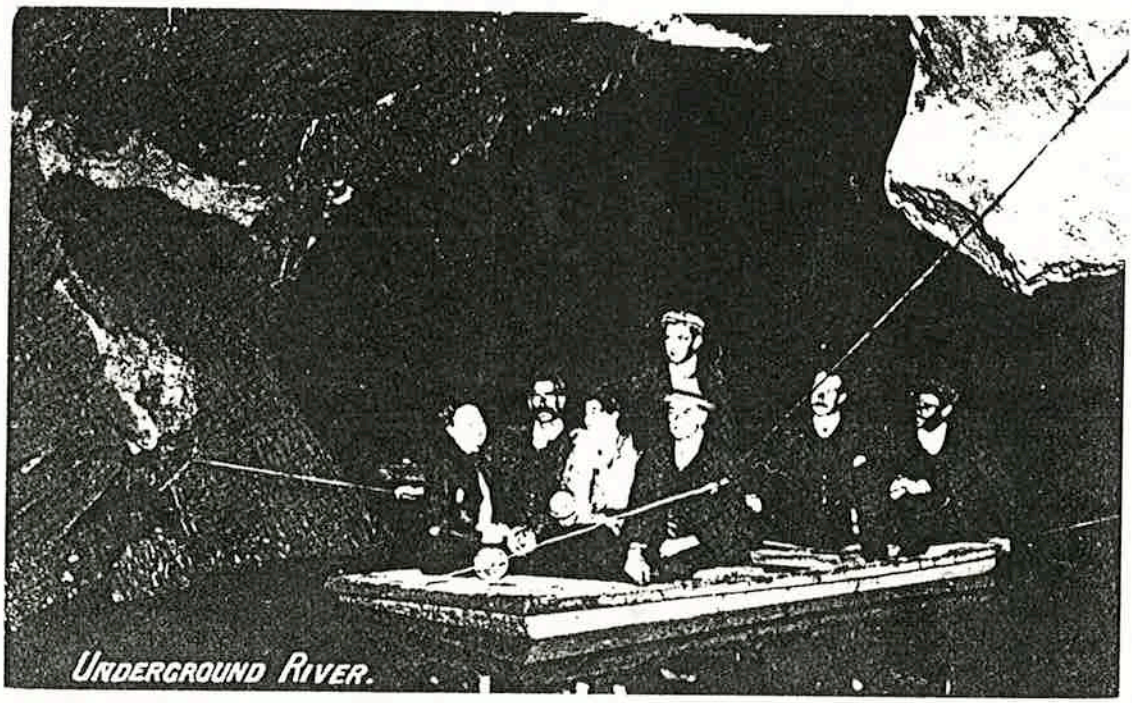
FUSSI

Vol 8 No 2



An early FUSS trip?

The Quarterly Newsletter of the

Flinders University Speleological Society Incorporated

Contents

Editorial

You know that mad panic feeling you get when you think you've just completed a repetitive task exactly the wrong way every time; well, look at the page numbers and you'll see it didn't happen this time! (Whew!)

And for the caving leadership training, this editor believes that now he can lead a group of tokens successfully through a cave, construct a simple lego model in less than a day (with a group of helpers), assert that anarchy is both good and bad (see Kirsty about that one) and deal with caver conflict in a way that sort of avoids the problem in the first place. (You had to be there!)

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In case of a caving Accident call:
The police
then,
Clare Buswell
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SEMESTER PROGRAMME 1996

4th June	6.30pm	General Meeting. **Bats and their Habitat** Terry Reardon. From the S. A. Museum. Geoff Harrison Meeting Rm.
5th July	7pm.	South Australian Speleological Council meeting. Maid and Magpie Hotel.
6th July	6.30pm	General Meeing. **Cave Photography.** Kelly Morris Rm. Union Building.

Exams and Mid Year Break 8-28 July

20/21 July		**Lower South East Caves and Rendeshams Cave Clean up. Joint Club event.** Clare Co-ordinating. Ph: 353 6018.
5th August	7pm	**Cross Club Leadership Seminar No 1.** Upstairs above the Anapoona Shop Rundle Mall. You must attend all six sessions to complete the course. Phone Simon Kendrick from CEGSA at the Scout Shop.
6th August	6.30pm	**General Meeting. Basic Principles of Rigging.** Come prepared to have some fun. BYO harness if you have one. Kelly Morris Rm.
12th August	7pm	Cross Club Leadership Seminar No 2. Simon Kendrick organising.
18th August		**Cross Club Women's Only Caving Trip** Clare organising. 353 6018.
19th August	7pm	Cross Club Leadership Seminar No 3. Simon Kendrick organising.
26th August	7pm	Cross Club Leadership Seminar No 4. Simon Kendrick organising.
3rd Sept	6.30pm	**General Meeting.**
14/15th Sept		**Lower South East Caving.** Marie Choi is co-ordinating.
21st Sept	7pm	Cross Club Leadership Practical Seminar at Corra Lynn. Simon Kendrick organising.
1st Oct	6.30pm	**General Meeting. Search and Rescue Seminar.** Kelly Morris Rm. Union Building.
19/20 Oct		**Search and Rescue Practical Weekend.** Venue to be announced.

TRIP REPORT - CORRA LYNN

The Past: Many years go, before the age of CEGSA mapped caves, a Sunday:

A group of intrepid adventurers from Fuss ventured into the outer reaches of Corra Lynn. One dashing caver, by way of name, Paul, sustained a most dire injury after losing his footing in a brave but vain attempt to remain upright. An heroic self rescue brought the wounded Paul to the surface where he was transported to the nearest purveyor of healing.

Meanwhile, in an unrelated area of the cave, on the way out to Dreamland, the fair maiden of the aforementioned Paul, Debbie by name, also suffered a fall of dire consequences. Coincidence, dear reader, I think not. It was with regret that the party left the nether regions of Corra Lynn, without the lost meusli bar that had slipped from Debbie's pack, and into a crevasse that none could reach.

The Present: The seventh day of October, a Saturday.

A group of adventurers (namely: Cheryle, Jonathon, Scott, Tim and Wade), assembled at 9:45am at the bowling green in Curramulka. Ralph and Bronwyn arrived at about 11:30am, so we all then headed off to the cave. For the record, Curramulka was playing Minlaton at bowls - I don't know who won, but Curry weren't hopeful against the stronger Minlaton team - their three strongest players were away.

This was to be the weekend of the big push, a time when the Mega-Cavers have the opportunity to re-enact some of the stories that seem to bloom in the non-caving times. We were going to Dreamland.

The attrition rate on the trip was high with several casualties. Before we went in Cheryle decided it was too much to ask of her body. One down. The six remaining pressed on to Grand Central. A few meters on and calamity struck. Ralph had gone far enough, and could go no further. Two down. He was to return to the surface, and for his punishment Bronwyn was to accompany him to chastise him. Three down. With just four of us left, the question of whether we should continue was never entertained. We were Mega-Cavers, and nothing would stop us.

We pressed on, and headed out to the Portal to make our ascent to the upper level so we could come back to Dreamland. On our way we passed the point of stories and legends, a place where a long remembered maiden had given up all hope of finding a muesli bar lost so many years ago. The story of its passing was told to those new to the area with instructions to be alert.

The Portal was the place to climb up. I went up first, I guess because if the rope held me, it may or may not hold anyone else. After the ascension we headed towards Dreamland itself. Unfortunately, Dreamland isn't signposted, so we weren't quite sure when we got there. When we did or did not get there we had lunch.

After lunch we headed back, more or less the same way we had come, to the Portal. More or less, because of course Mega-Cavers don't get lost, they just make other arrangements. After we had descended the Portal, we started trogging back to Grand Central. But before we had travelled too far at all, there came a cry from the front, "I think I can see the Muesli Bar!". After howls of protest and derision it was agreed the muesli bar could be seen. Now our problem was to retrieve it from where it had been embedded in the rock all those years. Everyone tried their hardest to reach the bar, but to no avail. What we needed was something inhumanly thin, skinny and flexible, so I had a try. Contact! Success! Jubilation! I now knew how King Arthur felt. There were no choirs of angels, no roll of thunder, just a voice in the distance, saying, "Hurry up, we're going!".

There were no rewards for retrieving the muesli bar, but within less than two months of the trip, I had a new car, and was engaged to be married. Coincidence, dear reader? Make up your own mind.

Jonathon Walsh

A Primer To Speleothem Repair

From: NSS News. Vol 54. No. 2 & 3 1996

By George Veni

Cave Without A Name, one of the loveliest show caves in Texas, was vandalized in early 1993. The total damage included seven broken lights, eight damaged light shields, one stolen road-sign advertising the cave, trash left in the cave, one name scratched on a wall, 47 broken or damaged speleothems, and 30 missing speleothems. The broken or missing speleothems ranged in size from 3 centimeters up to nearly 2 meters in length. Although such actions are inexcusable, the cave is so well decorated that most of the damage would not be noticed by the average visitor.

The owners asked me to help restore the cave, so I searched the literature for information on speleothem restoration. I found most "restoration" reports dealt with cleaning speleothems rather than repairing them. Those dealing with repairs usually lacked detailed information, and were conducted in isolation without benefit from the experience of other repair efforts. Not wanting to reinvent the wheel or exacerbate the damage in the cave, I called around for ideas and advice. My phone search led me to Jim Werker.

Jim came highly recommended as the careful and thorough person who for several years has conducted the speleothem repairs in Carlsbad Cavern and the surrounding area. Prior to using any glues or other repair materials, Jim sends the stuff to a chemist to rule out adverse impacts on the speleothems, the cave waters, or cave life, either in the application or by the long-term presence of the materials in the cave. When I called, he expressed interest in my problem and was extremely helpful. Many points were suggested by Jim and used successfully at Cave Without A Name, while others were learned on the job. No attempt is made to cover all situations, but this report should provide useful and much needed guidelines to future repair efforts.

Step 1: Assess the damage/make a plan

Determine what was done, and what supplies, how many people, and how much time will be needed to fix it. During the assessmen, or as soon as possible afterwards, secure the cave to prevent further access and damage. If the cave is a show cave, help make the cave operational, and plan the restoration to avoid possible conflicts or problems with the tours.

Step 2: Select a team

Volunteers may abound, but keep the group small; no more 10–12 depending on the amount and type of damage. Few cavers will have done this sort of work before so while most will be inexperienced, be certain they are conscientious. The small group size also allows better instruction, discussion, and quality control of the restoration work.

Step 3: Match the broken pieces

This may prove more difficult than it sounds since speleothems may be carried throughout the cave and dropped far from their sources. The matching of pieces is also crucial to effective reconstruction of single speleothems broken into several sections; sometimes the pieces will fit together only when assembled in a certain order.

Step 4: The Epoxy

Jim Werker has found the best "glue" for speleothem repair is a slow-drying epoxy used in the plastics industry: Shell-Epon 828™, mixed in a 60:40 ratio with V-40 hardener. The usual 50:50 mix is also adequate, but Werker has found that the 60:40 mixture produces a stronger bond. The mixture is creamy-white when wet and colorless when dry. If you use scoops to measure the epoxy and hardener, be sure you keep the scoops separate and in their own containers. Mix only small amounts, although it will remain soft and useable for more than an hour. The drying time for maximum strength is about 24 hours.

The only problem I've had with the epoxy is that it is not always available. I suspect that chemically-identical epoxies and hardeners exist under different brand names. The epoxy and hardener are only sold in 1-gallon units (less than $40 per gallon), which is probably far more than you will need for any one restoration project.

To apply the epoxy use small disposable items like nails, popsicle sticks, or scrap pieces of stainless steel rod. The application is identical for stalactites and stalagmites; painting a thin film of epoxy mixture on one of the broken ends. Cover the broken face to within 5–10 millimeters of the outer edge of the speleothem to prevent leakage (see Step 7 for clean-up of leaked epoxy). Reassemble the pieces prior to gluing to assure proper fit and to determine if reconstruction requires a particular order.

Step 5: Speleothems needing support rods

Some speleothems required an internal support rod to regain their strength and stability—this process requires at least two days. On day 1 begin by identifying the speleothems which will need a support rod. These are generally at least 8–10 centimeters in diameter and no less than a meter long. Exceptions included top-heavy stalagmites, and speleothems in high-traffic areas where they are more likely to be bumped.

The next step is to mark the drill holes. This can sometimes be accomplished by targeting the center of the speleothems' concentric growth rings, but off-centered growth or recrystalization of some speleothems sometimes prevents the use of this technique. Alternatively, placing a dot of mud on one broken end and pressing it against its matching piece is an easy way to mark the spot. The upper piece is then drilled to the diameter of the stainless steel support rod, either 6.4 mm (1/4") or 4.8 mm (3/16"), and the rod is epoxied into place. Iron rebar, aluminum, and brazing rods have been used in some repairs, but only stainless steel maintains its strength and does not significantly degrade with time.

Drill the holes no deeper than 10 cm; deeper holes do not provide appreciably greater strength and in fact may weaken or result in greater harm to the speleothem. Regardless of the size of the support rod, drill the lower hole to a larger

Formation Repair

By Jim C. Werker

Increased human impact on caves is resulting in the need for more frequent repair of formations. Following are suggested ways to repair formations, and the materials and equipment needed to facilitate repairs.

As with any project of this kind, it is necessary to consider the environmental impact of the materials being used and the safety of the people doing the work. Before using epoxies, hardeners, cyano-acrylates, solvents, or metal fixtures, it is important to obtain data sheets from the manufacturer detailing the chemical properties of the materials.

The following materials have been most effective for repairing cave formations:

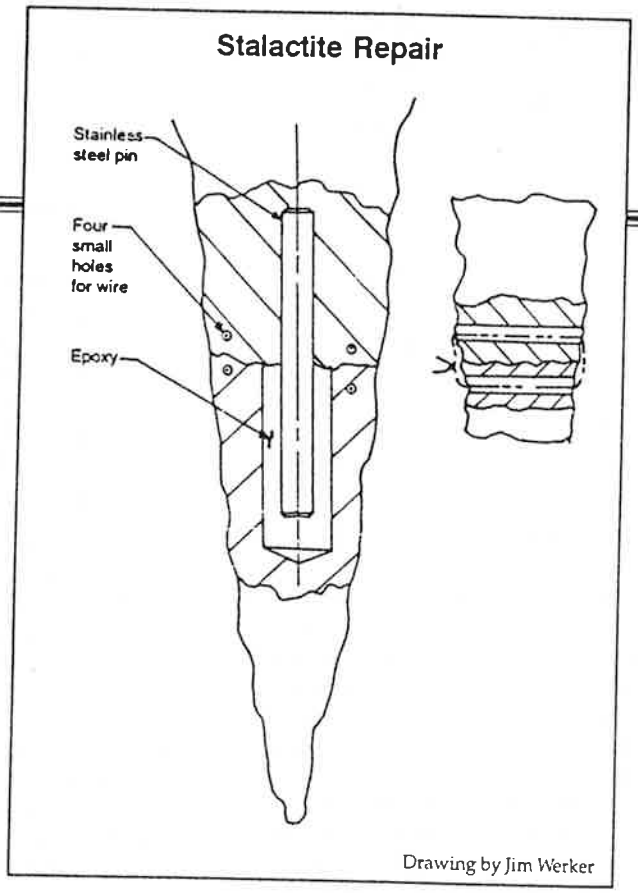
—Epon Resin 828™, combined with V-40™ curing agent works in dry en-vironments; when combined with V-25™ curing agent, Epon Resin 828 can also be used for wet applications. These adhesives develop a strong bond with a shear strength of up to 6000 psi. Shrinkage is minimal, and the bond is resistant to a broad range of chemicals. Epon 828 with V-25 curing agent can be used to bond formations under water.

—Fast-drying cyanoacrylate adhesives, such as Special "T"™, that have a drying time of 50 to 60 seconds can be accelerated with Kick-It™. These adhesives are useful for repairing small formations such as soda straws, helictites, and thin draperies. They can also be used for repairing stalactites up to two inches in diameter by applying a small amount of the instant adhesive in the center and a ring of Epon™ epoxy around the outer edge.

—Metals that have worked best in the cave environment are stainless steels, particularly types 304 and 316, which are both highly resistant to corrosion. These may be purchased in round stock and cut to the length of pin required.

Stalactite Repair

First, install the pin in the upper section by drilling a hole the same size as the pin and epoxying the pin in place. Then, drill a slightly oversized hole in the lower section to diameter of 12.7 mm (1/2") to allow for an easier fit of the rod when the top and bottom pieces are joined. Use carbide-tipped bits in drilling to minimize rattling and possible shattering of the speleothems. Day 1 work is complete when the supporting rod is epoxied into the upper drill hole.



On Day 2 glue together the matching ends of the speleothems. Before applying epoxy, join the broken ends to be certain the lower hole will accommodate the support rod; it may be necessary to deepen or enlarge the hole, or slightly bend the rod to gain a tight seam. Poor fits sometimes result from drilling powder pressed into the broken ends of the speleothems, and is easily remedied by scraping it out with a stiff-bristle brush. When the broken ends fit well together, half-fill the lower hole with epoxy, apply a thin film of epoxy to one of the broken ends, and press the broken ends together. The weight of stalagmites' pieces are generally adequate to hold them together while the epoxy dries.

Step 6: Speleothems not needing support rods

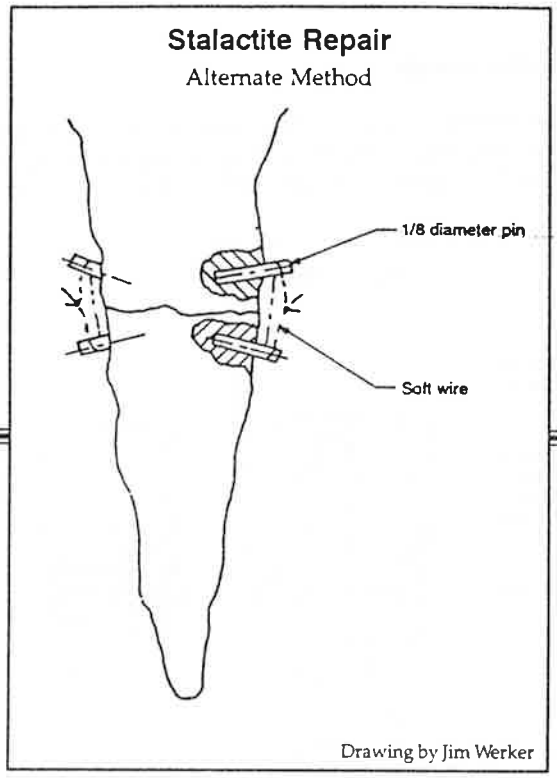
Stalagmites are the simplest speleothems to repair. Once the epoxy is applied, set the broken end on the lower intact stump and the weight of the upper piece holds them together until the epoxy is dry. Stalactites are difficult to repair because of the need to create a steady, secure, vertical upward force to hold them in place. Scaffoldings, slings, and even small drill holes have been used above a break to cinch the broken end into place with wire or cord.

On my restoration team I was lucky enough to have Dan Hogenauer, an engineering professor whose solution to securing stalactites was elegant and effective. Dan created a lever. A couple of boards and a rock for weight can be used to hold a stalactite in place. The lever can either press directly up on the stalactite tip or another board can be set vertically on the lever to press up onto the stalactite. If the stalactite is delicate or has a delicate tip, use a PVC tube into which the stalactite can sit securely. If the break is angled from horizontal, the stalactite may need to be supported along its side to prevent it slipping out of place when upward pressure is applied. One method is to lash a small board to the broken piece, which jams between it and the wall or neighboring stalactites.

The most lengthy repair operation is the restoration of speleothems broken into several pieces; several days may be required to reassemble them. Following

allow for alignment of the formation and the pin. Fill the hole with epoxy and join the lower section to the upper section, using wire as shown inserted through the horizontal holes to hold the formation in place while the adhesive dries.

Allow the epoxy to set for at least 24 hours, then remove the wire and fill the small holes with epoxy and ground-up material of the same type and color as the speleothem being repaired. The best source of ground-up material is the powder that results from drilling the hole for the stainless steel pin; the dust can be retained in a plastic bag and applied after the epoxy dries. The same mixture can be used to fill any voids in the fracture area.



Alternate Method

In the event that the section is too thick to drill holes for wires, drill holes for pins as shown and wire them together on the outside to hold the formation in place.

Stalagmite Repair

Drill a larger hole in the lower section to allow for misalignment. Epoxy the pin into the upper section first, then fill the hole in the lower section with epoxy and attach the upper section to the lower section. Be sure to check the alignment prior to filling the large hole with epoxy.

Drapery Repair

Draperies can be repaired by applying instant adhesive to thin sections or applying pins and epoxy much the same as for stalactites.

For drilling holes, a small, battery-powered drill and metal drill bits are sufficient for small formations up to four inches in diameter. For larger forma-tions, a Hilti™, battery-driven hammer drill is capable of drilling much larger holes to greater depth. Caution is essential, as it is very easy to shatter the formation.

After the hole is drilled, canned air with a nozzle is useful for blowing dust out of the hole.

the initial restoration work, additional trips will be needed just to glue on another piece. Attempting to simultaneously join more than two pieces together before the epoxy is dry is not effective for most heavy or weight-bearing pieces.

While stalagmites are rebuilt by adding to the stump until the speleothem is whole, stalactites are more easily restored by reassembling the broken pieces into one unit and then attaching that to the stump. Repair stalactites by turning the top-most piece upside down, planting it firmly into the dirt/mud floor, then adding its lower pieces as if reassembling a stalagmite. The weight of each piece holds the unit intact until the epoxy is dry enough to either add an additional piece, or to turn the rebuilt unit right-side up and attach it to the stump. Clean dirt and mud off the stalactite end that was in the ground before you apply the epoxy.

Some stalactite repairs may be complicated by dripping water. The epoxy is able to dry despite the water, but in stalactites where the water originates inside the speleothem, enough hydrostatic pressure develops to prevent a good bond between the broken pieces. If you know the stalactites dry out seasonally, then delay restoration until those favorable conditions develop. If they are active year-round, look to see which spot in the break is the source of the water and apply epoxy so that it does not cover that area (even when you squeeze the two ends together).

Step 7: Clean-up of repair work

Ideally, once speleothem pieces are joined together the repair is complete. In reality, epoxy sometimes leaks from the seams and runs down the speleothem. Once a speleothem is epoxied together the bond is permanent, so there was a tendency among restoration personel to be sure enough epoxy was applied. Consequently some repairs have too much epoxy and leak.

The best clean-up method is to catch the leakage at the seam. Wiping with a rag is effective but can sometimes smear the epoxy into tiny pits, giving the wiped area a wet appearance when the epoxy dries. The most effective technique is to swab the leakage along the seam with a cloth rag draped over the flat head of a screwdriver.

Occasionally epoxy forces its way out of the seam after the restoration team leaves the cave for the day. The impact of the drippage varies according to the surface of the speleothem. With most speleothems the dried epoxy can be easily peeled off leaving no trace of its presence. These low impact speleothems usually have a thin silt film on their surface which prevents adhesion to the calcite, or have a finely pitted surface which also prevent adhesion (unless the epoxy is forced into the pits by swabbing). The moderate impact speleothem surface is a clean, smooth calcite. The epoxy has greater adhesion to this surface and sometimes has to be pried off with a knife blade or a flat-head screwdriver. Minor scratches may result. The speleothem surfaces most prone to damage from leaked epoxy are those which are case-hardened and inactive. Case hardening is the development of a hard, thin outer layer, usually a med-

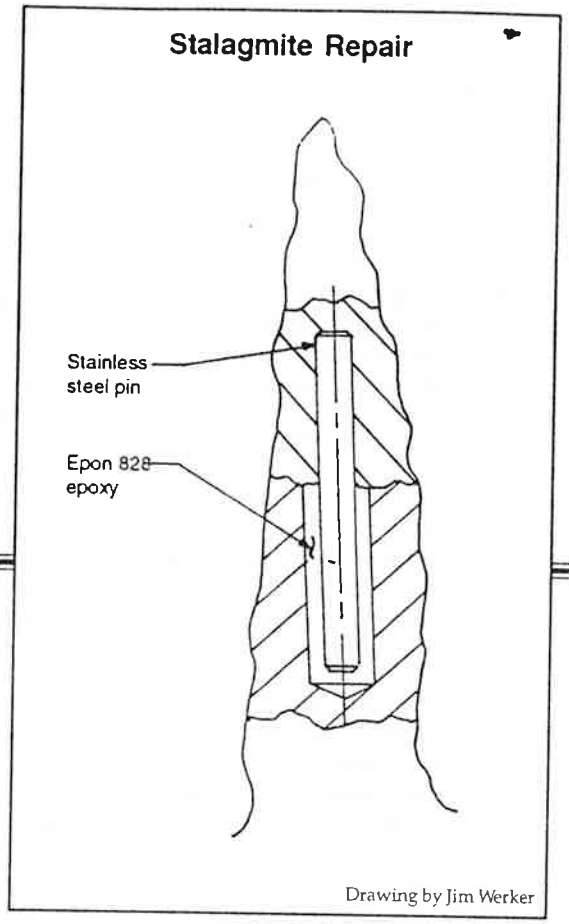
If repairs are done in a part of the cave that is still active, it is not necessary to fill small voids or fractures with epoxy, as nature will most likely take its course and cover them with new calcite deposits.

To obtain the approximate location of the hole on both the upper and lower portions of a formation, drill a hole in the center of one section. Next, take a piece of clear plastic wrap and place it over the end. Trace a line around the edge of the formation cross-section and mark the center of the hole. Now, transfer the plastic to the opposite portion, line up the formation with the traced pattern, and drill a hole at the center mark.

Rimstone Dams

Repair to rimstone dams may be accomplished by using Portland™ cement mixed to a stiff consistency. Using hands and a brush, shape the cement as required to fill in for missing pieces. To speed up the curing process, add lime. If coloring is added, it is best to test this outside in daylight as it is very difficult to match in artificial light. Be sure to wear rubber gloves when working with cement. Also, be sure that the coloring agent has no toxic chemicals.

Author's Note: If I can be of any assistance, or if anyone has any new methods, materials, or techniques that are not discussed here, please contact me. I would like to thank Jerry Trout for information on repairing rimstone dams and Linda Doran for help in preparing this paper. Jim Werker, 111 Hwy. 222, Tijeras, NM 87059, (505)281-9132



ium-to-dark brown color, underlain by softer material, usually a white or cream color. Leaked epoxy adheres to the outer layer, which readily peels away from the inner layer when the epoxy is removed and creates stripes of white inner material surrounded by brown outer material.

Step 8: Touch-up work

Once the above steps are complete, additional work may still be needed. Some seams will be nearly invisible, others will be evident. Mud can be smeared over seams on muddy speleothems, but this will only work if the speleothem stays wet or else the mud will dry, crack, and fall. Cement dyed to match the color of the speleothems is another means of filling seams and reconstructing missing sections. Use this technique only to repair opaque speleothems. Werker suggested that a mixture of epoxy and pulverized rock or speleothem fragments can be used for translucent speleothems. In using either cement or epoxy, first practice the technique on small repairs. Proceed with larger touch-ups following successful results of your first attempts.

Wholistic restoration

The restoration of a vandalized cave goes beyond the physical repairs of the speleothems. It includes the capture and prosecution of the vandals, and the education of the community that cave vandalism is a reprehensible act which harms everyone. Steps toward this ideal include:

—inform the owner of the vandalism;

—inform local law enforcement officials of the vandalism;

—inform local media of the vandalism, and work closely with them to get the story you want told;

—inform local schools of the vandalism (the vandals may be enrolled at one of them);

—inform everyone of the applicable laws against vandalism or at least against trespassing;

—inform everyone of the NSS rewards of $250–$1000 for information leading to the successful prosecution of cave vandals;

—use all of the above contacts to give presentations to school and civic groups about the beauty and benefits of caves, and about the local grotto and the NSS.

The vandalization of caves is a sad event, yet their restoration can be used as an opportunity to promote positive public support for cave conservation. The general public becomes impressed when they see how volunteers organize to help victimized cave owners. This image also shows the public the fragile beauty of the underground world, and gains their proactive support in apprehending the people responsible for its desecration.

MIDNIGHT HOLE (IB-11) & Mystery Ck (IB-10)

Party: Eric Schulz, Kylea Clarke, Clare Buswell and Heiko Maurer.

January. 14-15. 1996.

We arrived at Dover late on the Sunday and after having a hearty afternoon tea we set out to determine the location of Midnight Hole in preparation for Monday's caving. We negotiated the old railway line, which was quite dry by Tassie standards, and got to the old quarry. Following directions we did a sharp right up the hill immediately after leaving the quarry and searched up the hill, spreading out and occasionally finding the odd piece of pink or blue tape, but generally getting nowhere.

A few trees had fallen since our last visit three years ago, and we regretted not having paid more attention to the route then. When it seemed prudent to turn around I did a quick dash up the hill to make sure that we had indeed taken a wrong turn and chanced upon the remains of an old locomotive and railway line, used to haul timber when the area was logged, probably last century. We turned around and descended the hill, only to find any number of promising holes, which we later identified as IB8. We returned to Dover and rang around to get new instructions.

The next morning we carried all our gear in, left it at the dead tree and headed uphill, straight to the Midnight Hole entrance which was covered by a fallen tree. After retrieving our gear, Eric, Kylea and myself entered the cave with Eric in charge of rigging. Clare went down to Mystery Creek cave to photograph the glow-worms and wait for us. We used 9mm rope and pulled it down after us, the usual technique for use on through trips. The pitches (21, 12, 37, 34, and 49m?) were straight forward and there was only a trickle of water in the cave and a couple of crickets looking lonely. We used the eyelets of the bolts provided, once we had cleared two bolts of rusted up krabs, left by a previous group, with the aid of vicegrips we just happened to have along. There were signs of grooved wearmarks, particularly on the final pitch where a short rope and krab was provided to hang past the offending rub points. We used two 60m ropes for the last pitch which is probably longer than the advertised 49m. (Eberhard puts it at 55m)

We all acquitted ourselves very well. Having reached the bottom, we gathered up the gear and negotiated matchbox squeeze which seemed tighter than last time. We then made for the Mystery Creek streamway and wound up high above it, but found our way down without too much difficulty. It was then an easy matter following the streamway, gawking at the glow-worms on the way out. A very satisfying introduction to vertical caving in Tasmania.

No Clare to be found at the entrance, only her pack with a note on it which said "Mavis". So we headed back to the car, finding Clare on the way, her light having given up the ghost shortly after entering the cave. (Two blown bulbs!) She enjoyed the glow-worms and retreated back out to the relative warmth. Total caving time 4 hours.

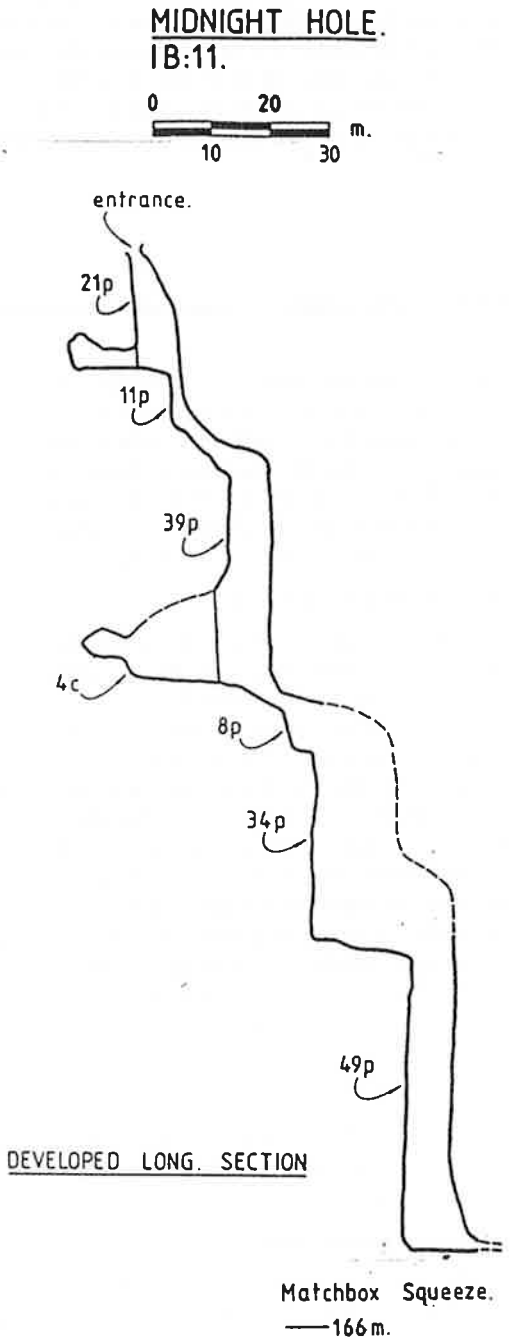
We packed up and returned to Hobart and Stu-ee Nick's place. The next morning Clare and I drove to Launceston to catch the plane, leaving Eric and Kylea to sample the above ground delights of Tasmania. We returned the rented car, which had served us well for the two weeks of caving at Mole Ck, checked in our gear (still badly overweight) at the airport and bade a fond farewell to the apple isle. It didn't rain for the two weeks we were there.

Heiko Maurer.

RIGGING DETAILS: for through trip into Mystery Ck Cave. Need two ropes 60m each for pull down.
Pitch 1. 21m: rig from tree out side.
Pitch 2. 12m: rig from bolt.
Pitch 3. 37m: rig from bolt.
Pitch 4. 34m: rig from bolt.
Pitch 5. 49-55m depending on who you ask and who you read: rig from bolt.

References:

Eberhard. R., Midnight Hole Tackle Description. **Speleo Spiel.** No. 184. Feb. 1983. p. 6.



So who is going to get this job?

A) Keir Vaughan Taylor.
B) Paul Keating.
C) Jeff Kennett.
D) A mate of Jeff Kennett.
E) Ellery Hamiltion Smith.

National Parks and Wildlife Service

MANAGER
Yarrangobilly Caves

The National Parks and Wildlife Service is seeking a Manager, Yarrangobilly Caves, Clerk Grade 7/8, Tumut District, Snowy Mountains Region - Pos No NP96/125. You will be responsible to manage the Yarrangobilly Caves area to protect and conserve the heritage values of the area and to promote visitor use and the business management of the resource.

You will have demonstrated experience and ability in business planning and management. You will have extensive experience in financial and human resource management. You will possess superior communication skills including highly effective presentation, negotiation, liaison and public relations. You will have the proven ability to liaise with stakeholders on sensitive issues. You will have the proven ability to liaise with stakeholders on sensitive issues. You will have demonstrated experience in project management and the ability to meet deadlines. You will hold a current drivers licence. You will have the commitment and capacity to implement Equity and Occupational Health and Safety Policies.

Ideally, you will hold a relevant Degree. You will have the ability to make innovative and sensitive decisions in regard to a high conservation value visitor destination.

Please note that weekend and public holiday work is required.

A remuneration package valued to $49,985 pa including salary ($42,066 - $46,563) will be offered, based on your skills and experience.

For further information contact Susan Learmont on (069) 47 4200 for information packages. For inquiries please contact Greg Hayes on (069) 47 4200. Applications should be marked "Confidential" quoting the position Number and Location and forwarded to the Manager, Administration and Finance, National Parks and Wildlife Service, Snowy Mountains Region, Private Mail Bag, VIA COOMA, NSW 2630, by 5.00pm on Friday, 10 May 1996.