useful to first consider the general processes whereby limestone is dissolved to form cave passages and redeposited to form calcite or aragonite speleothems.

Formation of calcite speleothems

Limestone is made up primarily of calcite, which is the most stable form of calcium carbonate (aragonite and monohydrocalcite are metastable forms, and vaterite is extremely rare). The dissolution and deposition of calcite are essentially controlled by the same chemical processes, the reversible reaction between carbonate ions and carbon dioxide in water to give bicarbonate ions.

In the presence of pure water, solid calcium carbonate (calcite) and the dissolved form (calcium and carbonate ions) can reach equilibrium:

$$CaCO_3 \text{ (calcite)} \quad = \quad Ca^{2+} + C \quad \text{(Equation 1)}$$

The concentration of the calcium (Ca^{2+}) and carbonate (CO_3^{2-}) ions in solution is low – that is the calcite is only sparingly soluble.

However, rainwater contains small amounts of carbon dioxide and can be further enriched by the high concentration of carbon dioxide in soil. The carbonate ions in solution can react with this carbon dioxide (CO_2) and water to give bicarbonate ions (HCO_3^-):

$$CO_3^{2-} + CO_2 + H_2O = HCO_3^- \quad \text{(Equation 2)}$$

As the carbonate ions are converted to bicarbonate, they are replaced in solution by further dissolution of calcite. These reactions are the mechanism (albeit oversimplified) whereby cave passages are formed.

Once these components reach equilibrium, no further dissolution takes place and the solution is said to be 'saturated'. Sometimes, the initial process of dissolution of calcite by carbon dioxide-rich cave water is still not complete when the water reaches air filled passages. Such water may have the capacity to continue to dissolve calcite, and if it comes into contact with calcite speleothems, then corrosion can result. Such water is said to be 'unsaturated' or 'aggressive'.

When saturated water percolates down through rock and reaches air-filled cave passages, it has effectively moved from a carbon dioxide-rich environment (soil atmosphere) to one in which the concentration of carbon dioxide is relatively low (the cave atmosphere). Carbon dioxide is lost from the water to the cave atmosphere, and the reactions whereby calcium carbonate is dissolved (Equations 1 and 2) go in reverse, depositing calcite speleothems in various forms. Such solutions, which develop the capacity to deposit calcite following carbon dioxide loss are said to be 'oversaturated' or 'supersaturated'.

This process is generally (though not always) rapid and usually takes place at or near the site where the dripwater enters the air-filled passage. Thus, the most common calcite speleothems are associated with the downward movement of water. If the rate of deposition is fast in comparison to the rate of flow, then calcite will be deposited against the roof as e.g. straws or stalactites. If the converse is the case, then deposition will take place mainly on the floor of the cave. The shape of the speleothem (eg. stalagmite or flowstone, stalactite or shawl etc) will be determined by the way in which the water flows. Sometimes, water drips straight into a pool. In this case, a small volume of oversaturated drip water is diluted by a much larger volume of saturated pool water, and crystallization of calcite is slow, resulting in the formation of rimstone and calcite spar

Calcite (or aragonite) can also be deposited as a result of the evaporation of water which is initially saturated, or even undersaturated. Static cave water can slowly evaporate in conditions of less than 100% humidity. As it does so, the concentration of carbonate, bicarbonate and calcium ions and carbon dioxide all gradually increase. Evaporation does not deposit calcium bicarbonate, which does not exist in nature in solid form. Instead, carbon dioxide in solution is lost to the cave atmosphere, and the water becomes oversaturated with calcium carbonate which crystallises as calcite or aragonite. As calcium carbonate and carbon dioxide are lost from solution, they are continually replenished from the pool of calcium and bicarbonate ions. Again, the reaction whereby calcite is dissolved goes in reverse, this time driven by the concentrating effect of evaporation.

Figure 5 Photo: M Sefton

Evaporation is favoured by relatively low humidity, warm conditions, ventilation and of course the presence of air currents in the cave. Evaporation will take place faster when the solution is present as a thin film where the surface area to volume ratio is at its highest.

The process of evaporation is relatively slow, which can encourage larger crystal growth and growth of speleothems remote from the point of entry of drip or

percolation water into the cave. Thin films of cave water can migrate in any direction through capillary action, up the sides of cave walls and across the roof, as well as along already existing crystals. As the water evaporates, it can be continuously replaced by capillary migration. Calcite or aragonite formed by this mechanism is often deposited as 'popcorn' coralloids or frostwork. One example of this is a popcorn-coated 'directional stalagmite' (Hill and Forti, p110) in the entrance chamber of *Thampanna* cave (Figure 5), where the extremely strong and reversible entrance draft is conducive to evaporation. The process of evaporation is also one of the factors which can favour the deposition of calcium carbonate as aragonite, rather than calcite. Calcite crystallisation is inhibited by magnesium ions, which can be concentrated during evaporation but remain in solution at higher concentrations than do calcium ions. A relatively high magnesium concentration in dolomite cave waters is why aragonite speleothems are sometimes abundant in dolomite caves.

Degradation of calcite speleothems

There are a variety of ways in which calcite speleothems can be degraded (Hill and Forti, 1986, pp 287-289). These include:

- drying out and crumbling once calcite deposition has ceased.
- frost-shattering or salt weathering.
- corrosion by unsaturated drip water (as discussed above), by condensation water, or by inundation resulting from a rise in sea level or by backing up of rivers.
- biological degradation.

As examples of this last process, the crystalline structure of calcite can be broken down by bacteria to form moonmilk, while the phosphoric acid in bat guano deposits will react with calcite to form hydroxylapatite and other phosphates. This process appears to have contributed to speleothem degradation in one area of *Blanche* cave, in the Naracoorte area; here a variety of phosphate minerals has been observed (Martini, 2002).

Condensation of atmospheric water vapour can also lead to corrosion. When calcite comes into contact with warmer air of high humidity, some water vapour can condense on the calcite. This moisture absorbs carbon dioxide from the atmosphere, and is then able to dissolve some of the calcite. As carbon dioxide is consumed by the reaction with calcite (calcium carbonate) to generate calcium and bicarbonate ions, it can be continuously replaced by more atmospheric carbon dioxide until all species are in equilibrium. Such corrosion is therefore much more substantial than that caused by percolating rain water that loses contact with atmospheric carbon dioxide (Picknett et al 1976). Condensation corrosion is favoured by a high concentration of atmospheric carbon dioxide, a significant temperature difference between the calcite and the air with which it comes into contact, and high humidity.

Formation of the Whathehelarewes

The structure and positioning of the 'Whathehelarwes' is consistent with their formation by condensation-corrosion and calcite (or aragonite) deposition by evaporation, according to the following mechanism.

Warm, moist air once drafted from the Mudmen chamber towards the entrance of a low passage behind where the 'Whathehelarwes' are situated. Moisture from the air condensed on speleothems at, or near to the entrance of the passage; at such constrictions, the speleothems are exposed to the greatest continuous air flow. The condensate then dissolved some of the speleothems as described above. Condensation-dissolution took place on the 'upwind' side, especially at the entrance to the passage, where the air movement would have been at its greatest. Corrosion was faster at the top of the stalagmites than at the base, as air currents are strongest in the centre of passages. Over time, the condensate can migrate over the speleothem by capillary action.

During periods of draft reversal (which can occur every few hours in Nullarbor caves), cooler, drier air drafted from the side passage, into the Mudmen chamber, evaporating the condensate, (which also cools the speleothem) and depositing calcite (or aragonite – the mineralogy has not been determined) as 'popcorn' on the opposite side to which condensation-corrosion took place. This deposition by evaporation takes place by the mechanism described above. Where the draft was

strongest (at the passage entrance), the air currents have pushed the layer of condensate to the 'sides' of the stalagmites, giving the 'fanned out' appearance of the redeposited calcite. Further from the passage entrance, the redeposited calcite coats the stalagmites (which are less corroded) more evenly, albeit with a higher density on the one side. Further away still, away from direct drafts, the stalagmites are more or less symmetrically coated.

There is currently no draft in this section of the cave, presumably because the formation of the 'Whathehelarewes' pre-dates cave modification which has closed off the passage behind these speleothems. If the 'Whathehelarewes' were formed at a time when the outside climate was similar to that of modern times, then the passage behind presumably led to the surface, while the Mudmen chamber and beyond would have represented a deeper section of the cave.

The 'popcorn'-coated stalagmites near the 'Whathehelarewes' are hollow at the top. It is possible that condensation water has enlarged pre-existing drip holes (formed by undersaturated drip water) and redeposition of calcite or aragonite by evaporation has taken place on the outside, as described by Hill and Forti (1997, p111). Unsaturated drip water may have also contributed to the corrosion step in the formation of the 'Whathehelarewes', but given that the corrosion is greatest at the passage entrance, and always on one side, corrosion by condensation seems more likely.

The Whathehelarewes are examples of a speleothem type known as 'Rims' (Hill and Forti 1997, pp 91-92). Most commonly, these take the form of shells surrounding the lips of holes in cave floors or walls where passages or chambers are joined by constrictions. According to Hill and Forti (1997), conditions necessary for rims to grow from drafting holes include warm and humid air flowing in a consistent direction. Less frequently 'rims' have been observed growing on the flanks of speleothems. Rims formed around drafting holes differ from those such as the Whathehelarewes in that they usually grow away from the area of corrosion on one side only, rather like a bursting blister.

Rims presumably grow from drafting holes when moisture condenses on the inside of such constrictions. For condensation to take place, the rock must be cooler than the air passing through it. This condensate then partially dissolves the limestone and is transported through the hole, either by the draft, or by the effects of an evaporation gradient. Calcite will then be redeposited, either by immediate degassing of carbon dioxide from solution, which requires a lower concentration of atmospheric carbon dioxide on the downwind side of the constriction, or by evaporation, which requires lower humidity on the downwind side. A cooling around the edge of drafting holes could be generated by a drop in pressure of the emerging air, and also by the evaporation process.

The Whathehelarewes and other features in the Mudmen Chamber have been marked with flagging tape to encourage future visitors to take care. The Mudmen Chamber has been fully surveyed, with no leads remaining, so it is not necessary to endanger these speleothems with needless exploration. The best prospects for future discoveries lies with the (weakly) drafting boulder choke complex just before the Mudmen Chamber. However, such prospects have so far resisted numerous attempts at a breakthrough.

Acknowledgements
I thank Jacques Martini for his suggestions and critical comments on this article and Graham Pilkington for his observations on the roof fretting in the Mudmen Chamber.

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Mark Sefton.

LED TORCHES

One problem I find with buying new torches is that you don't know how they perform until you get them home or take them on a caving trip.
So to save some of you spending needless dollars I will give you a quick review of two Princeton Tec LED torches I have used.

One is the same shape and size as the Princeton Tec -Tec 40 torch (4xAA).
This new torch has one LED and a magnified lens to increase its brightness and to make it a spot beam. Although the beam is white it has not got much brightness (compared with a conventional torch of the same size) it would be good for close up work up to about 20 feet, even then the beam is not bright enough to fully illuminate an object.
A down side is the beam is a spot and gives off very little peripheral light so you can only see what is in the spot beam. Battery life is claimed to be 150 hours. Cost $79.99.
In summary I would not use it as a back up torch as the spot beam is to tight and there it is not bright enough (a conventional Tec 40 is soooo much brighter – although it has a 4 hour battery life).
They have tried too hard to make this LED act like a conventional torch and I believe they have failed.

The other torch has 3 LED's it runs on 4 x AAA batteries and is about the size of a pencil torch. Its beam is white and diffused giving it a fluoro effect, its range is good for its size it lights up an area of about 20 feet and dimly lights another 20 feet further, which makes it great for moving through a cave / rock hopping etc. Battery life is claimed to be 150 hours and its price is $59.99.
In summary the diffused light gives you better depth perception so it is much better for rock hopping in a cave, it can be used for reading or for slogging through the bush on the way back from a cave. It is compact, light and tough (waterproof to 500 feet – for those tricky sumps)
A great little back-up torch for SA caves that don't have big passages or chambers. I liked it so much I bought one.

LED torches seem to be the future of torch technology, the bulbs last a lifetime and they use very little power.
There are many companies and individuals coming out with torches that use LED's. If you go to www.ledmuseum.org you will find that there are numerous LED torches in the American market that have not yet found their way to Australia. The site gives a blow by blow description of each torch which makes purchasing easier.

Paul Harper

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Stocktake

The Quartermaster wants to update the register of all CEGSA assets.
Would any member who has CEGSA property in their possession, or who knows where property is please contact the QM so that its location can be recorded.
This includes caving equipment, survey equipment, digging gear, keys, radios, Cave tags, stretchers/dragmats and anything else that belongs to the club.

If you have books, maps or records contact the Librarian / Records Officer.

Paul Harper.
Quartermaster / Key Holder

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Kubla Khan Trip Leader

CEGSA member Phil Meyers is now an Approved Kubla Khan Leader. He is willing to lead Kubla trips for mainland clubs at any time and will travel to Tasmania at his own expense.
Contact details are: Mobile: 0407 516 596 or Work: (03) 9701 3022.

Ros Quick.

Friends of Naracoorte Caves

A Friends of Naracoorte Caves group will be launched on December 12th at an evening meeting at the park. The activities of the Friends Group will be wide ranging, from assisting fossil and bat researchers to control of pest plants on the Park. This is a unique opportunity to assist those who manage and investigate the natural values of Naracoorte Caves. Special talks will be held throughout the year by those who are conducting research.

The scope of this group is by no means finalized and I am open to any suggestions. Some ideas for activities that may interest CEGSA members include the removal of the bags of sediment from the Cathedral Cave fossil dig and collating data to produce three dimensional maps of some of Naracoorte's caves. This last project is still embryonic, but a real possibility.

There will be a small cost of $10 for membership for this group, but benefits will include cheaper cave tours and opportunities to be involved.

I encourage you all to join and be a Friend of Naracoorte Caves

Steve Bourne.
Manager Naracoorte Caves National Park

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NOTICE OF MOTION

The following motions to alter the rules are submitted by the committee and will be voted on at the General Meeting held 22nd January 2003.

Motion 1.
Alter rule 16(c).
After "set amount must be" change the wording to "notified to Full members at least fourteen days prior to the General Meeting at which the amount is submitted for approval".

Reason.
This rule is only setting or changing a value, not altering the rule or constitution. Therefore it does not require the voting level of a constitution change.

Motion 2.
Ref. Rule 1(d).
The joining fee for the 2003 financial year shall be twelve dollars ($12.00).

Reason.
This fee is to cover the costs involved in supplying a new member with all the documentation that is required eg. Members Handbook etc.

CALENDAR OF EVENTS

Date	Type of Event	Description	Contact
27/11/02	General Meeting	Kent Town Hotel, 76 Rundle St. Kent Town	Marie Choi
30/11/02	Working Bee	Library and Records	George MacLucas
11/12/02	Committee Meeting	Kent Town Hotel, 76 Rundle St. Kent Town	Marie Choi
14/12/02	Xmas BBQ 11AM on	9 Cuthbert Ave. Gulfview Heights	Ray Gibbons
8/01/03	Committee Meeting	Kent Town Hotel, 76 Rundle St. Kent Town	Marie Choi
22/01/03	General Meeting	Kent Town Hotel, 76 Rundle St. Kent Town	Marie Choi
22/01/03	ANNUAL REPORT	2002 Reports Due	Athol Jackson
25/01/03	Working Bee	Library and Records	George MacLucas
25-27/01 03 LWE	Survey, Exploration & Recreation	Mt. Gambier	Marie Choi
9/02/03	AGM	Kent Town Hotel, 76 Rundle St. Kent Town	Marie Choi
12/02/03	Committee Meeting	Kent Town Hotel, 76 Rundle St. Kent Town	Marie Choi
12/02/03	CEGSA NEWS	Articles due	Athol Jackson
26/02/03	General Meeting	Kent Town Hotel, 76 Rundle St. Kent Town	Marie Choi
1/03/03	Working Bee	Library and Records	George MacLucas
	Caving	Ongoing Vic Fossil Survey contact	Garry Woodcock
	Caving	Regular trips to 5A25 contact	Grant Gartrell

Don't forget to register your trip with the Trip Liaison Officer so that the trip becomes official and is covered by insurance. If it is not registered then it is not covered and you may be liable. You must also be an accredited trip leader with the appropriate skill endorsement to take a party underground. Also, please make sure that a report of the trip is submitted.

Please submit your list of future trips early so they can be included in the calendar.

XMAS BBQ

14 DEC 11 AM TIL LATE

RAY & CHRIS GIBBONS

9 CUTHBERT AVE

GULFVIEW HEIGHTS

BYO MEAT, SALAD, DRINKS, CHAIR

BBQ AND POOL SUPPLIED

ANNUAL GENERAL MEETING and dinner

The Annual General Meeting for the presentation of the Annual Report and the election of the Committee will be held in the upstairs meeting room at the

KENT TOWN HOTEL

76 RUNDLE St. KENT TOWN

8th FEBRUARY at 8.30PM

Following the Dinner at 6.30 PM Downstairs