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Lumen in Tenebris

SUSS

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Finishing The Tuglow Survey with the Unbelievers - by Keir Vaughan-Taylor

"The bigger the fool the bigger the fire", that's what they always tell me. I pile the logs on with carefree abandon, driving back the winters cold and singing every song with the word fool in it. "I'm just a fool in love, don't you know this fool's in love with you again, fools rush in...ouch ! hot !." Despite my top forty dulcet tones, the warmth draws the camping crowd close to the sparkling fire-works and the bottle of port brings forth tales of epics and great speleological achievements. Of course SUSS is full of such tales but never let the truth get in the way of a good story. Rock climbers in the group discuss a dyno- move necessary to reach a small crack in the rock just beyond arms reach. This crack special is in that it is located in an underhang somewhere in France, 500 meters off the deck. This crack has been independently noted on climbs that took place years apart, and yet now remembered well and spoken about with the warmth of an old friend. I piped up and said that when I was there last, the crack had been filled with cement by the locals so as to make it a decent challenge. A seconds tension is eased as they remember I have never been to France....the crack is still safe in its erie.

Camped this night by the Kowmung River we are on our last legs of the Tuglow survey. Robert Wray was on a trip with our group a while ago and had found a new cave in the area. Initial excitement about the new find paved the way to serious documentation and this day Ian finishes the 300m survey of Robert's child, Pushhi. Robert casually mentions the upper sepentineous reaches at the back of Tuglow and we stared at him with disbelief. Incredulous that any such passage could occupy those dimensional coordinates we grilled Robert for a better description and questioned the campfire steaks as to their readiness. The very back of the cave where cavers are sorted from the tourists, the upward going avens beckon and here is the best touristing. Indeed the call of the furthest aven was once answered by our motley crew. Yes we all remember so well the long crawl, the dip in the streamway and tippy fingered streamway crawl , the lie in the water and the wallow in the water. River gravels must be pushed to one side to slide to

advance to a glimmering darkness ahead. And in that darkness rises a beautiful aven, smooth phreatic and with enough room to stand five cavers, all dripping and shivering. "You might be wondering" said the trip leader, "....why I have brought you all here. This is the ultimate lead." This was a lead that quickly choked and there are many such avens and this night on the Kowmung we state categorically all were thoroughly explored and they all choke out. All avens terminate in terribly terminal tiny tunnels only tenable to termites and that's definite.

The unexpected always comes from familiar ground. A person can develop a strong model about the nature of the universe and suddenly it all comes crashing about in some sort of big bang. The model that you might base an entire philosophy upon can at first soundly cast aside whooley thinking but then suddenly, unexpectedly the paradyme is shaken to its foundation by a new ager rebirthing.....in this case afterbirthing. Robert is asked to go over the route description again.....and again....and again.

Is there really any point of describing caves at all. Often in listening to the description of a familiar cave it seems that the quick left turns, expansive chamber sizes and dodgy phreatic loops do not lead anywhere I have been before. Descriptions of an unfamiliar cave can often seem to apply to nearly anywhere. The karst index may well be the sum total of speleological cloud watching. This one looks a bit like man's face with a cave type entrance. But like the King's New Clothes the description presented this night on the Kowmung is accepted by the nodding group but unlike the King's Court each member secretly believes that everyone else is the Fool in the Hill. Robert's Tertiary tunnel was different in many ways, well for one thing its 70 million years old and we haven't been there yet.

The next days investigative caving revealed that it was truly there. The reason that we had never found the 200m long Tunnel is that no-one would ever go to the trouble of making the long journey to the back of the cave, climbing the avens and squeezing the squeezes, grovelling the grovels ..... unless they were motivated by a total confidence that the mythical 1st level of development was truly there.

This belief was instilled by Mr Graham Kates from Hills Speleological Society who had told Robert where to look. Have faith Robert ! Faith took him up an aven to mid height passage and then a crawl passage and another aven that, like a magicians box, seems to terminate but at the very back is a

secret compartment containing another horrible climb and a squeeze between very large and precarious boulders. Here the serpentineous passage of Tertiary Tunnel unfolds. Graham as the fabled first visitor, chose to protect the unspoiled environment by floating above the mud floor and not leave any footprints.

Graham is the source of many Tuglow fables. He once prompted a whooley goose chase in the search for the cave "Fox's Den". It is reported to exist in one of the deceptive dolines of "Horse Gulley Sinks" and has apparently been mapped. During the investigation of the dolines we encountered a whooley sheep pathetically bleeting about its entrapment within a collapse in one of the sinks. The sheep recovery required pulleys and ropes and hauling systems and the operation would have filled the Cave Rescue group with admiration except that the thrashing terrified sheep was not to be a rescue volunteer. The sheep was finally extracted only by wrestling it into a corner and passing it up the pitch like a strangled teddy bear. Fox's Den has apparently disappeared and was certainly buried by herds of stupid trampling sheep.

Back at the camp fire we passed round the Minties and chocolate. The tall flames Fannedtales of foolish epics and the rumour that Australia's deepest cave is in fact on the Pigna Barny River escaped. Ian chewed his Mintie, knowingly winked and told of the Pigna Barny limestone bluffs resplendent with resurgences. It happened that he would be carrying the rope out to the deep stuff in the following week and a support team quickly rallied. If nothing else the enigmatic Graham could give us the full details about the missing bits of the puzzling Tuglow.

Travelling through time and space to a sacred site time warp on the banks of the Pigna Barney river (see trip report), the threatening rain god is held at bay with a large and artistic fire over which the venerable Mr Kates speaks of a climb in France that some bastard had ruined by filling a crack with cement. What about the fabled missing portions of Tuglow we all queried ?

Graham describes Tertiary Tunnel with a variation that could not possibly apply to Tertiary Tunnel. The tunnel he describes routes to an area where there is no possible cave. No-one would even go to those climbing extremes to look for a cave.... unless you truly believed that the cave is there.

He had heard about it from Robert and had gone to investigate this claim of an upper Tuglow tunnel for himself and eventually discovering the passage after carefully considering the description of how to get there. Graham remarked about Robert's uncanny ability to cross muddy chambers without leaving footprints. The deep canyons, the narrow ledges the narrow squeezes and side passages were all features that do not apply to our Tertiary Tunnel description and Ian groans as we realise the Tuglow survey is not yet finished.

Q: Where can you get a garden fork, tent AND a video cassette recorder???

A: At the University of Sydney Resource Centre of course...

For a reasonable price, you can hire all sorts of interesting and useful items for you next SUSS trip, like tents and sleeping bags.

For more information, call into the Resource Centre, next to the Footbridge Theatre booking office.

THE KEY TO A GOOD TRIP

Jenolan, September 5-6 1992

What is it about my trips? This is the second one in a row I've run with only three people on it. The lack of attendance on this trip was particularly irksome as there were initially eight starters, but then Keir announced that he'd like to take some scaling poles into Dwyers and the field suddenly dissipated. Nevertheless, it made for a nice leisurely weekend.

The pace was set on Friday night, with a new record being set for the slowest trip to Jenolan. This was due only partly to the wonders of the new section of the F4 (a ripping 30km/h being achieved at one stage) - much of the six hour transit time was spent dining in Katoomba and having tea with Cecily Bonwick whilst waiting for John to materialise with the key to the cottage. Finally, we checked ourselves into the Jenolan Hilton, and lay in wait for the next day.

The guides hardly looked up when we walked into the office in the morning. They were clustered around their new computer, and were trying to work out how to boot up the tutorial program so that they could find out how to boot up programs. We helped ourselves to the Mammoth key and scurried out, pausing only to invite Steve Reilly to go caving with us tomorrow. "Well, I was going to go climbing or canyoning...oh, and I've got to finish moving house...but I can come, yep!" What a hard life.

Keir and I set off for Mammoth, with Sue settling down with the papers in the cottage. We got into the car. Key to the cave? "Hello again Sue! Just one minor item."

Typically lazy, we unlocked the gate and started driving down the hill - before I realised that I'd forgotten my gloves. "Hello again Sue! No - this time I'm sure we've got everything."

Before entering Mammoth, we had an important task to complete. On an earlier SUSS trip, Steve Reilly had shown Mike Lake a blowing hole near Henry's Hole. Mike had then trecherously gone back with SSS and moved several rocks from the entrance. He made a point of ringing me up to make sure I didn't go back and dig it - taking great pains to

tell me exactly where the hole was so I knew just where not to dig. "And it goes, too!" he said.

"Oh yes, how far?"

"I can get my head in a short way, and I can just see a small passage heading off..."

Well, with encouragement like that, Keir and I were scouring the hillside intent to steal the dig back for SUSS. Shifting a couple of branches, we found a tiny hole with a horribly problematic squeeze in the bottom. After deciding that it wasn't worth causing an interclub incident over, we decided that SSS could keep it and hurried off to Mammoth.

Just as we were crossing Dillon's Creek, however, Keir stopped dead. "Oh, no! I forgot the cave key!" After a quick jog to Playing Fields and back, we were once again en route.

Objective for the day was the Overflow, to check out a small hole that I'd noticed on a trip with Mark Staraj in November of last year. Keir was interested to go there to see if Banjo Paterson was right when he wrote that "around the Overflow the reedbeds sweep and sway to the breezes, and the rolling plains are wide". If he was, then I was interested too, particularly in finding the hole that the breezes were coming from.

We were both surprised at how quickly we reached the Overflow - in fact, we were almost overheating until we encountered the Dry Siphon. Keir sloshed through mumbling something about the air being crystal clear and the white stars fairly blazing at midnight in the cold and frosty sky; but the only thing I could see fairly blazing was his torch.

Coaxing Keir down the sparingly-proportioned Overflow passageway was surprisingly easy - probably because I didn't tell him until later that Mark Staraj hadn't been able to fit through the entrance squeeze. Once in the large room at the end, we climbed into a horribly muddy area in the roof (no leads noticed) before descending into the final sump chamber. Peering into the hole I had come to inspect, I found that if I'd looked closely on my previous visit I wouldn't have needed to come back... it adds a whole extra metre onto the chamber before narrowing to a small crack whence a small stream issues (from the Dry Siphon?) and flows into the sump. One look at the sump was enough to

tell Keir that he didn't feel like bringing diving gear all the way up here, and so we returned, pausing to climb the large aven along the way which again led nowhere. Sweeping and swaying reedbeds were conspicuous by their absence.

Upon return to the North-West Passage, we wandered a short way down the passage - until we found ourselves looking down the 30ft drop from the Guzova. Having come this far, we might as well go on...so we explored the end of this section of cave for a short distance. Getting entangled in the rockpile, we didn't reach the junction with the Infinite Crawl - but we did notice on the way back the diggability of the small sink halfway along the NW Passage. (The potential Starajs amongst you will have noticed that this sink is close to the Guzunda sink - do they both lead to a new stream passage? Unfortunately, digging would be very hard work...).

A prompt exit was made from the cave (45 mins from Mammoth's westernmost point to the entrance); however, basking in the sun was out as drops of rain began to fall the moment we left the cave.

Our early return surprised Sue, who quickly cooked up some Sweet Corn Soup. Thus fuelled, Keir was inspired to do some prospecting - so we were soon climbing precariously around the cliffs above Glass Cave (nice and slippery after the rain). The result was several karst features, but no caves - unless you count J-30, Bonwicks Dig, the upper and lower entrances of which were noticed separately by Keir and myself. The ugly gate on the top entrance to this cave is truly ugly and should be removed - particularly as it is doing absolutely nothing in the way of protection due to the open lower entrance mere metres away.

A fine repast that evening, accompanied by wonderful smells courtesy of Sue's herbs and spices, was topped off by a surprise visit by Steve, accompanied by a flagon of port. When he later departed, accompanied by the flagon but no port, we had decided to go and look at Shatter Cave and other holes on South Mammoth Bluff, including another lead of his. He made us promise to get him back by midday, though, as he had to do some work around the house.

The three of us set off the next morning, Steve armed with a spike for levering rocks with, climbing the gully south of Mammoth to the Wombat Dig (currently bearing all

the hallmarks of a small-scale extractive industry. Likely to require similar efforts and produce similar results was Steve's dig, which appeared most unappetising (although not completely impossible). "Look, guys, can't you see that passage at the bottom?" asked Steve.

"You wouldn't get a rabbit down that!" responded Keir.

Oh well, more searching. A break was taken to look at J-259 (Shatter Cave), a fairly unprepossessing little hole with lots of dead decoration and a wonderful vertical squeeze to enter the lower chambers. On exiting, it was 11:30, but Steve was keen to look around some more so departure was delayed.

Extensive prospecting failed to reveal anything except for a horrible gnat-infested crawlway under some breccia blocks just south of Mammoth. No-one felt like entering, however, so Keir and I headed off to the car whist Steve took a more roundabout route via more potential caves. On his return, Steve was shocked to discover that it was already 1pm. Pausing to drop him off and devour yet another extensive meal, Keir and I then hiked through the Southern Limestone to Paradox Cave. Here, we did some more prospecting, assisted by Keir's field glasses. The drill was to climb one hill, look through the glasses at the other side of the valley to locate possible entrances, go down and up to check them out, then look back and locate other likely leads, descend into the valley once more and climb back to where we were originally. This technique succeeded in locating several wombat holes (accompanied in some instances by unusually friendly wombats) and lots of shadows under rocks - although we did find an untagged hole on the cliff to the north of Paradox Cave that led into a very small dead section of cave.

On the way back, I suddenly realised that the Mammoth key had once more disappeared - this time from my pocket. After much thought, I worked out that the only place it could be was in the small gnatty cave near Mammoth, where it would have fallen out of my pocket. Realising that SUSS's good standing with the guides was on the line here, Keir drove me down to the Playing Fields, and I raced up to the cave where, sure enough, the key lay. We returned to Sydney via "the worst steak I've ever had" (Sue) at Hampton and more coffee chez Bonwick.

So, what did we learn from the weekend?

- Don't go to the Overflow
- Don't go digging with Mike
- Don't go digging with Steve
- Don't go cave-hunting with field glasses unless you have one man on either side of the gorge, linked by radio
- Don't mention Dwyers until you actually get your prospective party to Jenolan
- Don't do anything that requires a key - they're more trouble than they're worth
- Don't believe a word written by that Paterson character - he's obviously never been to Mammoth in his life.

Chris Norton


THE WIZARD OF ID
(Any resemblance to persons living or dead is purely coincidental)
by Parker and Hart
THESE MINERS WANT TO START A QUARRY NEAR KEMPSEY.
WHAT ABOUT THE CAVES, BATS, THE ENVIRONMENTAL IMPACT?...THE...
IT'S ALL HERE IN OUR REPORT, SIRE
A VERY COMPREHENSIVE REPORT, INDEED!
5-16
PARKER

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VNS TECHNOLOGY WATCH: [Mike Taylor, VNS Correspondent]
==================== [Littleton, MA, USA]

Explorers to Climb Active Antarctica Volcano

This year, if all goes according to plan, two explorers will climb Mt. Erebus, an active volcano in Antarctica. One will descend into the crater to measure the temperature of the gases spewing from the lava lake. This information will help scientists understand the role of volcanoes in the ozone layer.

The explorers are robots developed by Carnegie-Mellon University with NASA backing. The endeavor will depend on teamwork between the two machines. A crawling transporter named Virgil will carry its companion, Dante, to the summit, then act as a base station as the eight legged rappeller descends into the crater. A laser scanner will let the machines "see" the terrain they are passing through.

If successful, the mission will help advance knowledge of cooperation between machines. The steel climbers will also give scientists a chance to test robotic technology in harsh environments, training for the kind of conditions they might eventually encounter while exploring planets in space.

{Business Week June 15, 1992}

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PIGNA BARNEY 29 & 30/8/1992

Ian Cooper

PRESENT: Craig Buckle, Ian Cooper (TL), Graeme Kates (Hills) Carol Layton, Steve Keenlyside, Martin Scott, Keir Vaughan-Taylor, Peter ? (Hills).

This was to be the trip of the decade! A completely unexplored block of limestone with nearly 200m of relief and the Pigna Barney River flowing past its base. After a leisurely drive from Sydney, Keir and I set up camp at Woko National Park on Friday night. Half an hour after closing time saw the arrival of Graeme, Martin, and Peter. Next morning, just as we were considering breakfast, Steve, Carol, and Craig rolled up after leaving Sydney at 4a.m. With breakfasting complete we all set off on the final stretch to Pigna Barney. After an hour, 40km, and a lot of CB radio chatter we were at the start of the track into the caves. Here Steve was offered the chance to leave his car as nearly all previous trips here have involved winching cars out in the rain, needless to say Steve drove on.

The car was left at the top of the last descent into Limestone Creek and we crammed into the two 4WDs. The usual campsite was a shitty place literally with ample evidence of cattle in the area. So we decided to drive on and camped next to the Pigna Barney River. After lunch we all took off up the hill and started wandering on the limestone. The limestone was there just as promised and we started prospecting. After having gone our separate ways up the hill we met at the summit and reported no caves! A block of limestone bigger than Mammoth Bluff and no bloody caves!

But all was not lost, we still had to look at the western margin of the limestone. Simultaneously two caves were found. I wandered down a small gully and where it hit the limestone there was a 3m deep pit and stream sink with an impassably tight squeeze at the bottom. This was tagged PB13. Graeme about 200m away found a tight, vertical, vadose solution slot that went down for 3m. This rift narrows down to 0.1m, but a spacious continuation for at least 5m vertically downwards is visible on the other side. This feature was tagged PB14. Alas this is all the excitement the hill has to offer. Steve, Carol, and Craig must have had a premonition since they spent the afternoon catching up on lost sleep. A quick trip into Barrington Cave, (PB1/2/11) was organised and the bats were all encountered near the entrance with wings spread in an effort to cool down. The cave was remarkably warm.

Sunday morning and the true Pigna Barney had emerged with low fast moving clouds and rain. It was time to get out before the road got too bad. Conditions were fine until we got back to Steve's car. From here out to the main road the track is on basalt soil producing a slippery, sticky red clay bog. The use of chains, towing and some winching eventually got the car out after 2 hours. The expression of concern on Carol's face was priceless. With the rain the road out to Gloucester was not the way to go, so we headed west towards Scone. This road is the longer way in but is a much better standard than the Gloucester route. Lunch was at the Moonan Flat pub.

Graeme mentioned a spring in limestone at Glenbawn Dam so that was to be the after lunch entertainment. Now that we were away from the mountains the weather had improved to sunny. A couple of hours were spent wandering around the dam looking for the springs. Near the main outlet the fractured siltstones and sandstones were leaking profusely but these were not our objective. The spring that Graeme remembered appears to have been concreted over by the new enlarged spillway which was leaking near its base. If your worried about floods don't buy a place in the Hunter Valley! After a short picnic in the sun we all split up for the drive back to Sydney.

Finally for the verdict from the Remote and Inaccessible Karst Subcommittee...
Pigna Barney is dead and Hills can have the area back!

Diving in The Gaden at Wellington.

27 June 1992 Armstrong Osborne, Greg Ryan, Keir Vaughan-Taylor

There is no water in Gaden Cave, which makes using scuba equipment difficult. Nevertheless it is essential caving gear since in the depths of the cave there is a deficit of breathable air. Gaden is a tourist cave which has long suffered problems with foul air. At certain times of the year, even in the upper sections of the cave, tourists enjoyed the CO_2 treatment and often the cave had to be closed. Redevelopment works in the cave relocated the entrance shaft near to where the old natural entrance was. Natural in as much as it was blasted open. Greg Middleton's book about Oliver Trickett shows some original maps locating Gaden's blasted entrance and annotated with a comment regarding limited exploration due to foul air. Ventilation is now greatly improved and there is very little foul air available for tourists. All the adventure is being lost for tourists.

Lower in the cave are two tunnels excavated by paleontologists searching for remains of monster marsupial Diprotodons. There are many bones still embedded in the cave sediment and here remain remains representing rich research for the the bone specialists of the future.....work in the past on these digs would have been severely hampered by the carbon dioxide emanating from a nearby shaft called the CO_2 Pit. Years ago in an attempt to reduce the foul air in the cave the pit was sealed with a slab of concrete placed over the mouth of the pit. Even if the concrete could have sealed the gas into the lower part of the cave our investigations on the weekend revealed an upward aven connecting to a tunnel right near the entrance of the cave. The work was never a viable solution to the problem. Over the many years since the concrete was poured, the mouth of the pit eroded and now the slab is precariously perched on crumbly sediment by two of its edges. It's launching date is imminent but I hope to miss the occasion and will urge the authorities to remove it. If it goes down the pit it will contribute to its blockage.

Armstrong Osborne (mega SUSS scientist) theorises that the CO_2 is cause by the precipitation of calcite rafts on a large lake (big enough to float a Manly Ferry) somewhere deep in the pit. This sounds like good science to me and a journey into the pit seemed like a fine undertaking. In years past Armstrong had ventured into the pit with an oxygen cylinder and found that it choked out with rubble crowding into an unobtainable lower

section. He added however that since recent flooding a great deal of the material in the pit had subsided and perhaps like any good cave much of the fill had been swallowed.

The manager of the caves, David Hirne equipped us with a dragor carbon dioxide tester and we took two 90 cu foot scuba cylinders regulators to breath and a shovel to dig. (The EIS gave the go ahead). The tanks were placed inside cave packs so we could wear the tanks and climb and give some protection to the tank. The first stage pressure reducing valves were covered with a plastic bags to prevent dirt from entering the valve but the regulator took the onslaught from the mud and dirt and my dive shop reg service person will get even more employment. The air at the top of the pit was good. As we clambered down the pitch we heard Armstrong arrive. He was armed with his curiosity, a concern for our welfare and a bottle of pure oxygen. Our quest for the depths was postponed while we had a quick lesson in the use of an oxygen revival kit. Nothing like good planning on these technical trips.

At the bottom of the first major drop the air was still breathable but deteriorating and that familiar CO_2tang to the air signaled the use of the scuba. The dragor CO_2 tester was dragged out of the pack. We broke the seals off the glass tube and watch the blue crystals turn saturated blue with one sampling of the air. It went completely off the scale so I think that means a cigarette lighter would have gone out also. Here we grovelled through a squeeze and immediately found ourselves in a garage sized chamber (with a very low roof) half filled with cascading rubble. The walls above the infilling rubble are clean and smooth from a previous large water flow with and in one or two of the sculpted alcoves are mud stained helictite patches. Parts of the uncovered floor showed recent signs that water had collected in the chamber and the dried cracks in the mud indicated that at that area of floor the water wasn't going anywhere. On the right was an aven rising 50 degrees some 5 meters to a blockage of large jammed rocks. Through the rocks I could see a passage beyond which I think is one of the paleontological dig passages but we didn't try for a voice connection at this time.

On the left of the chamber the rubble tumbled into a passage about 0.5m high and 2m wide. Smooth all around and perhaps phreatic. The passage proceeds steeply down. Returning backwards out of this slippery slide hauling a heavy scuba tank was a formidable undertaking so we commenced excavation of the descending debris from the downslope. We

tried to work slowly and methodically. The air lasted more than an hour despite the exertion of digging. After a time the passage became a bit larger and less lubricated with avalanche material.

Both Greg and I had a go turning upside down in the passage and passing debris back to clear a way on. With some clearing of the passage I elected to give a serious try at reaching the lowest point. Greg positioned himself to haul on my flailing legs to aid in module recovery. (Me) At the extent of my body-length the air became very hot and tasted very foul and the passage choked out . The bottom of the choke contained larger angular rocks and I could just see between the rocks that the passage continued down. Slowly I removed some of the rocks from the blockage with some of them tumbling into the hole with promising crashing noises. I worked enough rocks out of the way to put my head through and look. There was a narrow rift pitch dripping about 5m to a walkable passage. The air behind the rocks was very hot and I was sweating from the heat and exertion. More rocks were passed back to Greg who would attempt to recover the rock transport it somewhere above without letting go of my leg or drop the rock back in the hole on me. It was apparent that there is more preparatory digging was needed before proceeding and with air supplies dwindling we "called the dive". We backed out of the passage and climbed back up and out of the pit passing tentatively beneath the perched concrete slab and then up the pitch. After locking the cave and hitting the cool of the night air outside, I remembered that I had left my shovel at the bottom. There was air enough in the tanks for a another trip so we returned to recover our refuse. Just a short trip really and soon we were out again.

In future trips, to reach the bottom of the pitch will require scuba and the downward slope will have to be more thoroughly excavated for easy entrance and exit. This will involve about two hours of digging, breathing through a regulator. The pitch below may be tight to start with and will require a caving ladder to descend probably using a hooker line. Full face mask would be best but who has a spare $5000 to buy one. Next to the chamber there is another small room that we did not enter because of the squeeze but there may be another upward passage in here because this appears to be the main inflow point. There may also be another pitch to the rift beneath but to get in to the annexure requires digging and another EIS.

Keir Vaughan-Taylor

USE AND CARE OF YOUR FX-2

Ian Cooper

Over the last 8 years the Speleotechnics FX-2 nickel - cadmium, (NiCd), battery and light has become a popular choice for cavers. The FX-2 has become the club light for SUSS and some batteries have given good service for over 6 years. This article outlines the technical specifications of the FX-2 and how to get the best from your battery.

SPECIFICATIONS

The nickel - cadmium cell consists of a positive plate packed with nickel hydroxide, $\{Ni(OH)_2\}$, and graphite. The negative plate consists of a mixture of cadmium and iron oxides. The electrolyte is potassium hydroxide, {KOH}. The voltage generated by the NiCd cell is only 1.2 volts compared to 2.0 volts for a lead - acid cell. This lower voltage is the major disadvantage of NiCd cells. The NiCd cell is much more rugged than the lead - acid battery and can be completely sealed.

The FX-2 battery consists of two, 1.2 volt, 5 amp-hour sealed NiCd cells connected in series then wrapped in an aluminium mounting bracket, then completely immersed in a "specially formulated synthetic elastomer". This construction gives a strong compact battery that is very unlikely to leak. The complete FX-2 system weighs 1.3kg and is a good deal more compact than a lead - acid battery.

The FX-2 is a 2.4 volt system which is supplied with a 0.8 amp quartz - halogen high beam globe and a 0.3 amp tungsten filament low beam globe. Higher ampage, (hence brighter), globes can be used, but this is at the expense of battery life. Listed below is the expected life using various globes:-

GLOBE	EXPECTED LIFE
2.4 volts, 0.3 amp tungsten	23 hours
2.4 volts, 0.75 amp tungsten	10 hours
2.4 volts, 0.8 amp quartz - halogen	9 hours
2.4 volts, 1.0 amp tungsten	8 hours
2.4 volts, 1.25 amp tungsten	6 hours

Replacement globes are available in any electronics shop and some hardware stores. A crude form of focusing is achieved by how much the globes are screwed into their sockets.

STORAGE

When storing batteries for any prolonged period it is best to store them in a completely discharged state. Batteries will lose charge when stored with a charge but it is difficult to predict at what rate. This depends a lot on the temperature of the room and the history of the battery. Experience with the SUSS FX-2s suggests that a fully charged battery has lost its charge in about two weeks. In future all SUSS batteries are to be stored fully discharged. (Trip leaders please ensure that the club batteries are **completely** flattened at the end of a trip.)

CHARGING

For all chargers supplied by Speleotechnics the charging time from dead flat to fully charged is 1.5 times the amp-hour rating of the system, ie. 14 hours. Similarly, partially discharged batteries should be charged for 50% longer than they were used. All Speleotechnics chargers operate at constant current but overcharging the battery for a few hours causes negligible damage.

It is best to discharge batteries fully before charging, (deep cycling), but there is no problem in topping up partially discharged batteries during caving trips. Between trips however, one should completely discharge the battery before charging. The best way to ensure the

maximum life for your battery is to deep cycle as often as possible when a recharge is needed. The low voltage of the FX-2 battery suggests that solar recharging would be a practical and relatively cheap, since solar cell costs depend a lot on voltage. This would be handy for backpacking caving trips and expeditions.

NiCd BATTERY MEMORY

A problem with all NiCd batteries is the development of memory. Memory occurs when the battery is partially discharged and recharged the same amount for a few times. The battery then behaves as if this partial charge is the full charge, thus giving a decreased useful life.

Here prevention is the best course of action. If one deep cycles regularly then memory will not occur.. Often memory will be removed by a couple of deep cycles. When using this approach allow the battery to discharge for as long as possible before recharging. For more severe cases placing a large charge across the battery will restore it. This involves connecting the NiCd battery to a car battery for half a second. The connection is made positive to positive and negative to negative. In 90% of cases the battery will be as good as new while the other 10% will be completely destroyed, so there is a risk.This method should only be applied to a battery twice since the third time will destroy the battery. Another method is to charge the battery using a pulsing direct current.

PROBLEMS

A common problem with the SUSS FX-2s has been the breaking of the low beam globe by the reflector. This occurs when the reflector turns with the glass cover plate and the bezel, (the threaded plastic ring that holds the headpiece together), as the bezel is rotated. This damage occurs more through ignorance than by a design fault. The solution is to hold the headpiece glass with your thumb as you either screw or unscrew the bezel. Another method is to place a locking screw in through the threaded hole provided. This locks the headpiece in place and prevents accidental breakage. Oldham lead - acid headpieces avoid this problem by having a pin holding the reflector in position.

Another common problem is losing the small wingnuts that hold the headpiece lead to the battery. The Martin Scott and SUSS solution to this is to drill a small hole in the wingnut and wire it to the headpiece lead. A common fishing swivel is attached to the wingnut to allow the necessary rotation to screw and unscrew the lead.

A factor to be aware of is that FX-2 batteries give little warning when they are running out. There is only about 15 minutes between a noticeable dimming of the light and complete exhaustion of the battery.

BATTERY LIFE

The useful life of an FX-2 battery depends entirely on how it is used and looked after. Factors such as operating temperatures, how the battery was stored, and how fully the battery has been cycled during its life all determine the ultimate battery life. Speleotechnics advise that they expect more than 500 cycles from FX-2 batteries.

The voltage across the battery can be measured as a guide to how charged the battery is. For FX-2s the charged voltage is 2.4 volts and this decreases as the battery is discharged. When the voltage falls to 1.5 volts the battery is completely discharged.

ACKNOWLEDGEMENTS

Information for this article was provided by the Australian distributors of FX-2s, *Wildsports*. Also data was obtained from R. Broug, the electronics technician in the Department of Geology and Geophysics, University of Sydney. A useful reference is;

Ganter, G. 1986 "The Speleotechnics FX-2 Lamp" *NSS News* , Feb. 1986, p43 - 45.
(This article was reprinted in SUSS Bull. 29(2), p. 50-52.)

Wombeyantics

February 29-March 1, 1992

Present: Christina Aenishansling, Michel De Leeuwe, Alison Fenton, Ben Higgins, Basil Kunnecke, Don Matthews, Chris Norton, James Reid, James Roberts, Karl Supit

"Will we get wet today, Chris?"

"No."

"You're sure?"

"Absolutely, positively, unequivocally."

Funny how these things return to haunt you, I mused, as the party sloshed through the metre-deep lake that had formed in the normally dry and dusty Gour Chamber, Basin Cave. What a way to inspire confidence in my leadership style - particularly after bush-bashing up the hill to Basin only to discover a perfectly serviceable path only a few metres away. We delayed getting wet for a few moments, as we went to examine the damning signature of a certain vandalistic Mr. Larkin on a lovely white formation, but we eventually splashed in and started off.

Still, people didn't seem too worried about it, even when deeper water was encountered at the top of the climb up into the basin chamber, where appropriate quantities of superlatives were effused. Although now almost dry, Steve Riley later told us that following heavy rain in January there was so much water pouring out of the basins that it was flowing over the pitch, creating a rather sporting obstacle.

Next, Pyramid Chamber. Basil (from Basel) was surprised to come to the end of the ladder and find that the bottom of the pitch was still some distance further down. But, since no-one was inclined to go back through the water to get the ladder from the last pitch for the sake of a couple of metres, everyone just jumped/slid/rolled down the small slope. Getting back? Worry about that later.

We set off into the mud tunnels, with the resident bats making their presence felt. Leadership was displayed once more when the party obediently trooped behind their confident guide down a tunnel in search of the Grotto, emerging in a huge chamber....however, the presence of Alison and James Reid, who had sensibly not followed my circuitous lead, stopped any premature claims of new discoveries.

A quick exit was made from the cave (after levitating up to the ladder on the Pyramid pitch), getting everyone wet again. As it was still mid-afternoon, and we were pre-moistened, we walked up the creek to Mares Forest Creek Cave for fun teetering on invisible underwater ledges trying to avoid total immersion in the deeper sections. The only thing marring this cave is a huge, muddy handprint on a large, attractive shawl over the breakdown area in the middle of the cave, which should be cleaned off (our excuse for not doing so: we didn't have anything suitable to use with us).

On exiting MFCC, we briefly entered Tinted/Window/Balcony Cave, where most people embarked on the journey through the small tunnels that run off the main passage, after experiencing a rather harrowing downclimb in the main arch area. Many remarked on the fact that it's not very nice to lower yourself further and further down a drop onto a ledge you can't see with a further five metres below you, then teeter across above the drop on a small stal to the relative safety of a false floor shelf. They were pleased that they didn't have to return that way, but were displeased when they found that the alternative involved passages of Mammoth Squeeze proportions.

As it was starting to get dimmer, we hurried back to the campsite to prepare our meals. Imagine our surprise to find the dining hall overflowing with people, balloons and streamers, the tables in the kitchen all crammed with food and the hotplates sizzling up dozens of chops. It seemed that Scotty and Robyn were getting married, and had chosen to do so in a way that caused maximum inconvenience to all others. We set up on the courtyard outside, and soon had a little party going, which was enhanced by the donation of some wedding chops. What we didn't get donated, however, were some after dinner mints - even though they had whole ice-cream containers full.

There's nothing to round off a nice day's caving better than a nice night's caving. So we set off into Fig Tree Cave armed with ten tokens (and emerged with nine), with James Roberts putting on a pristine pair of white overalls for the occasion. Ben, having already had a shower, was less inclined to follow us round, and so he and Alison did the simple tourist trip whilst the rest of us scrambled around the back sections and the streamway, where any superlatives not used on the basins found gainful employment. Once again, the bats were notably absent - perhaps they go to sleep when they think there are no more tourists to buzz. At around 11, we returned to the cheerful atmosphere of glasses of port, and Ben's biscuits and dip, which he'd serendiptiously forgotten to pack away before retiring.

For some, the end of daylight saving means an extra hour's sleep. To an active SUSS group, however, it means an extra hour's caving. So it was bright and early that we headed off to Bullio Cave, picking our way over the comatose bodies of the wedding guests. After the usual fun and games carrying the steel ladder up the slope to the dirt wall in Dry Chamber, we hastened through to the ladder pitch and were soon skidding off down to the riverway, pausing only to take a look at the Finger of Judgment (down another abbreviated ladder).

Only half the party climbed to the top of the mudslope in the terminal chamber, but everyone enjoyed the streamway passage. Karl enjoyed it so much that he went swimming downstream to look at the waterfall. He had been informed that the cave finished just round the corner, but still had to go and find out, in case a heavy dew the night before had caused the river to chip through the final thin flake of rock separating Bullio from Mares Forest Creek Cave making a through trip finally possible. He returned with the news that the cave finished just round the corner. We believed him.

We bounced out of the cave and off to Mittagong for dinner, passing the recently established River Island Resort ("Clothing Optional"). Our new members were surveyed on what they thought of the caves.

Basil: The caves we've been to in Switzerland aren't as wet...

Christina: ...but they have lots more small crawly passages.

(Referred to Mark Staraj for exploration duties.)

Don: Yeah, great - particularly the streamways.

(Referred to the New Zealand Tourism Commission for real streamways.)

Karl: When can I start cave diving?

(Referred to Keir Vaughan-Taylor for tank-hauling duties in Spider.)

Chris Norton

CONGRATULATIONS

Best wishes are due to Christina Aenishansling and Basil Künnecke, who were married on Wednesday, August 5. It seems that after joining SUSS this year, these two Swiss cavers just couldn't resist being swept up by the wave of marriages sweeping through the club. SUSS wishes them all happiness in their life together both above and below ground.

ONE FINE DAY AT JENOLAN

On a recent and purely hypothetical Jenolan trip, five well-known SUSS cavers set off to pursue their own individual projects. Unfortunately, due to a mix-up with cave packs, each caver took the wrong gear.

The following trip report was submitted to the Jenolan guides. Try and help poor Mr. Reilly figure out who went where, with what purpose, and what equipment was taken.

SUSS Trip Report

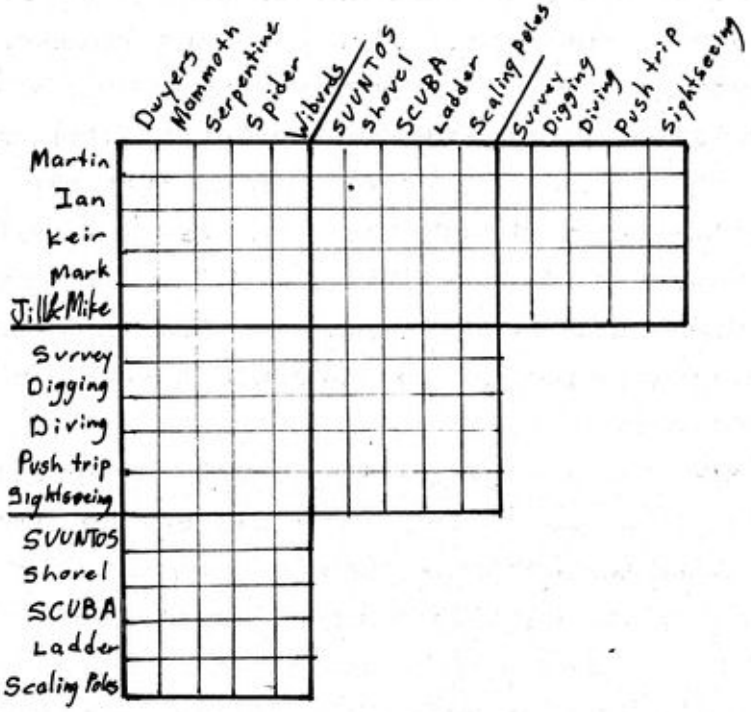
1) Keir was surprised to find the scaling poles, which were to have been used on the push trip, in his pack - but laughed when he heard the SCUBA gear had been used to negotiate the Dwyers mud.

2) Jillandmike went sightseeing in a cave whose first letter is in the first half of the alphabet. They did not go in the same direction along the valley as Mark, and the survey team walked some of the way with them.

3) Ian went to a much bigger cave than Keir, who did not intend to dig.

4) The shovel did not go on the push trip, which was led by one of the geologists, neither of whom carried a ladder.

5) The diving party's cave was passed by Martin's team.



Leader	Cave Visited	Original Purpose	Equipment Taken

Book Review: Local Government Reports of Australia (Vol.73)

You have to hand it to the Law Book Company. Just when you'd written them off as producing nothing but dreary legal texts full of latin maxims and countless repetitions of that longtime favourite, 'notwithstanding', along comes a book with an appeal that reaches far beyond the bewigged corridors of Phillip St to conservation-minded folks in general, and cavers in particular.

There are thirty cases reported in this volume, but the basic plot can be summarised as follows:

In **Vaughan-Taylor v. David Mitchell-Melcann & anor.**, we meet our hero, one Keir Vaughan-Taylor (alias 'the applicant'). His ambition: that David Mitchell-Melcann P/L (the first respondent) be restrained from the mining of limestone on land described in Mining Lease Application 104, Coff's Harbour, without development consent under part IV of the EP&A Act, an approval pursuant to part V of that act, or otherwise than in conformity with a mining licence - a dream that doubtless many will sympathise with. Over the next few pages, Keir is led hither and thither by his Honour Hemmings J (as he then was...), to the ultimately equivocal conclusion that even though the mine was proposing to use area over which it did not have existing use rights, it could go ahead and mine anyway. Too shocked to even contemplate what happened to Annexure B (see p.22), Keir sinks into despond.

The scene now resets to the Court of Appeal (p.115), for the now infamous ruling in **Minister for Minerals and Energy v. Vaughan-Taylor & anor.** Here, Keir wistfully remembers his giant-killing victory (reported in SUSS Bull 31(4)) - where the real villain of the piece was roundly castigated by two of Her Majesty's judges. The closing line "This may generate a suspicion that he has something to hide" (Meagher JA) will send shivers down the spine of the reader.

Heartened by his memory of this past victory, coupled with the Chaelundi case on p.126, Keir steels himself for the final conflict - a showdown to the death in the normally staid surrounds of the Banco Court. Hanging heavily over him, however, are the decisions of the Supreme Court of Queensland in the two cases of **Central Queensland**

Speleological Society Inc. v. Central Queensland Cement P/L (p.218 & 242). "Do the courts have no feeling for small fluffy animals?" he moans in despair.

But his reserve is strengthened by the NSW Court of Appeal's affirmation of the Chaelundi case on p.247. As the Court declares that "...acts done to carry out the proposals now made by the Forestry Commission of NSW for logging and roading activities in compartments 180, 198 and 200 of Chaelundi State Forest will cause taking or killing of certain endangerd species within Scedule 12 of the National Parks and Wildlife Act 1974 in breach of s99 of that Act", Keir exclaims "These folks are my kind of guys!".

And so to the final confrontation, on p366. All eyes are on Meagher JA:

"...(I)llogically, his Honour held, without supplying reasons, that mining was not an "activity" for the purpose of s110, having demonstrated that it was...(I) order that the first respondent by itself, its servants and agents, be restricted from mining the land described in mining lease 1239..."

With this stunning declaration, the book reaches its denoument. The furry bats are safe; the cavers rejoice, the miners throw down their tools in anger and storm off. Unfortunately, the details of the post-case celebrations, including the triumphant gloating of one Mr. Hinch, who has finally backed a winner, are glossed over; however, the reader is compensated with the case of **Dobbie v. Davidson**, which Pat Larkin tells me is absolutely riveting stuff, taking as it does some 44 pages to tell us that 'omission' means 'left out' or 'not there'.

Speleologists will appreciate the fact that this book is sturdily bound in brown hardboard, thus permitting it to be taken on long trips underground with little apparent damage. The book's appeal, however, should be broader. Scott Turow and LA Law have already whetted the appetite of the marketplace for the idiosynchratic world of jurisprudence. This book has it all in spades: suspense, action and human interest aplenty - certainly up there with the best that Craig Thomas, Tom Clancy or Willard Smith could offer. Furthermore, the florid and cryptic language (à la Burgess' Clockwork Orange) guarantee the book cult status. Who knows - maybe we will soon find the words of Mahoney JA emblazoned in soot in Trickett's Tunnel, Tuglow?

Chris Norton

<<< MR4SRV::NOTES$DISK:[NOTES$LIBRARY]GEOLOGY.NOTE;1 >>>
-< Geology Conference >-

Note 100.16 Any karst lovers? 16 of 16
LUNER::COX "Ed Cox: II Cor 10:3-5" 19 lines 9-OCT-1992 15:28
-< Florida cave lore.... >-

This topic has been inactive for a while, but I thought I would contribute two interesting tid-bits.

In Gainesville Fl, at the University of Florida teaching hospital (Shands Medical Center), the entire hospital is sitting on top of a giant subterranean cave. It seems back when they were starting to build it they were hammering pylons into the ground as part of the foundation structure. Well, they gave one a hit, and it just kinda disappeared... After much time wasted trying to fill the silly cave, they gave up and proceeded to build a solid foundation consisting of 18 feet of concrete completely straddling the cave. It must have worked because the hospital is still there today!

Just south of Gainesville and between there and Micanopy there is an area called Paynes Prairie. Back around the turn of the century it seems that people use to commute between Gainesville and Micnaopy by means of a paddle boat across a beautiful lake. Well, it seems that one morning people awoke to find that the plug had been pulled on the lake. A passage had opened up over night which completely drained the lake. To this day it is high (err ah.. low) and dry, and is a beautiful grassland wildlife preserve.

RISKY BUSINESS: AN HISTORICAL NOTE

My article in the last bulletin "Coup D'Etat" described exploration upstream of the usual sump in Central River near The Junction. It was not the first visit apparently. A reference is given in **A Bibliography of the Jenolan Caves Part 1** (compiled by J.Dunkley) to a brief mention of what seems to be the first passing of this sump during a rare drought when the river ceased to flow at all! The reference describes it as upstream exploration although the report by Ian Wood on recent SUSS activities in Mammoth for 1965-66 **(ASF Newsletter No. 31 p13)** itself does not say. It does suggest returning with digging tools and pick to make further progress. I interpret therefore that they had explored upstream but only as far as the Coup D'Etat rockpile. Damocles Lake would still appear to be a new find. It is unfortunate that this reference had been missed when compiling the Mammoth Book. There is no recordof the proposed follow up trip ever occuring.

Mark Staraj

SUSS BULLETIN

Synopses of back issues in stock

Supplementary list to SUSS BULL 32(2)

Year	Volume	Subject matter	Price
1971	11(1)	Colong conservation	$0:30
1971	11(4)	Can't Get Lost (Jenolan)	$0:30
1971	11(5)	Trip Repts: Jenolan; Cliefden	$0:30
1971	11(6)	Trip Repts: Jenolan; Yagby; Tuglow	$0:30
1972	11(7)	Mt Arthur, NZ; Bungonia conservation	$0:30
1972	12(5)	Barralong Cave, Jenolan	$0:30
1972	12(6)	Trip Repts: Jenolan	$0:30
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1974	14(9)	Trip Reports: Bungonia, Jenolan	$0:30
1975	14(12)	Trip Reports: Chevalier survey, Jenolan	$0:50
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1977	16(6)	SRT (Karabiners); ASF Conf '76 (ACT)	$1:00
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1981	21(5)	Lime Kiln Cave, Wellington	$1:00
1981	21(7)	Nullarbor (Pt.I); SRT systems	$1:00
1981	21(8)	Annual reports of committee	$1:00
1982	22(1)	SRT systems: comments on 21(7)	$1:00
1982	22(2)	Nullarbor (Pt.II), Lead-acid batteries	$1:00
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1982	22(6)	Muller '82 (PNG); SRT systems	$1:00
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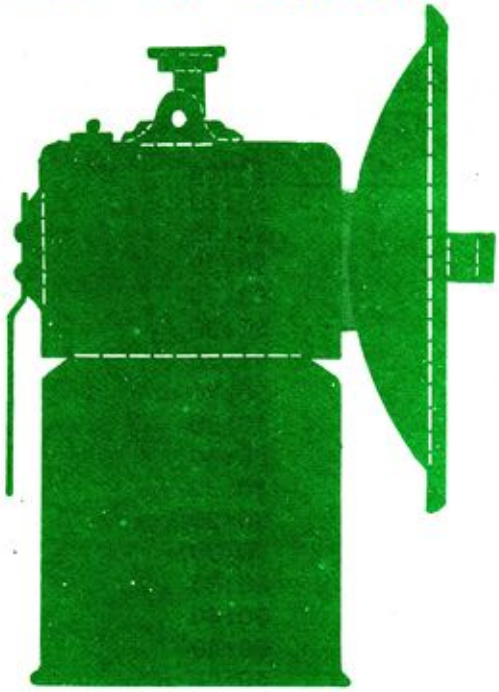
1990	30(2)	Trip Reports: Timor, Jenolan, Tuglow	$1:00

Lumen in Tenebris



SUSS

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