CALCITE
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November 1992

Calcite 36, November 1992.

Newsletter

of the

Highland Caving Group.

(Founded 1957)

PO Box 154, Liverpool, N.S.W., 2170.

Contents:

Production - Robert Wray.
Printing - Robert Wray and Chris Dunne.

Editors Report.

Many members of HCG have been active in the last few years participating in Australian and international caving expeditions. This special edition of Calcite is a round up of some of these activities.

Tasmania is a beautiful place. It is an island of immense and highly varied scenic beauty, from the farm lands of the north to the moors of the Central Plateau, to the rugged dolerite peaks of the Central and Southwest, and the amasing granites of the east coast. The island is also well endowed with limestone. Three weeks were spent in Tasmania by Robert in early 1990, during which time he spent nearly two weeks walking in some of the best areas of Australia. Mole Creek was also visited on several occasions, the caving being described as fantastic.

The 18th Bienial ASF Conference was held in Western Australia over the 1991 New Year period and was attended by several HCG members. The location of the Conference at Margaret River allowed caving in several widespread and varied regions. Prior to and after the Conference many caves on the Nullarbor Plain were visited by a large number of New South Wales cavers. Caves in dune limestone, unknown in New South Wales, were the norm at Margaret River, possibly being, on the small scale, some of the most highly decorated caves in Australia.

Once again the Nullarbor was the objective for HCG members in mid-1991. Two weeks were spent exploring the caves of this vast but far from featureless arid karst region in July, for most members this being their first vist.

The crowning achievement in recent HCG expeditions was at Easter 1992 when five of us visited Waitomo in New Zealand. A great trip, but for those who couldn't make it, your turn comes soon.

August 1992 was planned as the right time for a trip to Cape York, and five people made to long drive north to the tower karst of Chillago and Mitchel-Palmer.

In all, most karst types have been visied by HCG expeditions in the last three years. A return trip to Waitomo and then the Takkaka - Ellis Basin - Mt Owen region of New Zealand is being organised. Plan your holidays for the next year well, try and leave two or three weeks free, you won't be dissappointed!

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Tasmania 1990.

Robert Wray.

Visiting Tasmania for the first time, indeed anytime, must be one of the highlights to Australian bushwalking and caving. Not only does this southern portion of the country have some of the most rugged and breathtakingly beautiful scenery in Australia, the immense range of walking and sightseeing options available to the walker of average fitness is staggering. Cavers know the place for similar reasons, Tasmania has many of the most spectacular and sporting caves in the country. As walkers have Federation Peak, the Western Arthurs, the Overland Track and Wine Glass Bay, cavers have Midnight Hole, Growling Swallet, Khâzad Dum, and Kubla Khan.

It was with apprehension that I sat in Kingsford Smith Airport in early January 1990 watching sheets of water being blown off the runway by jet exhausts. Rain in Tasmania means MUD, the last thing wanted by walkers. There is enough of it even during droughts. I needn't have worried, Launceston was in brilliant sunshine, in fact, they were having a drought.

Peter and Gwen Dohnt, ex-patriot HCG members recently moved to Launceston, greeted me at the airport, and put me up (or was it, put up with me?) when I was in Launceston.

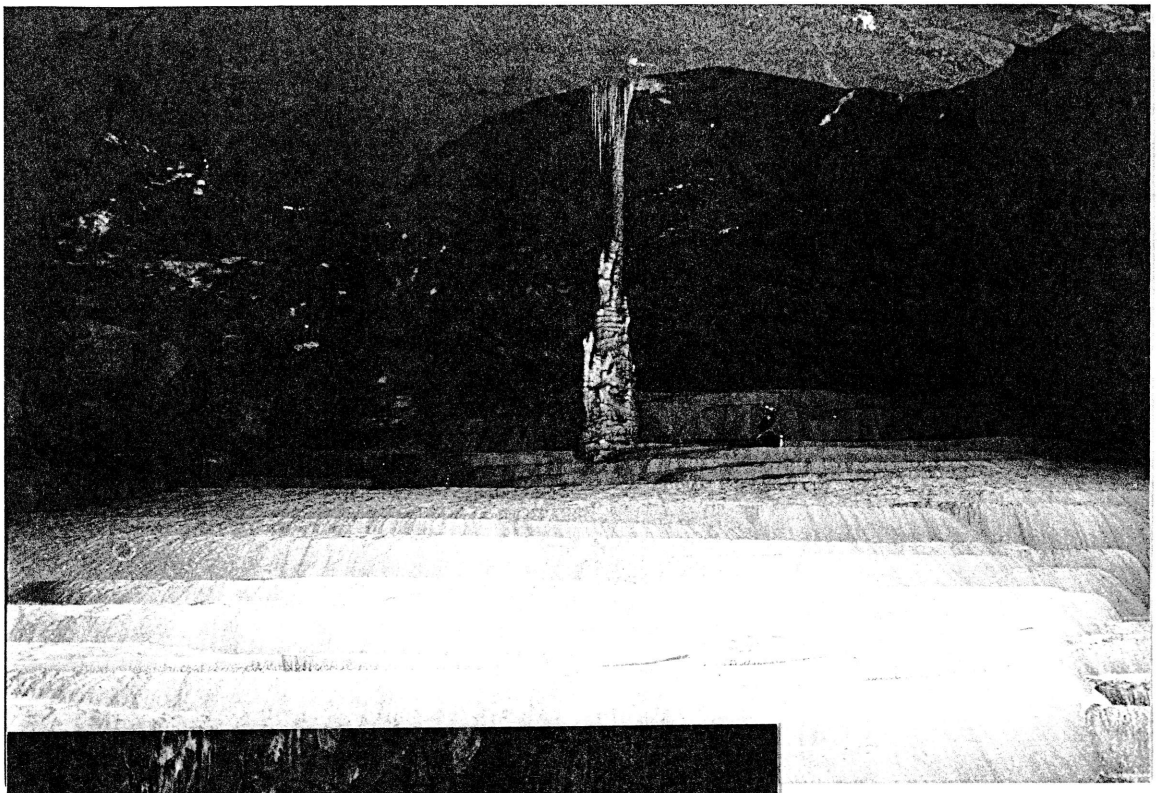
Several days later Peter and I headed to Mole Creek for the day exploring the countryside and walking through one of the nicest caves in Australia, Wet Cave. Although very easy Wet Cave has a deserved reputation of lovely meandering graved bedded walk-through passage over 2 km long. Excellent and large decoration is in places common as are numerous glow-worm colonies. Several other caves were looked at including Honeycomb 1, 2 and 3, numerous dolines in the state forest and the lower entrance to Croesus.

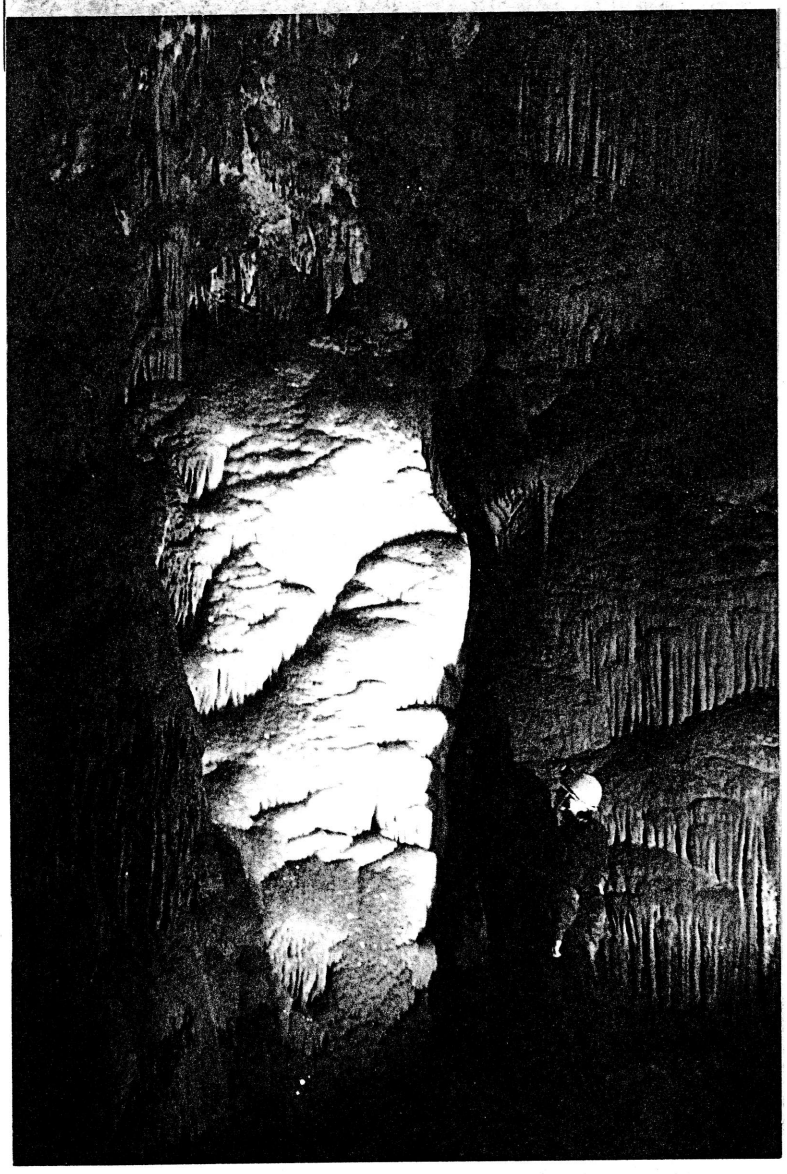
I then spent the next week walking the Overland track from Cradle Mountain to Lake St. Claire. This 4 to 10 day walk is long by most peoples standards, but is one of the more enjoyable walks that can be done. The initial climb to the col below Cradle Mountain is very steep, especially with a full pack. The mountain couldn't be climbed in the usual tourist fashion due to the weather, it was snowing and blowing quite cold, so upon reaching the plateau I set off in the company of an English walker southwards over the heath. Huge dolerite spires such as Barn Bluff reared occasionally out of the fog, but most of the time I was attempting to keep out of the worst of the mud. One very soon learns to give up avoiding the mud, it can't be done and only adds a lot of distance trying to walk around the bogs, and this damages the Button Grass. That night was spent at Lake Windermere Hut, and as the next day was bright and sunny good time was made across the moors and to Frog Flats for lunch.

Frog Flats is the lowest point on the track, and is followed by the climbs to Pellion Hut and then to the pass between Mt Pellion East and Mt Ossa, the highest peak in Tasmania. Once again the weather was cloudy and it was late in the day so I didn't make it up Mt Ossa. Descending from the pass I spent the night at Kai Ora Hut.

The walk through to Windy Ridge the next day was very beautiful. The Du Cane Range through which the track meanders is dominantly an overstory of huge King Billy Pine forest with an understory of cool-temperate moss forest and rainforest. Numerous large waterfalls provide additional interest.

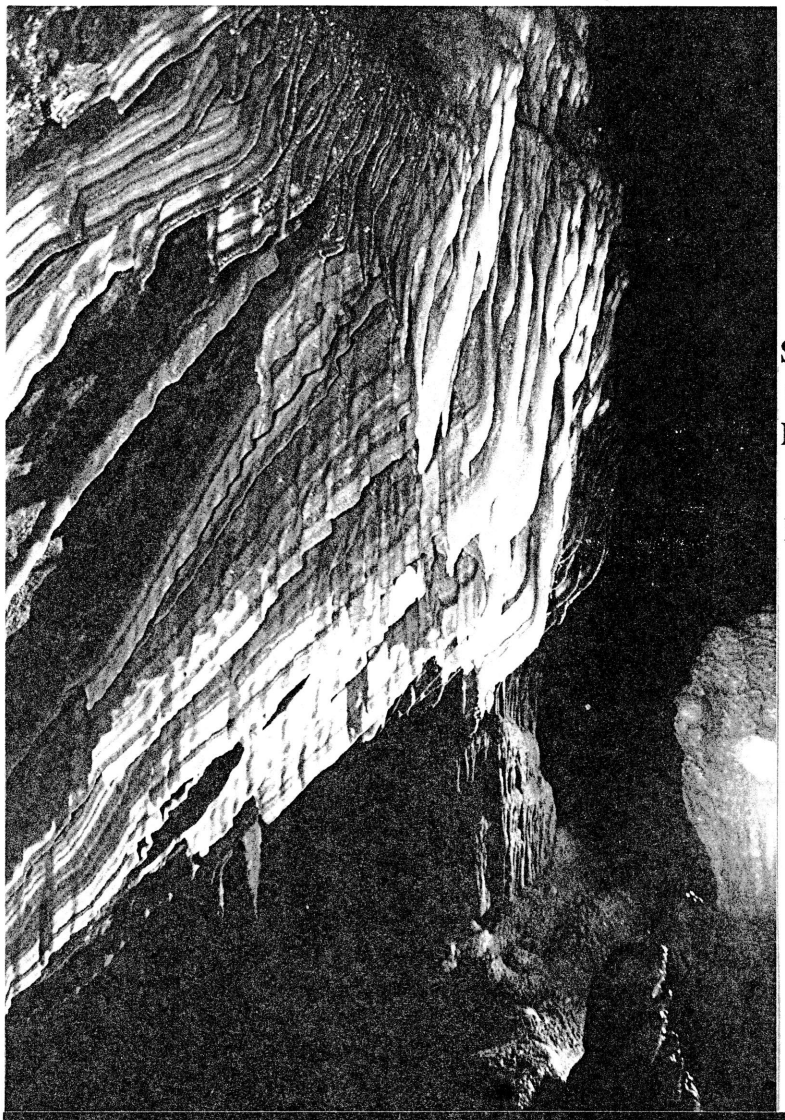
After Windy Ridge the track heads for Lake St Clare. A very worthwhile side trip to Pine Valley for a few days should always be planned. Pine Valley is again dominated by huge King Billy and Pencil Pines and rainforest. The climbs up to the Labyrinth and The Acropolis are strenuous by well worth the views across the numerous huge dolerite bluffs and away past Frenchmans Cap to the rugged southwest.





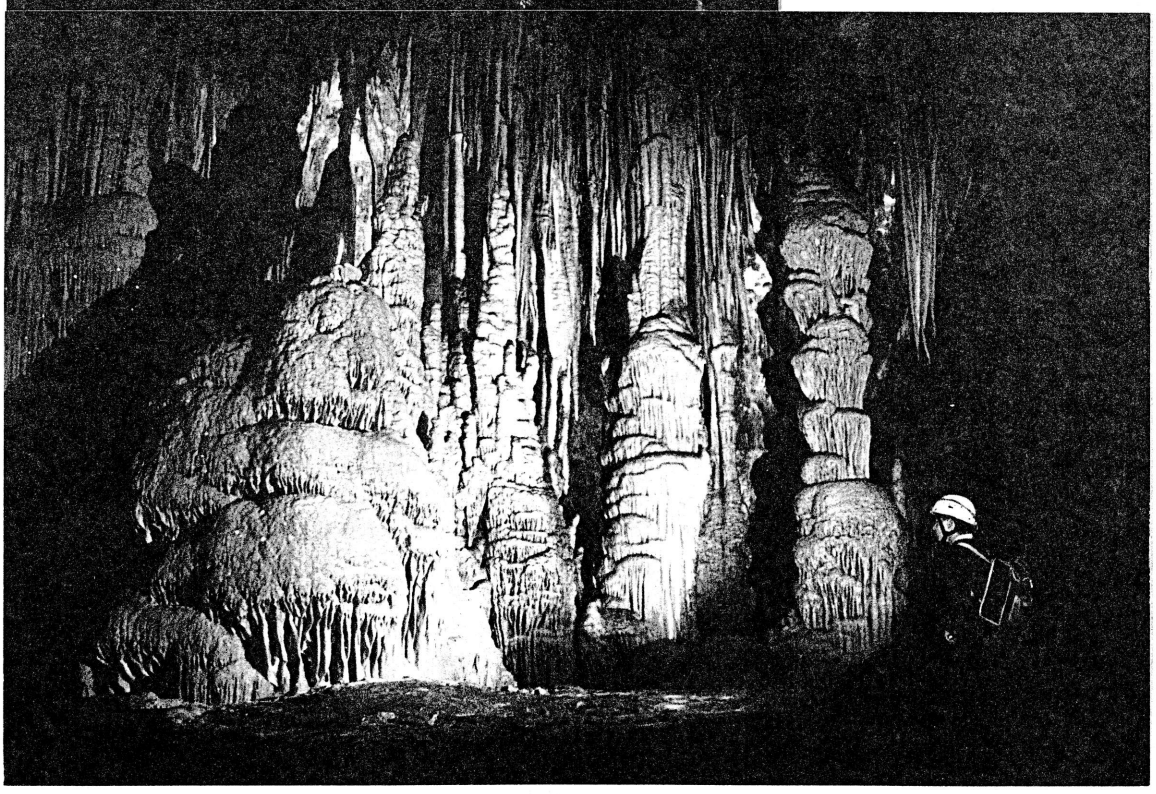
The Pleasure Dome, and In The Silk Shop Kubla Khan.

Photos Robert Wray.



Shawls in The Silk Shop, and columns in The Forbidden City, Kubla Khan.

Photos Robert Wray.



On a slightly different note Freycinet Peninsular was also visited. Instead of huge dolerite bluffs, red granite cliffs rear hundreds of metres out of the ocean, a rockclimbers paradise. The popular Wine Glass Bay is worth a visit, if you don't mind tourists. Be warned, however, water is scarce in the peninsular, especially during summer. Another nice place to spend a couple of days.

Finally it was time for the *piece de resistance* of the trip, several days a Mole Creek with a permit for Kubla Khan, Croesus and Lynds.

Kubla Khan is everything it is made out to be, huge, beautiful and in places sporting. Peter, still being an HCG member at the time, arranged for a local guide from the Northern Caverneers which he had just joined. We abseiled in the top entrance past an impressive gate, and photographed our way through the Opium Den, Silk Shop, Jade Pool, the Khans Army and into Xanadu with the Khan himself. A short time was spent in the Dungeons marveling at the aragonite, and thence it was time for Sallys Folly. This is one of the sporting areas and the object is the traverse, climb, bridge and generally avoid falling off, often into the water.

A quick abseil then drops you into Cairn Hall and the River Alph. Slightly upstream is a climb up to the stunningly beautiful Pleasure Dome with its huge expanse of flowstone and gour pools, like the Silk Shop definitely overalls and boots off territory.

Now follows the best part of the trip, the infamous Stalactite Shuffle, several hundred metres of bridging and climbing up to 10 m above the River, or if you make a mistake several hundred metres of very wet, very cold wading and swimming before the ladder climb out of the impressive lower entrance. In all an amazing 12 hour trip, with thanks to our guide Brett Wilkins of Northern Caverneers.

Next day Croesus was visited, once again a photographers delight. This cave must be the nicest stream passage in Australia, over a kilometre of active gour pools, some over 2 m deep. A wetsuit is advisable, even in summer. The famous Golden Staircase is a smaller version of the Pleasure Dome, and no less spectacular.

Whilst exploring in the far upper reaches of the cave, remembering that it had been dry for some time, I squeezed through a very muddy slot that is apparently normally sumped and poped out into further stream passage. This new passage is several metres wide and about chest deep in water and very cold. Swimming along for a short distance under dozens of unbroken straws was a small rockfall chamber with no indication of previous human visit, although animal bones indicated a link to the surface.

A quick look around indicated there was good potential for a continuation through the rockpile following the stream. At this point my main light failed, so on backup lighting I built a small cairn and swam back to rejoin Peter and the others for the long trek out.

In early 1992 Peter led several other members of the Northern Caverneers to confirm the existence of this passage. There had been no indication on the survey of a passage here, and few people initialy believed Peter's account of the trip. The area was subsequently rediscovered and a voice connection found to the pitches of the upper entrance. The passage to the rockfall chamber has kindly been named The Rabbit Run (P Dohnt *pers comm.*, Y Gluyas *pers comm.*). The area has not yet been properly surveyed, a job for January 1993, and exploration and a dig are progressing. This area has enormous potential for a major extension as the stream is quite significant, there is probably a kilometre to the only known major streamsinks. Who is coming to Tassie with me a for the Conference, I've talked to some of the locals and I'm going back with them for another look.

I suppose the moral of the story is, keep your eyes open. All the major caves are not yet totally discovered, you just have to be in the right place at the right time, serendipity.

Nullarbor and Margaret River, Western Australia.

Phil Flemming and Robert Wray.

Trip Members: Phil Flemming, Robert Wray.

Nullarbor:
An early start was made on Boxing Day, 26th December 1990, for the ASF Conference in Margaret River, Western Australia. Phil got away to an early start leaving Forest Lodge at 0415 and arrived at Rabbit's place at Wilton at 0515. We were on the the road again before 0600. Port Agusta was easily made by 1100 hours the following morning where we met John Taylor (Kempsey Spelios), his fiance Lyn, and her son Morgen.

Murrawijinie 1, 2 and 3 Caves, (5N-7, 8 and 9):
These caves located 10km north of Nullarbor Homestead were visited on the morning of 28/12, and were the first caving on the trip. They are found on the eastern edge of the flat treeless Nullarbor Plain, and the entrance dolines although in excess of 20m diameter are hard to see until you are right on top of them. 4WD driving cross country in this area would be a real health hazard. 5N7 and 5N9 are basically overhung dolines with small sand choked passages radiating from the collapse entrance. 5N8, although the smallest doline, revealed the most passage of the three with a climb down through rockpile to a chamber with some old decoration. Further scrambling down through the rockpile failed to locate the source of the draughts that were to become so common in Nullarbor caves. This cave is also remarkable for the profusion of bones of many species at all levels, even deep within the rockpile.

Webubbie Cave, 6N-2.
This beautiful cave is located 11km north-west of Eucla. Follow the road opposite the Eucla Roadhouse 8km to the microwave transmitter. At the first junction after the highway keep left, otherwise you will find yourself heading due north toward the railway, we spent an hour or so up there looking for Webubbie in many of the places it wasn't. At the tower follow the rough track behind it for 3km to the third clearing and the cave. A small doline was noted on the left of the track just before Webubbie - inspected by Rabbit who reported a low flattener and rockpile - possibly 6N-9 although the description in the Karst Index doesn't fit.

On arrival at Webubbie we ran into Clare Buswell and friends from FUSS and Derek Hobbs and friends from MUCG. Derek took Vic the Gnome for a walk and then we all went down the rockpile into the cave for a swim in the beautiful turquoise lake. Vic declined as he doesn't swim well.

Abrakurrie Cave, 6N-3.
Leaving Webubbie in the early afternoon we found the correct tracks heading north then west toward Abrakurie. We drove past Chowilla Landslip 6N-17D a large blind doline, on the way to Abrakurrie which was reached in the late afternoon of 28/12. This cave is basicly a very impressive vaulted chamber with many high domes. At over 320m long it is the largest chamber in Australia. Rabbit returned to the cave after dinner to do some photography, the results of which were very pleasing.

The next morning after rising at 0420 (why?? because the sun was up and none of us had a watch on) we travelled west 20km, took a left-hand fork, then south 20km to arrive at Mundrabilla Roadhouse. There is a quarry at the lip of the escarpment, and the gate, which is across the main track, is closed at night. The off-road distance from Eucla to Mundrabilla Roadhouse was 93 km, as opposed to 63 by the highway.

Cocklebiddy Cave 6N-48.
Continuing westward we visited this world-famous divers cave on the afternoon of the 28/21. Rabbit noted drafts blowing from the entrance rockpile near the head of the gully. Further investigation identified drafts at a number of points both inside the cave and in the doline. On the return trip (8/1) more drafts were noticed in the rockpile with

one located by Phil in a tight section of the rockpile on the left-hand side of the cave entrance below the metal ladder. This was followed into the rockpile for over 10m before becoming impenetrable.

Arrival at Margaret River was the afternoon of Sunday 30/12 by way of Norseman, the Hann Track, Lake King, Lake Grace, Bridgetown and Nannup. Apart for some rather large and well disguised potholes, which upon investigation fortunately didn't need rigging as they were in the middle of the road and we were going at 90kmh, the Hann Track was in fair shape and was certainly a worthwhile route, saving about 300km over the alternative way around the coast.

Margaret River.
Sunday 30/12 through to Sunday 6/1 were spent at Margaret River attending the Conference.

Robert did a fair amount of caving, whilst Phil spent a fair amount of time in meetings (Poor Phil -Ed). Other members of Highland in attendance were Chris and Ann, Michael O'Driscol (Flash) and his girlfriend who had come from England to visit family and drive across the continent to attend the Conference.

Some of the cavse visited during the week included;
Strongs Cave Wi-63 (RW)
Moondyne Cave Au-11 (RW)
Conference Cave Wi-44 (RW)
Aramvale Pipe Wi-63 (RW & PJF)
Calgerdup Wi-49 (RW & PJF)
Easter Cave Au-14 (PJF)
Jewel Cave Au-13 (RW & PJF & Ann & Chris & Flash etc.)
Labrynth Cave (RW)
along with several others which we have forgotten the names of.

Easter Cave and Jewel Cave (Tourist Cave) were particularly outstanding. On the small scale possibly the most highly decorated caves in the Australia. Jewel Cave was particularly interesting as when we arrived to do the 'Tourist Trip' we were told there were no places in the tour. Upon telling the Guides we were here for the Conference we were allowed to follow the tour at our own pace, with our lights, and go anywhere on the marked path by ourselves unescorted by a Guide, best of all for FREE!, try that at Jenolan. A beautiful cave.

Arumvale Pipe was also memorable for the Tiger Snake waiting at the bottom of the entrance pitch. We all took a vote and sent Mark Bonwick down first (you shouldn't have told us those snake stories from Thailand, Mark). It was a cool night and the snake wasn't feeling very energetic, which was lucky for everyone else.

Nullarbor.
The return trip across the continent began on 7/1/91. We covered 1100 km that day, followed by Julia James, Al Warild, Mark Bonwick and Graeme Pilkington (CEGSA), arriving at Cocklebiddy Roadhouse about 2300 hours. We then went straight off-road to drive to Tommy Graham's Cave which we didn't find. We all crashed beside the cars about 2 km from the highway after driving in circles for over an hour. Navvigation here at night is VERY difficult. The following morning we easily located the track to Tommy Graham's, and established a camp about 4km northwards of the cave as the last part of the track was very rocky in places, then visited the cave to get watersamples for Julia.

We all then visited Cocklebiddy again for watersampling. Robert floated around in the cave for several hours with a salinity metre, his 5mm wetsuit was welcome in the COLD water. Neville Mitchie and family arrived, and Neville recovered his instruments left in the cave for the duration of the Conference. He was studying the drafts issuing from the rockpile. The outside temperature was a moderate 49.8 C.

Murra-El-Elevyn Cave 6N-47.
N-47 is a worthwhile trip. Mark, Phil and Rabbit descended Murra-El-Elevyn for more watersamples. Phil was game and traversed the first lake to a side passage on the left of the lake which led to a climb over a guano pile, and then to several hundred metres of narrow passage almost like caving!!

The following day after having to move camp due to the smell of an impending bushfire (which never was sighted) we inspected;

Pannikin Plain, 6N-49.
The original entrance route in the rockpile was unchanged following the cave-in of two years previously. However the entrance is highly unstable and a trip into this cave is well worth avoiding. The cave is signposted to that extent. Levee banks were constructed around the entrance during the "rescue operation" which took place after the cave in, and these make driving past the cave on the main track difficult in a car.

Mullamullang 6N-37.
Phil and Rabbit then departed company of the slowly growing convoy and headed east toward Madura Station. Following directions and the maps toward Mullamullang we failed to locate a fork in the track in the dark and so spent the night near the cattle yards. In the morning we found the fork exactly where we had been looking the night before (once again navigation at night is diffficult) and arrived at the cave about 0830.

Packing a light lunch we headed into the cave, disturbing a large brown snake sunning himself on the rocks. Being taste-tested by one of these here would be real bad news. Route finding was no problem in the cave as we only had time to visit the Dome so we stayed in the main passage. What a huge cave, but so many bloody rockpiles. The return trip took us a little over nine hours, including about 45 mins for lunch.

Upon reaching the surface the Mitchies, Bill van Vlimmeren and the Bridges (all SSS) had arrived and were setting up camp ahead of the main convoy.

We packed up and drove out to the highway for the start of the long return trip eastward tired but having enjoyed the whole trip.

1991 HCG Nullarbor Expedition - Trip Diary.

Brett Moule.

Trip Members: Ian Lutherborrow, Phil Flemming, Robert Wray, Kevin Carder (in the van);
Brett and Jason Moule (in the Hilux);
Murray Dawes, Catherine Griffith, Marrie Horvath (in the Suzuki);
Lindsay Matheson, Bruce Waddington (in the Sigma);
Neil and Pam Crabb (in the Subaru).

All members of the HCG 1991 Nullarbor Expedition were due to rendezvous at Eucla on the eve of Monday July 22nd, and after an epic transcontinental journey, battling severe headwinds and almost insurmountable odd (we forgot the Cocoa Pops) we all made it. Jason and I had already met up with Neil and Pam at Port Augusta two nights before on Saturday, and with Murray, Catherine and Marrie at Ceduna the next night. Lindsay and Bruce saw Jason and I setting up camp at Ceduna so they stopped and told us they would be driving on to Eucla that night. We than passed Ian's van parked at White Wells Cave (N-14) east of Nullarbor on Monday afternoon, but did not talk to the occupants as they were deep within the cave.

We met up for the first time as a full group having a couple of drinks in the Eucla pub. The convoy then headed out to the Weebubbie Cave (N-2) campsite.

Tuesday July 23rd
Everybody woke this morning to a frost and eager to get down Weebubbie. After a quick breakfast we all headed down the cave equipped with half a dozen cameras, an assortment of water-sampling equipment (Flemming, *this Vol.*), a rubber dingy and lots of enthusiasm.

I started down the rockpile anxious to see the much talked about lake, and when I did I was amazed. It is magnificent. We did the water-sampling,

then swam, boated and photographed before climbing back out.

We then drove a few kilometres north-west and searched unsuccessfully for several hours for a blowhole marked on the 1:100 000 map. Not disheartened by this, we continued on to Chowilla Landslip (N-17) and explored some leads in this large collapse. We were as unsuccessful as previous explorers, but did discover the desiccated body of a Thylacine in a drafting lead in the north-west corner of the rockpile.

We made camp that night in the scrub down the road a few kilometres past Abrakurrie Cave (N-3).

Wednesday July 24th

Ian, Phil and Kevin went to Winbirra Cave (N-45) to do the water-sampling whilst the rest of us drove up to Abrakurrie equipped for large scale photography. I couldn't believe my eyes at the size of the chamber, some 320 m long, 50 m wide and 30-50 m high of domed and vaulted passage. Several hours were spent, quite successfully, photographing this huge void.

After lunch we drove to Thampanna Cave (N-206) via numerous rockholes, set up camp, had tea, then abseiled down into the blowhole to do some damage to our hands and knees in this extensive but abrasive cave.

Thursday July 25th

We visited three caves today; Kelly Cave (N-165), Snake Pit (N-133) and Webb's Cave (N-132). The formation in Kelly and Webb's were magnificent, their roofs and floors covered with hundreds of stalagmites and stalactites, both equally amazing.

Friday July 26th

This morning Ian and Co. went to do some more sampling, this time at Moonera Tank Cave (N53), whilst the rest of us drove on to Cocklebiddy (N-48). When the 'scientists' arrived we took the sampling gear, two dinghy and a couple of cameras and relaxed taking a few photos and just floating around the largest underground lake in the Southern Hemisphere for several hours.

From Cocklebiddy we headed south several km to Murra-El-Elevyn (N-47) where we lowered a ladder over the edge of the doline and climbed down to the first lake.Several of the more adventurous, Jason, Phil, Neil, Murray and I, got our feet wet by crossing the lake to the extensive passages beyond. The second lake was deeper so everyone but Jason and I turned back. We were rewarded for our efforts by extensive halite and gypsum formations. When we came out we met up with Ian, Robert, Phil and Kevin who had stayed on at Cocklebiddy. We drove east and set up camp south of the highway on the track to Twilight Cove.

Saturday July 27th

This morning we all crammed into the back of the Hilux and Suzuki and headed off down the 4WD track toward the coast. Twilight Cove is at the western end of the Roe Plain, and the beginning of the the westward extending Baxter Cliffs.

The sand-dunes here were unbelievably white and clean, except on the beach which was covered with seaweed and flotsam. We walked around looking in the cliffs for some caves, but didn't find anything new of any significance. This day turned out to be a good rest day from the caving.

Sunday July 28th

This morning we drove south-east past several blowholes to Tommy Grahams Cave (N-56). We were sent on a wild goose chase for about an hour looking for the entrance to the cave. Some thought it was in the large collapse doling, but it is actually on the lip of the doline. Once in the cave, we climbed down the rockpile which was very dusty and dry, but at the bottom we enjoyed a swim in the beautiful lake at a comfortable 23° C.

After lunch the convoy drove past Pannikin Plain Cave (N-49) and several other dolines on the way to

Mullamullang where we planned to stay for a few days.

Monday July 29th
We woke early this morning ready for a big trip into Mullamullang (N-37). Two groups were formed; along with Ian went Phil, Kevin, Murray, Jason and I, we headed for the Ezam. With Robert went Lindsay, Bruce, Neil, Catherine and Marrie heading for the Easter Extension. Neil exited the cave early as he and Pam left to do some climbing in Victoria.

Ian's party sampled the lakes along the way, exiting the cave late at night after 13 hours. Robert's group explored Easter into the breakdown zone after only 8 hours in the cave.

Tuesday July 30th
Today we went for drive northwards past Kestrel No 1 (N-40) and No 2 (N-42) where a few went caving whilst outers went shooting. We then drove back to Spider Sink (N-41D)where we had a pleasant lunch in the trees and shade and a look at the fossils in the doline wall. Joe's Cave (N-39) was then visited, via Camp One Blowhole (N-73). Ian remembered a good lead in Joes from a trip 10 years before. There was a very strong breeze so we had a quick look and decided to return on Thursday for a more thorough inspection.

Back at camp that evening, Jason, Robert and Kevin went shooting for rabbits but returned empty handed.

Wednesday July 31st
This morning the two parties reformed, Robert's going to the entrance to Ezam, and the others to Easter Extension. Ian's party found what is believed to be a sharks tooth in the wall near Easter.

Once everyone was out of the cave, we disposed of many aluminium drink cans by melting them on the fire and casting medallions for each trip member.

Thursday August 1st
As the expedition drew to a close everyone headed off their own way for Sydney, most via the Flinders Ranges. Ian, Robert, Kevin, Jason and I returned to Joe's Cave to follow the breezes. 4 hours of pushing very unstable rockpile, most of it virgin passage, was fruitless in finding the way into the large cave beyond as the breeze very quickly diffuses in all directions. A lot of new passage was found but the complexity of the rockpile did not permit mapping in the time available. They visited Walpet Cave (N-38) and then drove out to the highway and turned eastward for the Flinder's.

This was a memorable and enjoyable trip, a feeling I'm sure all expedition members will agree with.

Murra - El - Elevyn.
Brett Moule.

After floating around Cocklebiddy for several hours on Friday afternoon, most expeditioners drove to Murra - El - Elevyn whilst Ian, Robert, Phil and Kevin finished up at Cocklebiddy. We attached the ladder to the Hilux and lowered it over the edge of the overhanging collapse doline and scrambled down the rockpile into the cave.

Upon reaching the first lake, Jason, Neil, Murray and I tried to avoid swimming by traversing a ledge on the left hand wall. We were pleased with our efforts, only getting wet up to the knees. Climbing over the large guano pile we saw the second lake, and realising the only way to continue was to wade across Neil and Murray turned back.

Jason and I put our overalls and boots into a pack, and holding it out of the water waded across by negotiating the shallowest route only geting wet to the waist. We continued to the third lake via crawling over a large flat boulder, and were confronted again by waist deep water. Completing this we changed back into our overalls and continued on our way through the cave finding a way

through a small rockpile and into a small chamber.

From here we negotiated a crawl passing many needles of what may be gypsum, aragonite or possibly selenite, varying in length from 30 mm to over 200 mm in length. Leaving the crawl we emerged in a slightly larger phreatic and breakdown passage the walls and floor of which were extensively by salt-crust.We followed this passage for a fair way finding all the passage encrusted with salt. As we were exploring some passageways we noticed that some thoughtless caver had walked across this crust where it formed a false floor, and had left unsightly holes in the floor. There were many more unspoilt and undamaged passages barring our way so we discontinued our search for new passage.

On the way out we met up with Phil who had just completed negotiating the lakes, and after telling him about the needles he headed off to see them. He was unsuccessful in negotiating the rockpile so he turned around and exited the cave after having a swim in the first lake.

Jason and I exited the cave after about 5 hours and where greeted by Ian, Robert and Kevin on the surface at dusk.

Mullamullang Cave N-37 Dome Trip No 1.

Jason Moule.

We awoke Monday morning to another beautiful clear, if windy, Nullarbor winters day looking forward to our first trip into Mullamullang. We carefully packed our cave bags and about 10.30 am started down the entrance collapse. About half way down the huge 100 m high (or is it low? Ed.) entry rockpile Brett slipped and unfortunately twisted his ankle severely, but although in great pain was able to continue.

At the base of the rockpile a large reflective "Reduce Speed" roadsign shone back at us, what next, a radar speed trap? After several minutes of walking along the horizontal passage at the base of the entrance rockpile we encountered The Dune , an underground sand dune! about 10 m high and 20 m wide formed by disintegration of the roof above and aeolian shaping by the wind as the cave "breathes'. Past The Dune is the Southerly Buster where the roof steps down and the passage narrows. There was a fairly strong wind blowing through the constriction and we emerged on the other side to more sand-dunes. Robert measured the wind velocity through the Southerly Buster 1/2 an hour later at 42 knots and about 5 hours later at 57 knots, but even these velocities are less than half the maximum recorded wind velocity.

We then walked along the pleasant Rolling Sands, took the left hand junction at Smoko Junction, and crawled through the Sandchute after which the passage opened up to the normal 20 m wide and 10 m high. At Oasis Valley and the junction to Easter Extension Brett's ankle was getting more painful and was slowing him down, so he made the wise decision and returned to the surface.

We then started climbing up, down, and around the rockpiles, past the One Mile Cairn and Franks Station, where the rockpile were starting to get larger, now averaging over 20 m high, then descended all the way down the 60 m rockpile to the beautiful White Lake where some water samples were taken and the temperature and salinity of the water recorded. The water was crystal clear and had a nice bluish tint.

The group then continued to walk, scramble and climb around, up and down more rockpiles past the False Sail, and a little further on The Sail. This is a large slab about 4 m long and high standing near vertically on edge having fallen from the roof. We arrived at the Drop Off where the roof comes down to meet the top of the rockpile, quickly found the way through and climbed down the drop on the other side. When I climbed up, you guessed it another rockpile, a short while later I was surprised to see another large roadsign

which read "15 Kmh" gleaming back at me. We were finally at Camp One and nearly 5 km from the entrance.

After a hard earned rest and some food and drink, we took samples and the usual measurements from Lake Cigarlee and continued on scrambling over rockpiles along the left hand branch toward the Dome. On the way samples were taken and tests done at Gurgle Lake and Lake Sh'bula. Then after more scrambling we finally reached the rockpile leading into the Dome. We climbed the collapse as far as the visitors book but didn't enter the Dome itself. We had a look through the book and investigated the mazy phreatic passages of Ezam for a while then headed back to Camp One.

We then followed the right hand branch as far as the Loose Squeeze where the rocks started to look loose (Funny that. Ed.) then went back to Camp One.

After another rest, more food and drink we started back out toward the entrance climbing over rockpile after rockpile finally reaching the flatter sections of Rolling Sands, which was a relief to tired legs. We climbed the last rockpile of the enormous Mullamullang Cave the entry collapse, it had to be the biggest didn't it, to emerge from the cave about 13 hours after entry. It was a very tiring trip, but also a very enjoyable and memorable trip. The people who participated in this trip were Ian, Phil, Murray, Kevin, Brett (for the beginning) and Jason.

Cave Speleothems of the Nullarbor Region.

Robert Wray.

Speleothems, common in caves worldwide, were once thought rare in caves of the semi-arid Nullarbor Plain and Hampton Tableland regions of southern central Australia. Intensive speleologic investigation and exploration in the 30-40 years since initial speleologic exploration of this region has shown this premise to be in error; caves of the region are, in fact, well endowed with secondary cave mineral deposits.

Calcite, the most abundant form of deposit in caves worldwide, is frequent. The dry climate of the region, both at present and during most of the Quaternary, has also promoted the widespread deposition of the evaporite materials, notably gypsum and halite, the high solubility of which ensure rarity in caves of more humid areas. Although not as common as in more pluvial karst, most familiar types of cave decoration are represented. Stalactites and stalagmites are frequent; helictites, especially of evaporites are widespread, as are formations peculiar to specific minerals. Rarer speleothems composed of clastic materials are also not unknown. In most karst areas speleothem colours are highly variable, even over short distances, this colour variation is also the case in the Nullarbor region.

The diversity of speleothem types found on the Nullarbor, both chemical and physical, is generally not found in other karst regions of Australia, and has resulted in increased speleologic investigation of this semi-arid karst in recent years.

Calcite.

As in most of the worlds karst calcite might be expected to be the dominant speleothem mineral in the caves of the Nullarbor. This is, however, not always the case. Locations such as Webb's Cave, N-132, Kelly Cave, N-165, Witches Cave N-193, Thampanna Cave,

N-206, and White Wells Cave, N-14, do display significant calcite deposits, but at other caves such as Mullamullang, N-37, and Abrakurrie Cave, N-3, calcite speleothems are extremely rare (Hill 1966).

One interesting feature is the higher concentration of calcite in localised areas, for example around Kelly, Webb's and Witches Caves, three caves of apparently higher calcite decoration than the norm for the area. How this is related to the speleologic development of the entire region is as yet uncertain.

The majority of calcites on the Nullarbor are believed to be ancient. Recent radiometric dating suggests significant calcite deposition ceased in caves of this region more than 300 000 years ago (Goede *et al.*, 1990). Modern calcite is, however, not entirely absent, James (1991) reports active calcite formations in the entrance chamber of Thampanna, and a water sample was collected for analysis from this location during the July expedition (Flemming *this Vol.*). Active calcite was also observed in several other caves during this period.

The current dry climate of the region might be blamed for the general lack of calcite, but as the majority of calcites are very old it is apparent that drier Pleistocene and Early Holocene climates must be kept in mind when investigating the development of the caves of this region.

Evaporites.

The most abundant evaporite material in caves of this region is gypsum, $CaSO_4.2H_2O$, although in some caves its polymorph selenite is also found. Gypsum occurs as crusts, flowers, straws, stalagmites, columns, and as a clastic material referred to as 'coffee and cream'.

After calcite and gypsum, a further evaporite halite, NaCl, is the third most abundant speleothem mineral. Halite mostly occurs as crusts, although in some locations, notably the Salt Cellars of Mullamullang, halite helictites are widespread. It is visually impossible to distinguish between gypsum and halite or composite gypsum/halite formations easily in the field, and therefore the relative abundance and quantities of these minerals is difficult to establish (James 1991).

Gypsum, and to a lesser extent halite, are responsible for most crystal weathering within the caves. As gypsum molecules absorb water from the cave atmosphere they increase in volume and thus exert high intergranular pressures on the base rock. The spalling of the walls and roofs so common here is attributable to the hydration and growth of the halite and gypsum crusts enveloping them.

Gypsum crusts are of both a granular and fibrous nature, and are prolific in many caves of the area. Notable locations with large accumulations of gypsum are Thampanna, Mullamullang, Murra-El-Elevyn N-47, and many of the smaller caves such as Webb's. Granular crusts are composed of equant, tabular or curved gypsum crystals up to a few millimetres long, whilst the fibrous crusts are comprised of fibrous crystals oriented perpendicular to the surface (James 1991). Gypsum encrustations are common on the walls and roofs of passages, and have been recorded at least 7 m below water level in the gypsum saturated water of several lakes in Mullamullang (Hill 1966).

Gypsum flowers are extensive, but generally poorly developed. Good examples over 20 cm in size have, however, been observed by the author in both Thampanna and Mullamullang, and reported in Murra-El-Elevyn (J. and B. Moule *pers. comm.*) Gypsum flowers are composed of branching and curved bundles of acicular gypsum crystals loosely packed together in a polycrystaline matrix. The flower petal bundle is made up of nearly straight fibres which are gradually tilted around the curvature of the petal (Hill and Forti 1986).

Gypsum stalactites and stalagmites are rarer than flowers, but numerous examples have been reported by James (1991) in Thampanna. Other possible examples have been noted by this author

in Kelly Cave, but not identified with certainty.

The rarer polymorph of gypsum, selenite, is generally found as straight slender needles and has been positively identified in Mullamullang (Hill 1966) and Thamphanna (James 1991). Selenite was also observed in Kelly Cave during the July visit, and possibly Murra-El-Elevyn (B.Moule *this vol.*).

Like gypsum halite occurs as crusts on the walls, roofs and floors of many passages. The classic and possibly most prolific area of halite decoration is the Salt Cellars of Mullamullang where halite decoration is widespread as wall crusts, stalagmites and helictites. Gypsum is also very common in this area, often associated with the halite.

Coffee and Cream

Coffee and Cream is the name by which clastic deposits of fine brown and white fibrous gypsum and gypsum wedged material found on the walls and floor of some passages are known. This material originated from the adjacent roof and walls and has drifted down to form banks, the "cream" being gypsum crystals and calcite from the bedrock, whilst the "coffee" is composed of iron, clay and manganese materials (Caldwell *et al.* 1982).

The Coffee and Cream in the Easter Extension of Mullamullang is polygenetic, in other words, various layers of white and dark brown to red material can be seen to have accumulated atop older, often different coloured material, in a sequence of cycles. This is related to the distribution of the various colouring impurities in the bedrock; areas currently depositing as "coffee" are beneath pockets of darker bedrock, whilst the "cream" underlies lighter coloured limestone.

Coffee and Cream are currently forming. Closeup observation of several handprints and other marks carelessly or callously made at an unknown time in the Easter Extension sediment banks indicates the marks are being slowly infilled with newer material. Thus, these vandalistic actions will one day be covered, but as the rate of deposition of the Coffee and Cream appears to be quite slow it will be many years before the area is returned to its former beauty. Future visitors PLEASE keep to the main path, none of the side passages 'go', just stand back and admire these beautiful formations.

Colours.

Calcite and evaporitie speleothems from several of the Nullarbor Caves were investigated by Caldwell *et al.* (1982) to determine the sources of colours inherent in the formations.

Calcites range in colour from white to dark reddish brown to black depending on the type and quantity of colouring impurities. The most common of these colouring pigment is the iron compound haematite (Fe_2O_3), the darker browns resulting from higher iron concentrations. Pigments of secondary clay minerals, illite, kaolinite, montmorillinite and goethite have also been identified. Black colours are also found, attributable to small amounts of organic carbon and not to managnese which is rare (Caldwell *et al* 1982). It has been suggested that the organic carbon may have originated on the surface and was introduced into the caves by solution in infiltrating rainwater (Caldwell *et al.*1982).

Highly pure gypsum and halite deposits are translucent or white (Caldwell *et al.* 1982, James 1991), whereas less pure speleothems are found in a wide range of colours from golden to red-brown (James 1991), brown to light yellow brown to black (Caldwell *et al.* 1982) and even pink (Hill 1966).

Laboratory analysis of red to brown surface layers on gypsum and halite speleothems from Webb's Cave has shown this colouration to be due to a small proportion of iron and a little organic carbon (Caldwell *et al.* 1982). Similar reddish brown to black speleothem surface layers from the Salt Cellars of Mullamullang were found to consist of about 75% gypsum with the reddish colour attributable to haematite (Fe_2O_3), and goethite ($FeO(OH)$). The black colouring was found to have a high

proportion of manganese and a little organic carbon (Caldwell *et al.* 1982).

Some of these colouring minerals were found disseminated throughout the deposit as separate mineral crystals and not simply as surface or crystal interface coats. A strict relationship of colour to mineralogy was therefore suggested for crust deposits of this region (Caldwell *et al.* 1982).

Conclusions

The Nullarbor and Hampton Tableland Regions are an area of arid karst unlike any other caving region in Australia. With an area of close on 200 000 km^2 it is one of the largest karstlands of the world, but for this area the number of caves and karst features is extremely small. Be this as it may, the wealth of speleologic information discovered during the thirty years since the first major caving expeditions has been significant.

The area houses the longest and largest caves in Australia, Old Homestead Cave is currently surveyed at over 23 km, Thamphanna near 17 km and Mullamullang at over 12.2 km, unusual features when one considers the dry climate for much of the time since the Late Tertiary.

Speleothems of materials uncommon in more pluvial regions are also common here; indeed halite helictites found in many caves are almost unknown elsewhere in the world. The subterranean water of the Nullarbor both in its chemistry and its diving potential is also proving to be important in the understanding of the genesis of these speleothems and the caves themselves.

Although the remoteness of the region and the large distances involved are a major hindrance in the speleologic and geomorphic study of the landforms and the caves of this region, major discoveries in all fields of the earth sciences are still to be made in unravelling the secrets of the Nullarbor region.

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1991 HCG Nullarbor Expedition - Water Testing Program.

Phil Flemming.

During the July - August 1991 Expedition and extensive program of sampling and testing cave waters was carried out for Dr. Julia James of the University of Sydney.

Julia has an ongoing project to look at composition of Nullarbor cave waters with an end to understanding their effects on speleothems and cave development. Nullarbor waters are typically low in $C0_2$, undersaturated with calcium carbonate minerals and with sodium chloride and saturated with gypsum (calcium sulphate).The result is a very corrosive water capable of dissolving limestone and of precipitating gypsum! Gypsum precipitation is responsible foe cave modification by physical weathering due to crystal growth which may give rise to peeling "gypsum crusts" or "coffee and cream" deposits. Gypsum speleothems such as gypsum flowers, selenite crystals and gypsum straws,

stalactites etc. may also arise. Julia argues that the sulphate in the water comes from the ocean and is transported onto the Nullarbor Plain by air currents and rain. A detailed discussion of the chemistry of the above processes, with particular reference to Thampanna Cave, can be found in *Helictite* 29 (1).

To enable us to carry out the required tests and take samples, Julia supplied a milk crate full of plastic sample bottles, a portable conductivity meter (with 50 m of cable!) and two pH meters as well as note book and pens.

We were prepared to obtain water samples from three sources:-

1) Rainwater
2) Dripwater
3) Lakewater

The composition of these three types of water being important in substantiating the scheme mentioned above.

The testing conducted in each cave with standing water included :-

a) water temperature
b) air temperature
c) water pH
d) conductivity of water as a function of depth

The caves in which testing and/or sampling was carried out included Cocklebiddy, Thampanna, Weebubbie, Winbirra, Moonera Tank, Tommy Grahams and Mullamullang.

All of these caves with the exception of Thampanna contain lakes. In addition, sea-water temperatures were obtained at White Wells and Twilight Cove and a film canister (background radiation monitoring) retrieved from Tommy Grahams.

Water temperatures in the lakes were found to be in the range 18-20°C but with notable exceptions. Winbirra and Tommy Grahams were a warm 23° whilst the surface temperature of water in Cocklebiddy was a cool 13°C!

Cocklebiddy was the only cave visited with a lake which exhibited a conductivity and temperature gradient. This is due to a layer of partly fresh water sitting on the surface of the lake. The "fresh" arises as a result of direct inflow of rainwater. Water temperature at the surface was 13.2°C (brrrr!) but this increased gradually to 19.2°C at a depth of 2.5m and remained constant with increasing depth down to 3.5m. Conductivity also presented a gradual increase down to 2.5m, whereafter it remained constant.

All of the lake waters were found to have pH's on the alkaline side of pH 7, except for Tommy Grahams which was slightly acidic.

Testing and sampling in Mullamullang required some effort due to the need to carry in gear then carry out samples. Test and sample locations were White Lake, Lake Sh'Bula, Lake Cigalere and the Right Hand Branch Lake.

Additionally, we were able to obtain a rainwater sample near White Wells and a "substantial" dripwater sample (about 20 ml) in Thampanna just east of the entrance pitch. This was the only dripping water sen in a cave anywhere on the Nullarbor during the trip!

On the recently discovered skeletons at Mullamullang.

Robert Wray.

On the 11th of July 1991 a party of NUCC cavers visited Mullamullang during the course of a normal expedition. Over 2 km from the entrance the party discovered the remains of a human body beside the wall near White Lake. This was reported to the relevant authorities. A second skeleton was found by the Police near the first but close to the wall on the other side of the passage on the 25th of July. We were informed of this

by the Station Manager when we saw him prior to proceeding onto his property. One interesting point is that the manager only heard about the finding of the second skeleton via the ABC National News, the Police did not have the common courtesy to inform him of the discovery.

At breakfast time on Tuesday July 30 several police vehicles drove past our camp at Mullamullang and stopped near the cave entrance. Police personnel then made ready for a trip into the cave. The purpose of this trip was apparently to gather further forensic evidence. At no time did any of the Police approach us to ask questions about anything we may have found now that the discovery had been reported in the news.

The Coroners Report on the discovery was handed down on 4th December 1991, and the following was gleaned from an article by Bob Coops in *Western Caver* No.31 1991.

The first skeleton was found to be that of a young adult male, part Aborigine. A floppy hat was found near the body and some fibrous material, possibly the remains of a grass skirt, was in the sediment below the body. The second skeleton was that of a full blood Aborigine, 35-45 years of age, and a fibrous material was also found in the sediment below this skeleton. Time of death was put at between 1890 and 1980. No evidence of the bodies was found during the major survey of Mullamullang in the mid 60's.

Bob suggests that they may have run out of whatever light source they had, then finding themselves unable to find the way out of the cave by following the walls both perished. I find it hard to believe, however, that if they were following opposite walls that both should perish in the same place.

Another very interesting point raised by Bob is that there is some evidence to suggest that there was once a second entrance to the cave. He says that a rough translation of the name Mullamullang means "good water", although another references say the cave was named "after the great expanses of dusty sand in its passages" (Dunkley and Wigley 1967, p.5). He goes on to argue that if this second entrance did at one time exist then landscape processes, possibly a flood event similar to that occurring at Pannikin Plain Cave, could have sealed it and the evidence for it masked by wind blown sand. Bob concluded by speculating " who knows, if rain filled the cave entrance in, further rain may open it up again."

Dunkley , J.R, and Wigley, T.M, (Eds.) 1967 Caves of the Nullarbor Speleological Research Council.

Morphological Musing on Mullamullang.

Robert Wray.

This proposal of a second entrance to Mullamullang raised by Bob Coops is interesting. If it did exist it must have been easily accessible for the Aboriginals to use it. From the name, "good water", it presumably must have given easy access to one or more of the numerous lakes within the cave, and been relatively close to the lakes as the primitive light sources which must have been used could not have had a long duration.

The idea of an entrance closing is not, however, totally unbelievable, but his proposal of all traces of it being masked by "wind blown sand" in an area almost devoid of sand, or for that matter large expanses of aeolian material of any form, is very hard to accept.

Although current (N-37) entrance collapse as a whole appears to be of some reasonable antiquity major weathering and erosion processes are certainly active within the cave. Probably the most notable if these, apart from the ubiquitous gypsum and halite spalling is the collapse of The Dome. This area, in my opinion, is out of character with the general trend of the left hand branch passage, and may be much younger than the rest of the passage. The cave is here being modified at the current watertable

by undercutting of the walls and collapse inward of the walls and roof. This has resulted it its vaulted shape, a 'stable' shape in this rock of low to moderate mechanical strength. From Camp One toward the Dome the passage is slowly reducing in dimensions, but its shape and general morphology suggests that it may have continued at the same level for at least another kilometre or more but has since been blocked by the Dome collapse.

The Dome rockpile is different to others in the cave. It is larger than other rockplies in this area, it pierces the roof and rises much of the way to the surface, it also intersects the higher extensive phreatic levels of Ezam which were formed during a period of higher watertable. Why there is such a major collapse here and not in other areas is to me uncertain, but several possible mechanisms come immediately to mind. Firstly, there may be a major intersection of joints in the overlying limestones and the collapse has proceeded along this weakness. Similarly there may be a lens of some sandy or less well cemented rock overlying this area of reduced mechanical strength, or it may well be just a random effect. That the collapse in the Dome area is still active is suggested by the large volume of fine weathered bedrock material spalling from the roof and walls of the aven and infilling the rockpile, and the relatively fresh collapse material at the base of the aven. Given sufficient time this aven will probably pierce the surface and another entrance to the cave will be formed.

Collapse blocking passages in this region is not unknown, indeed a slightly different form has nearly occurred at the Drop Off. The entrance rockpiles of most of the larger caves, Weebubbie, Cocklebiddy, Abrakurrie as well as Mullamullang, suggest rockfall has blocked older passages, and indeed further undiscovered passages probably exist in diametrically opposite directions to the main passages, a thesis supported by the at times very large breezes issuing from these rockpiles at numerous levels. Old Homestead is the only large cave with significant passage in both directions from the entrance.

Where the other entrance to Mullamullang may have been, if it indeed existed, is unknown. Extensive geomorphic work is still required in this immense cave, numerous stages of cave development both in the phreatic and the vadose zones is immediately obvious, and the modifications resulting from the breakdowns are still poorly documented. The Dome appears to be a younger feature than most of the main passage of the cave, which is itself much younger than the phreatic Ezam and the lower level phreatic mazes of The Easter Extension and JB Maze. People have been trying since the early 1960's to find a way around the abrupt termination of the cave at the Dome; going over or through the rockpile has proved fruitless, as has bypassing it via the right hand branch. The current leads of diving under the Dome or around via Ezam must be exhausted before we give up all hope of finding the rest of the cave in this direction. However, don't forget about finding the way into the rest of the cave that probably exists to the south of the entrance doline.

Report on the SUSS/HCG trip to Waitomo, New Zealand. Easter 1992.

Robert Wray.

Expedition Members:
HCG - Ian Lutherborrow, Phil Flemming, Jason Moule, Brett Moule, Robert Wray.
SUSS - Pat Larkin (L), Chris Norton, Mark Starej, Hilary O'Byrne, Derek Hobbs, Ron Allum.

The caves and polygonal karst of the Waitomo region of King Country, New Zealand's North Island, are some of the most impressive anywhere in the Southern Hemisphere. Oligocene limestones of the Te Kuiti Group occur in discontinuous patches over about 1000 km^2 of King Country, these outcrops being the much dissected remnants of a formerly much more extensive cover of Tertiary limestones and sandstones

draped over an eroded Mesozoic greywacke basement. During the Easter period, 16 to 22 April 1992, eleven members of SUSS and HCG visited Waitomo Caves, experiencing first hand the delights of this truly fantastic karst area.

The village of Waitomo Caves is located about 200 km south of Auckland, and around 40 km inland from the west coast. The local topography is undulating to steep with numerous rocky outcrops, and has been extensively cleared for grazing. The topography is unlike any caving area on the Australian mainland, the only area coming close would be some localities around Buchan. Caving activities are well catered for with most locals being well inclined toward cavers.

Arriving in Auckland around 11 pm we collected our two Avis vans and managed to find our way onto the southern freeway without too much trouble. One of the first things one notes in New Zealand are the small road signs scientifically designed and strategically placed so that by the time you realise you have found the road you want you are invariably 500 metres past it. Once on the freeway, I took over driving from Ian, during which time Derek driving the other van pulled out a small lead that was to have amusing implications. In Hamilton a major city south of Auckland, they spent quite a while driving around following an Avis van containing what they thought was us. Uncertain of why 'we' were following an unusual route they began to wave and signal to the van in front. When they finally pulled alongside they were greeted with funny looks by a group of irate Maori football players, needless to say the Aussies quickly realised their mistake and found the correct road south.

Finally arriving at Waitomo Caves and the Hamilton Tomo Group (HTG) Lodge at around 3.30 am we were greeted and made welcome by Pete Hobson. Pete is a great guy, but at 6 ft + in bare feet and beard, dressed in his bright red fibrepile suit, and still half asleep he was a pretty wild introduction to Kiwi caving. The HTG Lodge is several km outside Waitomo Caves village, but with accommodation for over 30 people, hot showers, fully equipped kitchen, dining room, lounge room and great views it is a fantastic base for caving trips around the region.

After three hours sleep Thursday morning dawned bright and clear but with a distinct nip in the air. Copious amounts of tea and breakfast in the sun soon fixed this lack of sleep. The morning passed quickly as Hilary, Mark and Ron went shopping in Te Kuiti, whilst Pat attempted to contact the operator of Lost World. Lost World is a large open shaft (tomo) into Mangapu Cave about 25 minutes drive from the Lodge that is leased from the farm owner for commercial adventure trip. The initial impression as you exit the car is the number of huge dolines scattered around. Cresting the hill toward Lost World one hears for the first time the thunder of water, it soon becoming obvious that it is coming from the tomo far below. From a redirection around an overhanging tree at the top of the shaft a free hanging abseil of 100 m puts one into this 250 m long collapse segment of Mangapu Cave. With the walls up to 30 m away for the entire descent, and huge tree ferns growing in the bottom this is a truly awesome abseil. The start of the abseil is easy with lots of friction, but things soon start to get interesting. As the length of rope below decreases you start to speed up and thought must be given to adjusting the friction through your rack. Hilary and I were both using Petzl Stops, and although not designed for pitches as long as this we found they performed very smoothly with the stop disengaged. To rig and abseil took the eleven of us a little over two hours. From the base of the pitch one has three options; either go back up the rope a 20 minute plus prusik, swim downstream through the cave diving several sumps and exit via Hamilton Hole, or proceed upstream for about one and a half hours to the Submergence and walk out. We chose the latter and walked back to the vans in the dark trying not to fall into the hundreds of huge dolines. A Waitomo must (the cave, not falling in the dolines) !!!!

Friday saw the approach of the Easter Weekend and the arrival of numerous other cavers. Several of our group teamed

up with two HTG members and their kids to explore Rumbling Gut Cave. Several hours of following the kids and getting lost in obscure direction was enough, so the Aussies went off into other dark parts of the cave and managed to get lost by themselves without any local help.

A fair sized party of young cavers and novices from Victoria University, Wellington, was heading for Exit 7 and the Peter Lambert Levels of Gardners Gut, at 12.3 km the North Islands longest cave. They offered to show us the entrance so Phil, Brett, Jason and I tagged along. Ian came in the first several hundred metres to pull out a ladder and then went for a drive to the coast. After the ladder we left the Wellington cavers but we met up again once or twice later in the upper levels. Gardners Gut is a tributary of the main underground Waitomo Stream and the Peter Lambert Levels are a series of high level fossil chambers and huge phreatic tubes connected by old vadose canyons. Many large very wet dripping avens attest to the numerous active dolines overlying the cave. Several areas are extremely well decorated with straws and huge flowstone cascades such as the Golden Stairway. After a few hours in the upper levels a 10 m ladder climb took us down to the active streamway, and what a magnificent streamway it is! The others proceeded downstream but we followed the flow upstream for over 400 m at times waist deep but generally quite shallow until we turned to retrace our steps and continue downstream for about an hour to the Downstream Entrance. The lower reaches of the main passage of the cave are radically different to the upper stream passage, at times the roof is out of sight of the electric lights let along the carbides Phil and I were using, and the walls are up to 10 m apart with numerous sandy pointbars and splays. The geomorphic development of this cave is highly complex and would make an interesting study (anybody interested?). We followed the muddy track from the Downstream Entrance through the bush back past the Natural Bridge and the Ruakuri tourist cave as instructed, but being dark, we had no idea of our location. We had to walk back along the road for about 45 minutes to the Lodge asking directions from the locals. Indeed, I am sorry it was dark as I would have liked to see the expression on a farmers face as he got out of his ute to open a gate and promptly being descended upon in the dark by a bunch of muddy Aussies running up to ask directions to Bungonia or Waitomo. Several other locals driving past stopped for a talk, and another driving without lights on nearly ran us all over. A Black Water Rafting bus also pulled over but didn't give us a lift. We later identified the driver as Kieran McKay (a resident of the HTG Hut and Super Caver Extraordinaire) and gave him a piece of our mind. Several kilometres were traversed during about 4 hours underground.

On Saturday, after wading through the large number of caving options, Pete volunteered to lead six of us through Ringlefall. Ringlefall is 10 minutes drive from the Lodge and is part of the Waitomo Headwaters, a series of 10 large caves with a potential length of over 50 km. Pat, Hilary, Ron, Chris, Derek, Pete and I saw the farmer who charges $5 each for access to caves on his land (not a bad scam, he made $35 from us) then entered the cave via an active stream sink that soon drops 25 m to the underground stream. After a high by-pass two further pitches, pull downs, put us back into the main stream which was then followed through meandering joint controlled streamway for several hundred metres. Soon an exposed climb took us up into the Arid Regions, a dry rockpile section with much loose rock reminiscent of many of the Nullarbor rockpiles. A 15 m abseil off a very dubious ancient bolt with several falling rocks just to make it interesting then led back down toward the stream bypassing a sump. Digging by HTG in Feb 1990 connected Ringlefall to Blind Mans Bluff Cave and St Benedicts Cave bringing the potential 50 km system one step closer. Negotiating this connection involved bailing a very muddy sump for about 1/2 hour whilst building mud dams to hold back the water. You have to sit in this mud so we all got very dirty, this was only a warn up. We all then free dove through a slightly wider than shoulder width tube full of liquid mud about 1.5 to 2 m long, fortunately very shallow, and clambered up a steep

muddy slope on the other side. This has to be experienced to believed! As all the abseils were pull downs there was no choice in the matter. I must admit that seeing Pete then Ron disappear into the mud but having no idea as to the length, width, depth or shape of the sump was a little unnerving. The rest of the cave is clean by comparison, you only stagger through lovely well decorated stream passage in mud up to your waist. A small inlet in the floor on the true left took us to the entrance of Blindmans where a 20 m prusick followed by a climb and another 10 m prusik led to the heavily vegetated entrance doline. A very varied cave well worth visiting, a quick trip taking about 4 1/2 hours if you can keep up with the local guide.

Whilst we were in Ringlefall Jason, Brett, Mark, Phil and Ian went to Luckie Strike, a sporting streamway and the sinking of the Waitomo Stream. Some minor route finding problems without a guide resulted in an excess of traversing and 5 hours were spent in the cave.

That night saw the annual Gloworm Plucking spectacular in the Waitomo Caves Tavern, an event attended by several hundred spectators, locals and tourists, cavers and non-cavers. The objective of the exercise was for teams of three to haul using a 2:1 pulley system each team member in turn up a rope attached to the roof. At the highest point one grabs the gloworm (a cyalume stick) held up with velcro, at which point they are lowered (dropped!) by a non-team belayer, one of the people who operates the Lost World adventure trips. The cumulative time for most teams was around 60 to 80 seconds. Pat, Chris and Ron had the locals worried, and the entire Tavern deathly quiet, with a first haul split time of only 8.6 seconds. Unfortunately they could not keep up the pace and ended with a final time of about 36 seconds. A team of local cavers set a new record at around 26.4 seconds. After several hours of study and discussion a radical new fast and highly scientific hauling method was proposed by Patrick, but was disallowed by the judges on a technicality (they were afraid the locals would loose). We should return next Easter to see if the locals try and use Pat's technique.

Next day, Sunday, Phil, Jason, Brett, Hilary, Ian and I return to Gardners Gut, this time for the entire traverse of the stream from Helms Deep to the Downstream Entrance. The range of stream passage in this cave is amazing, from large ox-bow meanders, to wide meandering run-through passage, to narrow high rift, back to high wide meanders and finally to narrow tight vadose modified phreatic. Three hours were spent walking through taking photos and looking at the glow-worms. During this time others went to Luckie Strike spending three enjoyable hours.

Monday was the *piece de resistance* of the trip, Mangawhitikau, arguably the best streamway in New Zealand, a streamway that makes Tuglow seem a muddy little puddle, and makes Wyanbene pale into insignificance. This stream passage is in places continuously over 10 metres wide and soars up out of sight of the carbide and electric lights, truly awe inspiring. We split into two groups with several locals tagging along for fun. Those of us wanting a quicker less tiring trip zoomed downstream with Dave Smith, whilst those wanting a slower pace waded upstream with Cathie and Pete. A wet suit is a must for this cave, long exposure in the cool water even in a full 5 mm diving wetsuit is uncomfortable. The Downstreamers, Dave, Pat, Jason, Brett, Ron, Chris and Myself entered by the Long Tomo entrance then waded and swam with the current for a considerable length of time before a sump was reached. Not wishing to free-dive a 60 m sump we backtracked until a 10 m climb took us up into the Grinsted Levels. Here we met the Upstreamers who were about to become temporary lost, finally ending up back in the main stream thus by-passing the sump. A further several hundred metres later we climbed into Gollums Passage, a narrow inlet stream, following it upstream to the Deodoriser entrance. This infamous 30 m aven is so named for its ability to drench as you abseil, or worse prusick, through the small waterfall emanating from the top of the aven. A very enjoyable and fun exit to this six hour caving trip.

Hilary, Derek, Mark and I went for a drive on Tuesday to the coast for the day whilst Phil and Ian prospected near Hollow Hill finding a large cave about 1 km long, but unfortunately already known to the local speleos. Kieran led 4 of the hardiest or foolhardiest, Jason, Brett, Ron and Chris back to Mangapu to free-dive the downstream sumps. I had intended going on this trip, but having hurt my leg in Mangawhitikau, I thought it better to leave it to the next Waitomo trip. The party abseiled into the cave by Auckland Hole, Lost World being used for a commercial trip, and attempted to keep up with Kieran through more sumps than he had told them about to exit via Hamilton Hole. Chris showed he had the ability of loosing bits (pack and gumboots) at the most inopportune moments which then had to be dived for. Ron did have a mask for diving, but it was in the pack at the bottom of the sump!

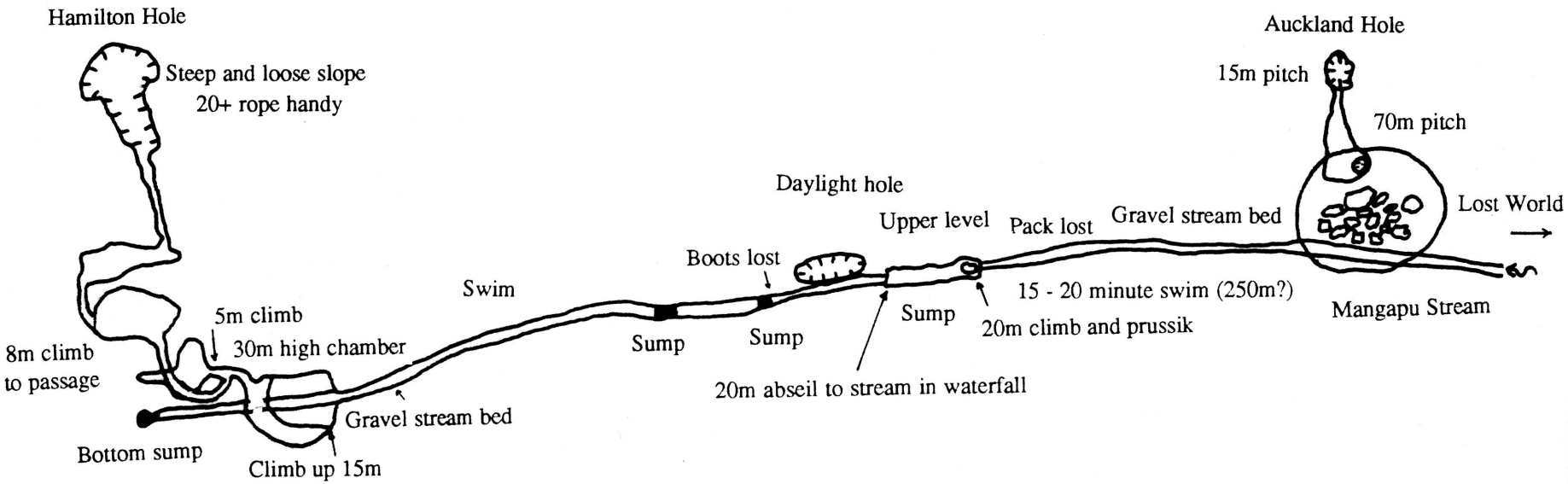
Later that night Cathie took us on a quick trip through Ruakuri. Black Water Rafting (BWR) runs commercial trips through this cave in which anybody can walk then float through in a wet suit and inner tube jumping waterfalls and marvelling at the glow-worms. A variation on this trip is also run by BWR where you abseil in via a 20 m tomo, make the way through several hundred metres of passage and then do a Tyrolean traverse (flying fox) across the river in the cave before floating out. Both these trips are very well organised, are very popular with the public and are good value.

Wednesday morning saw the washing and packing of gear in preparation for the return to Australia. Jason, Brett and I stayed on until the following Sunday driving to Rotorua and Lake Taupo. We then drove south to Mt Egmont before returning to Auckland to fly home.

The caves at Waotomo are a little colder than most in NSW, thus thermals are definitely a necessity especially as you will probably get wet. Longer immersion caves such as Mangapu and Mangawhitikau definitely require a 5 mm wetsuit. Cotton overalls are marginal in the wetter caves and totally inappropriate in the swimming caves. Nylon caving oversuits or PVC's should be seriously considered. I found gumboots great, especially when worn with wet suit socks, they keep out mud and all but deep water and wear very well. PVC gloves also protect the hands and keep them a little warmer. The problem is getting gloves small enough to fit comfortably as most 14" industrial gloves only come in large sizes, ie. size 81/2 and larger. Good 11" gloves are sold at Sole Pattinson Chemists, "Glovelies", and come in smaller sizes. FX2 lights were used by most of the SUSS members, these are good in that they are small, give a reasonable light, can be recharged from a car or 240V and can be taken on aeroplanes unlike our gel-cells, they are, however, expensive. Phil, Pat and I exclusively used carbide, Ian periodically, and found the light output very satisfactory. In remote areas they are definitely the only way to go, but they are messy and require constant attention. For example, at one stage an old jet on my carbide blocked whilst I was using electric, several minutes later the pressure build-up blew the jet off and the lamp erupted in flame. I am told the 30 cm flame looked very spectacular, great light but not very practical.

Several words come immediately to mind when describing caving at Waitomo, wet, wild, pretty, and friendly; fantastic horizontal caving at its best. There is not a lot of vertical work at Waitomo, but what there is complements the horizontal passage nicely, Lost World must be done to be believed, the Deodoriser is also fun. Every Australian caver should visit Waitomo at least once in his/her caving career.

There **will** be further caving trips to New Zealand in the near future, see me for details.



Mangapu Cave Downstream of Lost World,

Waitomo, New Zealand.

Grade 1 Sketch by Jason and Brett Moule. Drawn by R. Wray.

Downstream Mangapu

Brett Moule.

We woke this morning to another beautiful day at the Waitomo HTG Hut. There were five people wanting to match their skills with New Zealand's Super Caver Kieran McKay by accompanying him on a trip into Mangapu, this time downstream from Lost World.

The five foolish people where Pat, Chris, Ron, Jason and Brett. Unfortunately Pat couldn't make it a the last minute as he had some unfinished business to complete, but he drove us to the entrance anyway.

After changing into our wetsuits and SRT gear we thought we should all gain some more energy by eating a 'Moro Bar' so we might have a chance of keeping up with Kieran, but our hopes were quickly dashed when he produced an 'Energy Max Moro Bar'.

We entered via Auckland Hole which has a brilliant 70 metre abseil in thorough the roof of an enormous chamber, Lost World being used at the time for a commercial trip. We then climbed down a rockpile into the streamway which even in a wetsuit felt absolutely freezing compared to other streamways we had been in. We all then swam downstream through a beautiful passageway covered with a really nice orange flowstone with stalactites hanging everywhere.

After about twenty minutes of swimming, which was rather hard in the freezing cold water whilst being wrapped up in SRT gear, we had to climb out onto a rock for a rest. Chris and Ron decided to change packs, and whilst doing so they inadvertently dropped Ron's pack, which contained all his SRT equipment, into the three metre deep water. This was no major drama as Ron had bought a mask for occasions like this. One minor technical hitch soon became apparent, the mask was in the bag at the bottom of the stream. After several attempts by Kieran, Ron and Chris they finally found it.

Meanwhile Jason and I were prusiking up a twenty metre rope that had been rigged about fifteen years ago and had a really 'dicky' detach point. Once we were all up the pitch we walked along a path for about one hundred metres before abseiling down a small waterfall underneath an enormous daylight hole back into the main streamway.

We then free dived a sump, where Chris, to make sure he got through, kicked fairly hard,and when he surfaced about ten metres past the sump politely told us that he had lost both his gumboots along the way. Kieran found them on his first dive, this time with the aid of Ron's mask.

We again swam onwards for about five minutes before diving another sump then continued to swim for another ten minutes. We finally arrived at the exit point where we started to climb out via a series of very exposed climbs. While the rest of us were climbing up one cliff, Kieran found a new way and instead of climbing up like normal people he just walked up.

We exited the cave via Hamilton Hole tired but content after four hours of trying to keep up with Kieran and battling the freezing waters of Downstream Mangapu.

HCG 1992 TRIP TO CHILLAGOE AND MITCHELL PALMER.

Phil Flemming.

Trip Members: Phil Fleming, Derek Hobbs, Brett Moule, Jason Moule, Dave Scascighini

Friday 19 June and Saturday 20 June 1992.

The expedition left Sydney at 2300 hours and drove to Rockhampton via Tamworth, Warialda, Goondiwindi, Theodore and Mt Morgan. Along the way we stopped to look at Isla Gorge National Park. This has some fairly impressive weathered sandstone pinnacles and many overhang type cave entrances were seen from a distance.

Driving down into Rockhampton from Mt Morgan afforded good views of "Rocky" with the volcano-cone profile of Mt Etna readily discernible to the north of the city. Driving time to Rocky is 19 hours. We were put up Saturday and Sunday nights by CQSS, whose hospitality simply excelled.

Sunday 21 June 1992.
Helmets, overalls and lights came out for the first time this morning and we headed off to look at the Mt Etna "Scientific Reserve" with Andrew, one of the veterans of the original campaign and blockade. QNPWS has constructed a boardwalk over the karrenfield to Bat Cleft which is a deep and impressive looking rift. Visits to Mt Etna are subject to permit but despite being a National Parks controlled reserve permits are not issued for days when quarry operations are in progress (ie weekdays!). Andrew took us through "Strong Word" (E3), a short, but pleasant, sporty cave. We also looked at "Carn-Dum" (E15), where evidence of Ghost Bats was seen in the shape of their left-overs - a pile of feathers in one instance whilst a fresh pair of bat wings, minus the bit in the middle indicated a recent meal. The "former" main Ghost Bat roost, "Speaking Tube" (E7) is inside the quarry. The quarry operator, Queensland Cement Limited, went to considerable trouble to destroy this cave in the later stages of the Mt Etna Battle. As well as blasting, the way down from the main entrance has been filled in with cement and the other entrances filled in with rocks and crushed limestone. The lower levels of this cave are probably still being mined away.

Sunday night CQSS put on a top barbecue for us and briefed us on what to expect at the Mitchell Palmer, where to camp etc. Special thanks go to CQSS president, Peter Berrill and his partner, Dianne and Noel and Jeanette Sands for putting on the barby and billeting the group. Andrew and Clive of CQSS regaled us with stories of big rocks falling on top of you up at Palmerville.

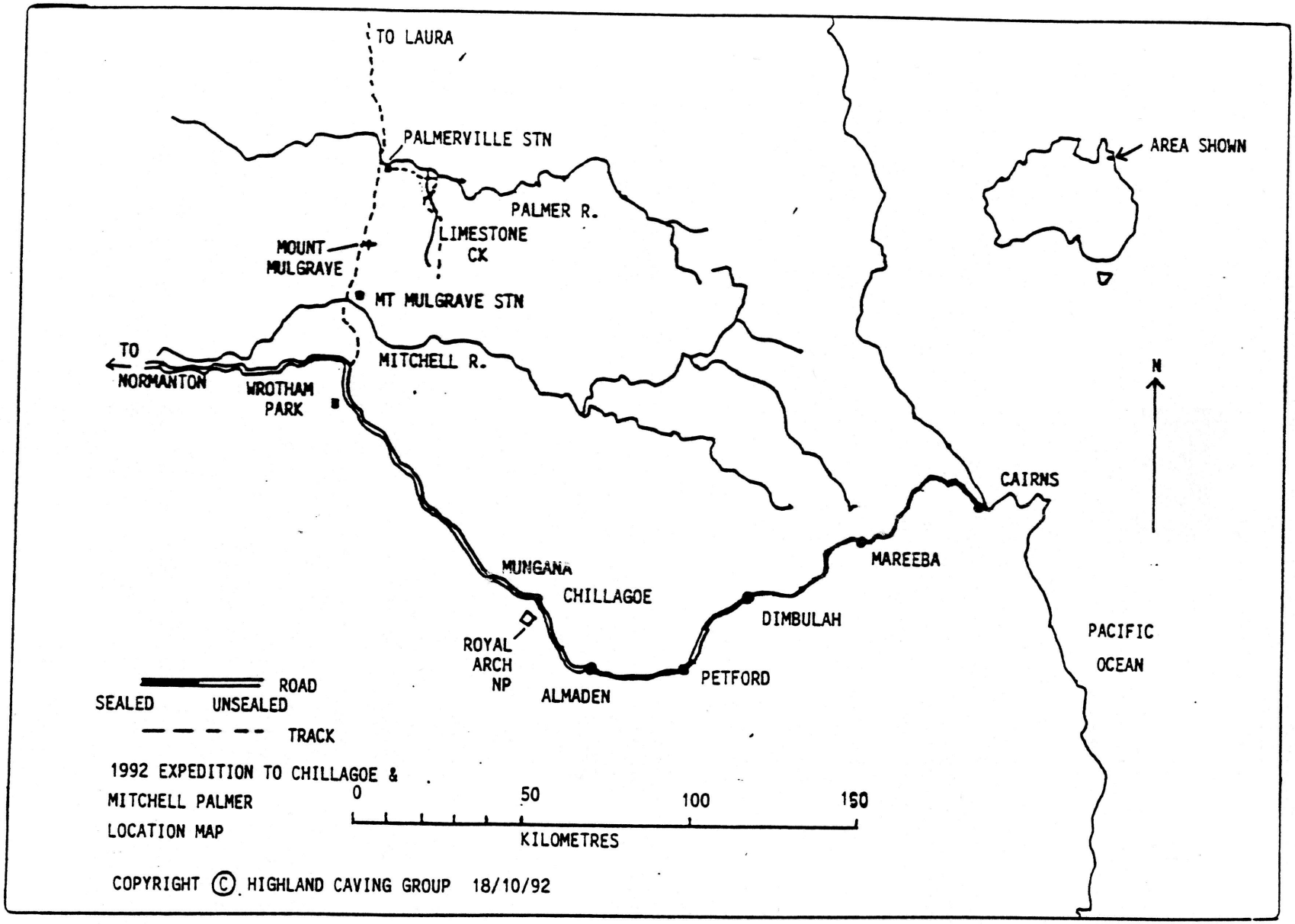
Monday 22 June 1992.
Leaving Rocky at 0930 we stopped at Mackay for 4 hours to do shopping and generally bugger around and then drove straight through to Chillagoe, arriving at 0545 the following morning, Tuesday 23 June.

Tuesday 23 June 1992.
After driving around the backblocks of Chillagoe, we headed out for Royal Arch National Park, arriving in time to see the jagged pinnacles of Royal Arch Tower silhouetted by a brilliant red sunrise. Strangely, only Phil was in a state of exhaustion and was allowed an hours sleep whilst the remainder went caving only to find a steel gate blocking further progress. After breakfast an "orientation" drive north to Mungana degenerated into a caving trip. Haunted Tower (CH5251) being close to the road was looked at intensely for several hours.

The main entrance (CH1) was located and the cave explored, photographed and some rubbish removed. A visitors book found near the entrance was in a state of disrepair and so was removed and presented to the QNPWS Ranger with an offer to reinstall a new book - something we forgot to do, maybe next time. The lower levels of this cave exhibited some unusual decorations including mammary-like pendulite formations. A number of false floors were observed in the cave, also tree roots, bats and a huntsman spider.

Tuesday afternoon was spent looking for a camping spot on Chillagoe Creek, but the spots closer to town were taken. Travel over several kms of very rough track brought us to a creek crossing with a nice pool, shade and mosquito's. We had lunch and headed back into Chillagoe and again out to Royal Arch where we set up camp for the remainder of the trip. Contact was made with Ian Lister and Jim Evans QNPWS Rangers in Chillagoe, who proved to be extremely friendly and helpful, allowing us to use their facilities for recharging of lights and storage of our Engel car fridge.

Wednesday 24 June 1992.
The morning was spent reorganising camp but we eventually managed a late start out to Suicide Tower (CH5231).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1992 EXPEDITION TO CHILLAGOE & MITCHELL PALMER LOCATION MAP
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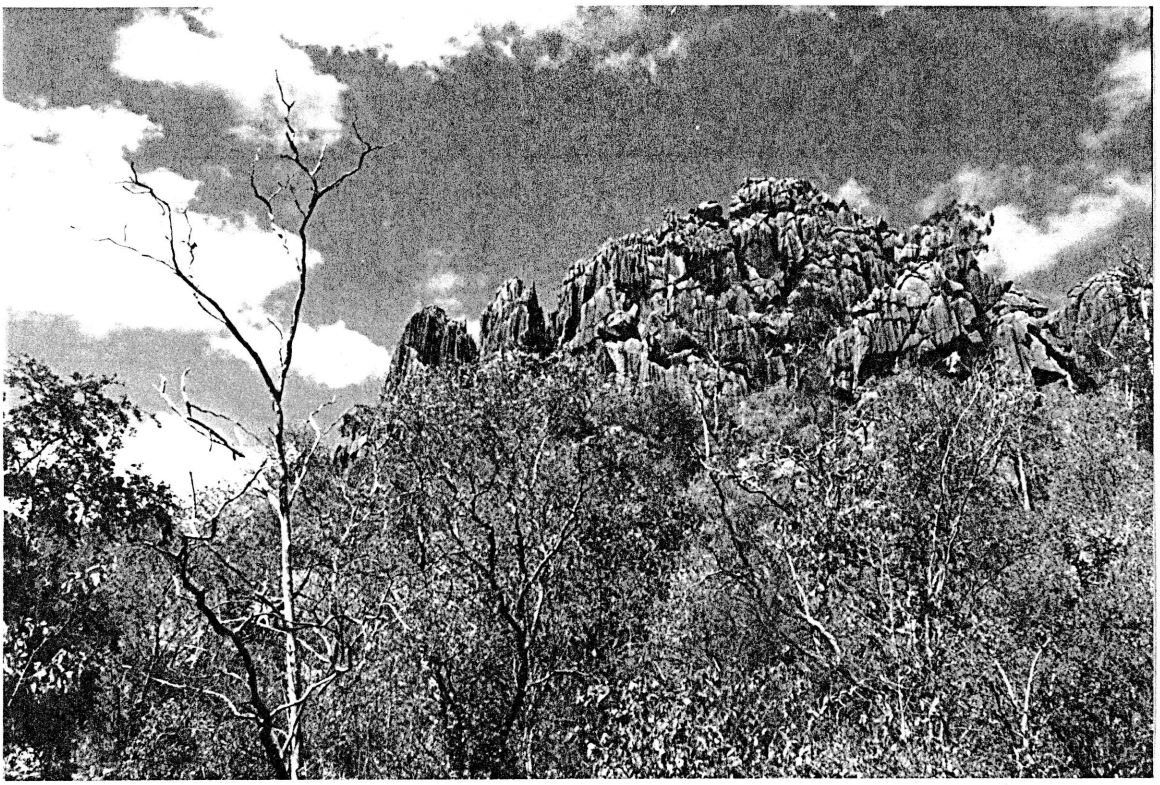
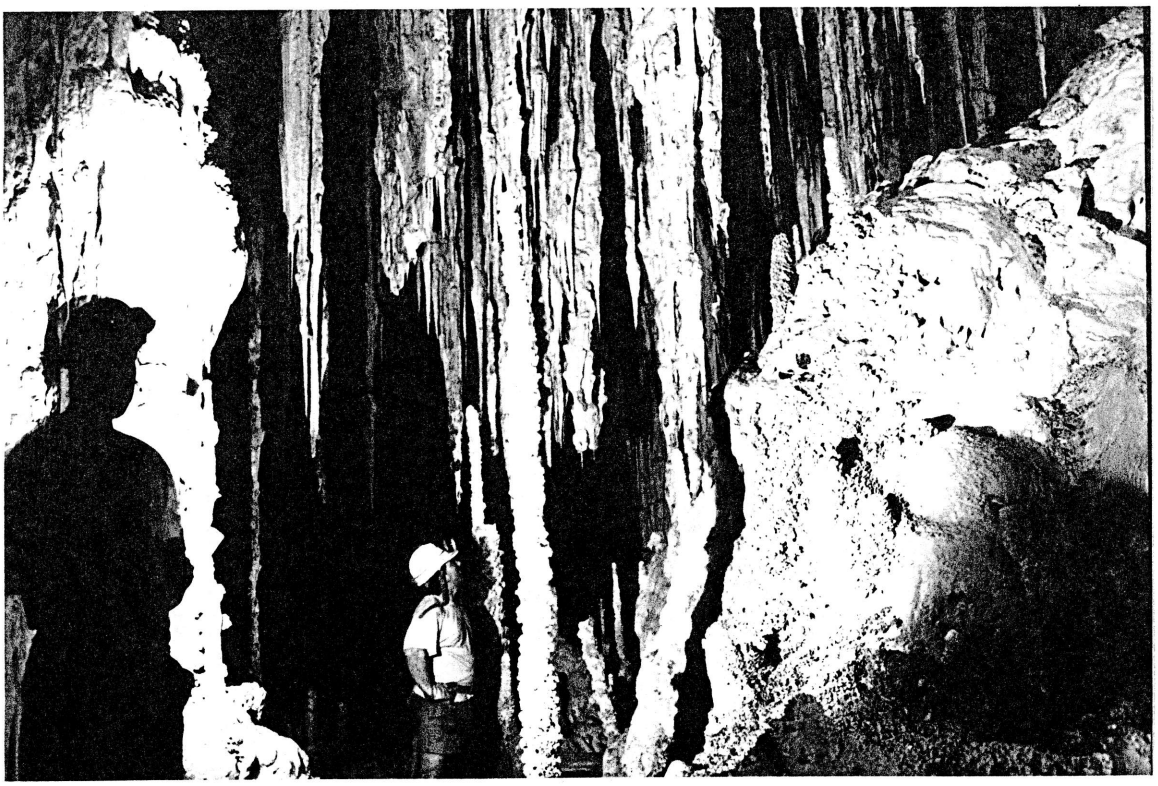
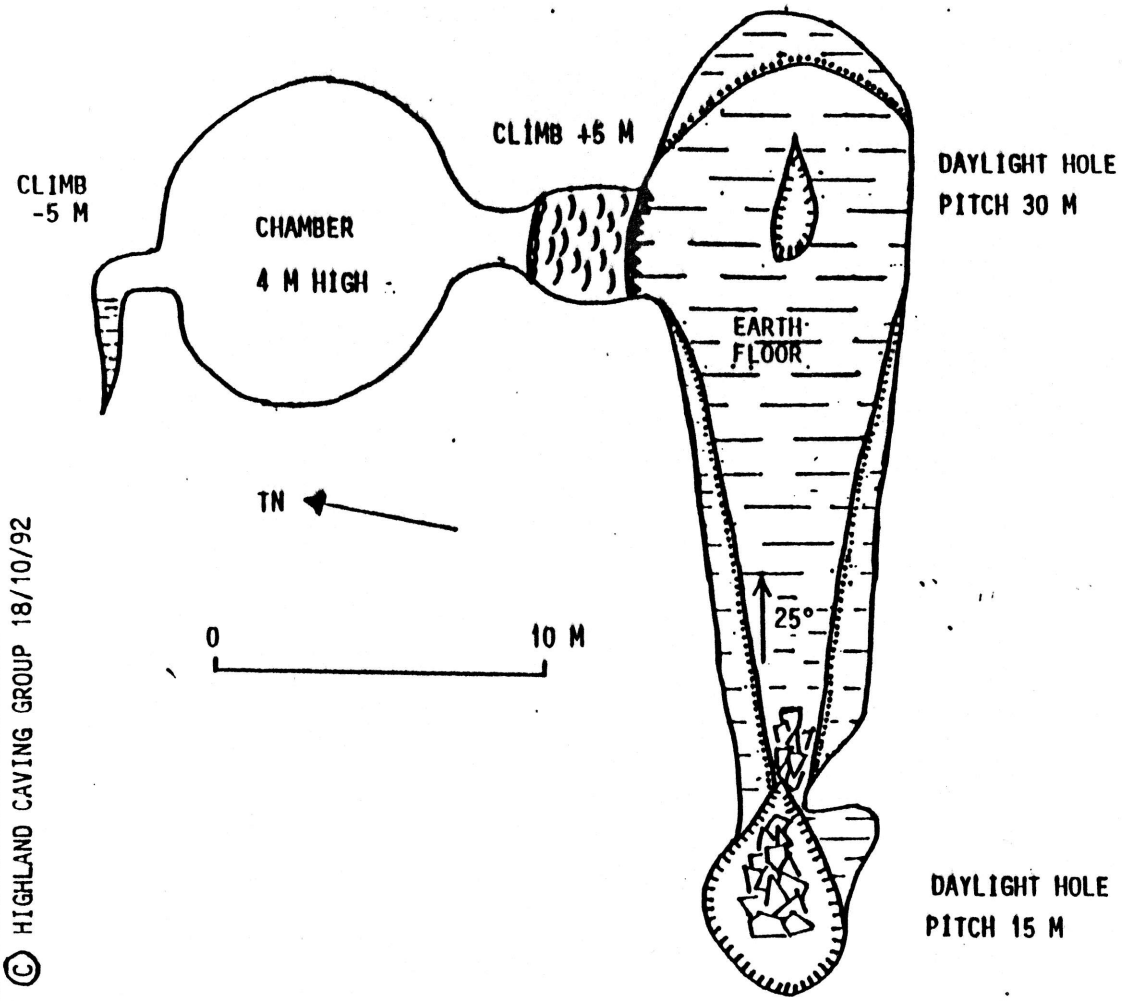


Queenslander Tower, Chillagoe, Queensland. Photo Brett Moule.



The Organ Loft, Cathederal Cave, Chillagoe, Photo Brett Moule.



HIGHLAND CAVING GROUP

"HAIRY SPIDER POT"

MITCHELL PALMER AREA NORTH QUEENSLAND

LOCATION: TOWER MP 5092-4

SURVEYED: P. FLEMING & B. MOULE 1 ST JULY 1992

SURVEY GRADE: ASF 3.3 SILVA COMPASS-DISTANCES ESTIMATED

Suicide Tower contains the deepest caves at Chillagoe. The "Christmas Pot" (CH144) and "Squeeze Pot" (CH169) entrances were located and CH144 rigged and abseiled. This pitch (36.5m) has a piece of railway track to anchor off, and a deviation tape (own carabiner needed) about 10m down gives a free hang to the bottom of the pitch. Heading from the entrance chamber a 10m pitch was encountered and laddered. The lower levels were looked at and led to a sump requiring a very thin caver to negotiate the last 3 metres or so. Jason went down and reported the water to be crystal clear with visibility (down) estimated at 10-15m. This is one of the few instances of phreatic water in a cave at Chillagoe . CH149 Chamber was visited, and bone breccia was observed by Derek and a fairly complete skeleton of some type of large carnivore (as evidenced by shape of teeth) was found near the CH 149 daylight hole, no doubt through which it had fallen. Returning to the "Christmas Pot" entrance pitch we set off to find the way through to "Squeeze Pot", out of which we intended to exit. Heading north brought us to an upward chimney and then a very tricky chimney down (requiring 5m tape) followed by an exposed climb down to a long narrow rift with a dirt floor and wildlife - children's python and a cane toad. The climb up the other side of this rift was extremely smooth and very exposed. Jason and Phil disagreed at this point as to whether this was the way to Squeeze Pot, but if it was (which it probably wasn't) the degree of exposure would rule out the climb. We returned to CH144, by which time it was 1800 hours and the cave's swiflet population had returned. The swiflets were annoyed by our presence and responded by crapping on Phil's head. We all prussiked out and got back to camp about 2000 hours.

Thursday 25 June 1992.

Another late start! It was afternoon before we got to Queenslander Tower (CH5246). This is a very large tower and complex cave system with 10km of passage surveyed. We located and entered the CH15 (Cathedral Cave) entrance. Cathedral Cave is an old tourist cave and the name is appropriate - huge chambers, high ceilings and daylight holes, with a church-like silence pervading throughout. Good examples of phytokarst were observed in vicinity of the daylight chambers. We all passed through "The Dig" to the "Ice Palace" and "The Root" (tree root that is). After climbing "Pages Pass" we went on to CH51, the main entrance chamber, then to "Sisters Cave" back to CH51 via "Junction Box", and then to "The Avenue". Back at CH51 we climbed out via the big limestone slab and the stinging tree (CH51 is described as a walk-in entrance - it is, but getting to it is not, requiring an easy 5m climb which doesn't look easy!).

We afterwards spent an hour or so looking at Chillagoe Smelters.

Friday 26 June 1992.

By now we're getting up earlier. Jason, Brett and Phil got away by 0930 to visit "But Good" cave (CH133) on Royal Arch Tower (CH5158). Laddering into first chamber, where we had observed nesting swiflets during the January 1989 visit, no swiflets were present but remains of nests easily visible. The main pitch (20m) was then rigged and abseiled. A bundle of hair roots (100-150mm thick) now extends down to the very bottom of the pitch! This cave has some very nice dry decoration, but a lot of breakdown is occurring most notably an exfoliation-like effect on secondary calcite deposits. In some instances several layers of flowstone appear to have peeled away from the underlying rock. We all followed the cave around to CH291 entrance, but further progress to lower levels (and on to Frog Castle CH289?) required a 10m ladder (didn't have - take one next time). Exiting cave through the infamous "shredder" entrance (a small solution tube between CH291 and CH133 lined with razor sharp phytokarst) required a difficult and exposed climbing move relying on detachable handholds just to get into it - not to mention the feeling of tearing skin and clothing getting out of it. The Moules thought it great value. Jason free climbed up and then belayed Brett and Phil on the climb. Friday afternoon visited Balancing Rock and an aboriginal art site. Phil and Brett walked back to Royal Arch via the

walking track arriving just on Sunset - a really pleasant and interesting walk.

Saturday 27 June 1992.
Drove to Palmerville Station today. The Walsh River was very low but still flowing. Along the way we stopped at the Mitchell River crossing for lunch. This drive takes about three hours (excluding stops). Some very nice agate specimens were found at the Mitchell Crossing, so this spot is recommended for rockhounds. The Mitchell River was low at the crossing (about 200mm deep) but opened up into an enormous lake downstream. At Palmerville we met Mr George Wilson and Mrs Wilson, then headed down to Limestone Creek crossing (adjacent to Tower MP5090) and set up camp. The creek had a large swimming hole and was an oasis in an otherwise totally dry landscape. A flock of half a dozen palm cockatoos were seen to pass overhead each morning heading north and returning each evening.

Sunday 28 June 1992
Spent all day today surface trogging Tower MP5092. Although no entrances are shown on the surface map (4MPCCC10-010) a number of tagged entrances were found and a large number of untagged entrances. Outcrop MP5092-4 has an aboriginal art site (stick figures) at MP214. This site is located in an overhang on a terrace 10-15m up from the base of the tower and can be reached by scrambling over boulders. We later learnt that art sites are not necessarily at the base of towers, but if higher up, can be reached by some route which doesn't require walking over rillenkarren or other sharp rock features. Brett and Phil found a doline with a dirt floor and lower entrances on the western outcrop perimeter in a karrenfield at grid ref 9370 1515(Map 4 MP CCC 10-010). Also two impressive shafts were found in an E-W running grike atop outcrop 5092-1. MP222 was visited and explored to a large chamber with pitch. Jason went down pitch hand-over-hand on tape whilst rest waited and Derek slept. Traversing in a clockwise direction from MP222 around outcrop MP5092-1 revealed a large rockfall area with numerous small entrances, generally leading to pitches. Some of these holes were breezing. Large grikes running in an E-W direction were noted on this tower, some extending to the tower perimeter.

Monday 29 June 1992.
Got away early (0800) and went to look at tower MP5090. Both authentic and forgery aboriginal art sites (MP118 and MP119 respectively) were visited. At the forgery site, the paint tins used by the artist were found secreted under a rock, whilst further down in the cave near the northern wall a fragment of lower jawbone was found by Derek, who tentatively identified it as human, possibly a young child. This fragment was replaced. MP119 leads via a crawl and some climbs to a number of chambers with pitches to lower levels and through to a large daylight hole on the opposite, east, side of the tower with an exposed climb out. Phil and Dave explored MP120 "Grubby Knees Cave" which is accurately named and leads into low chambers with pitches to lower levels. Following morning tea we drove north and followed Maytown Road to the vicinity of tower MP5142. Peter Berrill of CQSS had asked us to check a small cave at the southern end of this tower for evidence of ghost bat feeding or habitation. The entrances indicated in the CQSS trip report were thoroughly checked out, including the aboriginal art site and no evidence of ghost bats found. The eastern side of this tower was surface trogged with disappointing results and only some small entrances were found.

Tuesday 30 June 1992.
Set out early (0830) to visit "Big Mac" MP142 and inspect ghost bat roost. Derek found a new aboriginal art site at northern end of MP 5132 with stick figures and Quinkans (ie "spacemen" type figures). We subsequently learnt from Noel Sands that this was quite a find: Quinkans have never before been found at Palmerville. They are usually seen further north in the Laura area. At 1000hrs, Dave Scascighini pulled a large loose (50kg at least) limestone block down on himself and was very lucky to escape with only a very deep and long gash to his LH ring finger.

Derek Hobbs took charge of the casualty and after cleaning, dressing and splinting

the wound in the field, the Flying Doctor was called from Palmerville and agreed to pick up Dave at Mt Mulgrave Station, about 1.5hrs drive from the site of the accident. The Flying Doctor took Dave in to Cairns where the Base Hospital cleaned, x-rayed and stitched up the wound. Dave later rejoined the trip in Chillagoe. This was the end of the days caving for Derek and Phil who didn't return to the Limestone Creek campsite until 1500hrs.

Meanwhile, the Moule brothers had been off exploring Tower MP5092. They entered the eastern side of outcrop MP5092-1 via tagged entrance MP216 which led into a mazy system inside the outcrop with a number of large chambers developed along E-W running rifts.

Wednesday 1 July 1992.
Back to MP5092, Brett and Phil rigged "Hairy Spider Pot" on 5092-4 and abseiled down, exploring and surveying the small cave at the bottom of the tower.

With a rebelay off a small rock pinnacle on the northern side of the rift (not the loose rock! much care needed in rigging), a 30m freehang can be obtained. The pitch has virgin cave coral and some excellent phytokarst - care should be taken not to damage. A footprint witnessed previous entry. A bat was sighted in the small chamber. A very large dead spider (115mm long x 70mm wide with body 50mm long and 20mm across, colour brown) was found. Also, small circular groups of polished stones including basalt pebbles were noticed on the dirt floor. These groups had been noticed elsewhere in Chillagoe and MP caves.

Afterwards, Brett and Jason led a conducted tour through the MP5092-1 system. This system has a number of large caverns developed in E-W rifts, is the last cavern just prior to reaching a daylight hole on the opposite site of the outcrop. Enlargement of the cavern has occurred by collapse of a massive v-shape slab from the roof of the rift. Development of a small cavern has also occurred in a rift running parallel and south of the main rift.

Departed campsite 0800 hours and drove to Chillagoe to collect Dave. Then drove to Milaa Milaa and did the "Falls Circuit". Camped at Henrietta Creek, Palmerston National Park for the night in rainforest, it rained, Derro snored, fireflies flew and we saw some platypuses (or platypi). Left 0800 Friday and drove to Rockhampton arriving 2230. Stayed with the Sands Friday night. Noel was all packed and ready to go to Mitchell Palmer on the CQSS trip when we arrived. Noel and Clive left very early next morning. Saturday morning, Phil dropped off at Gladstone Harbour for a trip out to the Swain Reefs. the rest of the group drove back to Sydney in one long hit, arriving Sunday morning.

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CQSS for putting us up (and putting up with us) both on the way up and back.

Future Expeditions.

Tasmania 27th December 1992 to 17th January 1993. Caving at Mole Creek including Kubla Khan, Croesus, Wet. At Ida Bay Exit, Entrance, Midnight Hole etc. Junee-Florentine to explore Khâzad Dum, Growling Swallet and other minor insanities. Phil also plans Tassie late next year.

New Zealand. Easter 1993. A return trip to New Zealand, to Takkaka. Other options are Mt Owen or the Ellis Basin, even though it will be cold and probably snowing by Easter. This is mega caving and a high level of fitness and vertical competance is required. See Robert or Phil for information. Christmas anyone?