

# AUSTRALIAN CAVER

THE AUSTRALIAN  
SPELEOLOGICAL QUARTERLY

**No. 123**

**1990**



# AUSTRALIAN SPELEOLOGICAL FEDERATION INC.

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### QUEENSLAND

Central Queensland Speleological Society Inc,	PO Box 538, Rockhampton	4700
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Cave Exploration Group South Australia Inc.,	PO Box 144, Rundle Mall, Adelaide	5001
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Northern Caverneers Inc.	PO Box 315, Launceston	7250
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Speleological Research Group Western Australia,	PO Box 120, Nedlands	6009
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Avondale Speleological Society,	c/- 20 Avondale Road, Corranbong	2265
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NSW Cave Rescue Squad Inc,	PO Box 122, Bankstown	2200
Nth Queensland Speleological Association,	1 Boden St Edge Hill	4870
OTC Caving & Canyoning Club	C/- PO Box 1996, North Sydney	2059
PNG Cave Exploration Group,	c/- G. Francis, PO Box 1824, Port Moresby	
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### DEADLINES FOR FUTURE ISSUES:

No. 124: end May 1990

No. 125: end August 1990

All articles, reports, photos and reviews are welcome for publication and should be sent to Ian Mann, 28 Stephen Street, LAWSON NSW 2783.

*The opinions expressed in this journal are not necessarily those of the A.S.F. Inc. or the Newsletter Commission.*

Cover Photograph: Pushing Leads in Dalley's Sinkhole (M35) P.Ackroyd

## NOTICES AND NEWS

Christmas 1990 marks the 25th anniversary of the 1965 Mullamullang expedition. A Re-union for this expedition has been suggested to be held in conjunction with the Cave Leeuwin Conference. If you have any response to this, either positive or negative, please contact C.E.G.S.A. at PO BOX 144 Rundle Mall SA 5000.

### DOWN UNDER ALL OVER: SRGWA

The 1989-90 SRGWA Nullabor Expedition has come and gone with all its objectives achieved. Principle aim was to continue and hopefully finish the cleanup of Weebubbie Cave started back in 1985. A mini-UN of people converged on the cave for that purpose just after Christmas. Assisted by a Police diver from Eucla, more than 100+ people hours over three days were spent removing rubbish, including a 100 kg+ diesel motor from the cave. Considering that most of our participants were from outside the caving community it was disappointing when members from a NSW club visited the cave briefly knowing we were going to be there and for what purpose and made no offer to help. Norm Poulter's canoe was manoeuvred through the cave for the third and final time and once again proved invaluable in recovering 2 lengths of pipe from the lake, one more than 10m long. While paddling the canoe at the far end of the lake - what appears to be a new species of blind spider was captured.

Following previous talks with the WA Museum, it was agreed that SRG would fill in the old archaeological trenches at Madura Cave. There were two trenches in the main section of the cave and an enormous one in the entrance to the west trending shelter cave. About 24 people hours were spent trying to fill the latter hole estimated to be in excess of 30 m<sup>3</sup> before reinforcements were deemed necessary. Negotiations with Madura Station resulted with the hole being filled in a few days later with the aid of a front-end loader, followed by an extended BBQ lunch enjoyed by all participants. A further 10+ people hours were spent by SRG filling in the trenches of the main cave - one trench was almost 2m deep.

A new cave west of Madura and south of the highway was investigated but found to extend no further than the west facing entrance. It was however, a great place to be on a hot day.

Before leaving the area a visit was paid to Moonera Tank Cave where a colony of *Tartarus mullamullangensis* was discovered in an unstable rockpile chamber. All examples seen were of the very young to juvenile female variety and concentrated near the natural path through the cave so any future visitors would need to exercise greater care than they normally would to avoid damaging or disturbing them or their delicate webs.

SRG's new resident member at Madura Roadhouse, David Hall, will shortly be embarking on a program to place reflectorised cave numbers on caves in the vicinity.

**ASF INC CAVE SAFETY GUIDELINES**  
Adopted 27 January 1990

**IMPORTANT CAUTIONS**

Please read EACH of the following important messages BEFORE reading these Guidelines:

**LIABILITY OF ASF INC., ETC.**

- \* If you visit any cave, canyon, cliff or karst area or feature,  
YOU DO SO ENTIRELY AT YOUR OWN RISK.
- \* Caving, cave diving, canyoning, Single Rope Technique and other like activities are INHERENTLY DANGEROUS AND RISKY ACTIVITIES.
- \* YOU SHOULD NOT RELY ON THESE GUIDELINES.
- \* Notwithstanding anything in these Guidelines or any other guidelines or document, any representation or anything else, the Australian Speleological Federation Inc., its servants, officers, members and agents SHALL NOT BE LIABLE for any of the following:
  - (a) any NEGLIGENCE in the preparation, adoption, publication, re-publication or other promulgation of these Guidelines;
  - (b) any loss, damage, injury, death, accident or other misadventure arising out of, sustained during or as a consequence of, or in any way relating to any act(s) or omission(s) occurring during or prior to any visit to any cave, canyon, cliff, or karst feature or area; or
  - (c) any consequence of any failure properly to have regard to and understand these important cautions.
- \* In each of these important cautions, "these Guidelines" shall be deemed to include every copy, draft or revision of these Guidelines, and any copy or part thereof.
- \* If you do not completely understand these important cautions, you should seek your own, INDEPENDENT LEGAL ADVICE.



## C O N T E N T S

1. GENERAL
2. PLANNING
3. PARTY LEADER'S RESPONSIBILITIES
4. TEAM MEMBERS' RESPONSIBILITIES
5. ABOVE GROUND ORGANISATION
6. EQUIPMENT TO BE CARRIED UNDERGROUND
7. CLIMBING AND CALLS
8. SINGLE ROPE TECHNIQUES
9. CAVING IN FOUL AIR
10. CAVE DIVING
11. FREE DIVING

## INTRODUCTION

As cavers we enter an environment that provides physical and mental challenges and the satisfaction of personal discovery. It is also an environment that can be unremitting in its hostility to the unprepared, incapacitated or injured. Emergency medical support that is readily available to participants in other recreational activities may take many hours to get to a casualty in a cave. Getting such aid to the casualty is only the start to what can often be the long and difficult task of returning the injured person to the surface.

Risks can be reduced to acceptable levels but never eliminated. The way to minimise risks is to undertake caving with an attitude of self-reliance, responsibility and preparedness. In practical terms this means careful planning, competent organisation, appropriate provisioning and thorough training.

### 1. GENERAL

- 1.1 Minimum independent party size is four. This is the smallest group that is able to muster sufficient physical resources for effective self rescue and provide adequate care should a member become injured or incapacitated.
- 1.2 At least one member of the party should hold an approved first aid certificate and all members to know basic emergency procedure in case of an accident.
- 1.3 Every member of the party should know the correct procedure to follow in summoning help in an emergency.

### 2. PLANNING

The points under this heading are the sorts of things a good leader would consider, irrespective of the scale of the trip. When planning more ambitious trips, the procedure would be formalised by discussion with deputy leaders and other party members; whereas on more routine trips these points would be covered almost as a mental check list.

- 2.1 Determine what known hazards exist in the cave(s) to be visited.
- 2.2 Notify any 'local' speleological groups of the trip intentions, giving sufficient notice so they can assist in identifying any hazards or needs for special equipment.
- 2.3 Decide minimum equipment requirements (including emergency equipment and provisions), in the light of expected hazards and what you plan to do in the cave. Consider if you have sufficient equipment available for the trip or will the scope of the trip need to be revised.
- 2.4 Ascertain the levels of knowledge, skill and physical abilities of all intending trip members.
- 2.5 Determine the extent of self-rescue that could be effected by the party with the equipment available and the time delay to be expected before a full rescue operation could be expected in case of mishap.

- 2.6 Having regard for the items above, consider the need for 'lead up' training for members, especially if attempting demanding caves in remote areas.
- 2.7 Identify members to act as second or deputy leaders in case the party has to be split.
- 2.8 Decide under what circumstances the party will be split.
- 2.9 Determine critical factors that would mean abandoning the trip or turning back eg. weather conditions.
- 2.10 Decide at what stages of a trip (especially long trips) assessment of continuing or turning back is to be made.
- 2.11 Decide on communication procedures to be used underground.
- 2.12 Decide expected time for completion and route to be followed. Add a factor for unexpected delays and nominate a realistic return time as well as a 'commence search and rescue' time.
- 2.13 Leave trip details with the appropriate responsible authority for the region where the trip is planned.

### 3. PARTY LEADER'S RESPONSIBILITIES

- 3.1 Ascertain that each member of the party has the knowledge, abilities, skill and equipment to safely attempt the trip.
- 3.2 Conduct the trip in such a way that the party remains as an interconnected group and the leader is aware of each member's position and condition.
- 3.3 Ensure that members do not get into situations beyond their capabilities.
- 3.4 Check all equipment intended for use in hazardous situations for suitability and serviceability before every trip.
- 3.5 Ensure all members know the accepted communications procedures and calls before each trip. (See 'CLIMBING AND CALLS').

### 4. TEAM MEMBERS' RESPONSIBILITIES

The points under this heading are the sorts of things a team member would consider, irrespective of the scale of the trip. When planning more ambitious trips the procedure would be formalised by discussion with the leader or deputy leader.

- 4.1 To inform the party leader:
  - a) of any medical condition that may affect performance.
  - b) if under any medication, detail dosages, times to be taken, location of medication among equipment, and effects if dosages are missed.
- 4.2 Do not enter a cave if under the influence of alcohol or other performance-altering drug.
- 4.3 Indicate any uncertainty about procedures or equipment use before entering a cave.
- 4.4 Know how to use all the safety/vertical equipment needed for the trip.
- 4.5 Inspect rigging and associated vertical equipment before using. (You have the right to ask for extra back-up, or re-rig the pitch after consulting with the party leader. Any re-rigging must be checked and OK'd by another party member, ideally the leader or the person who did the rigging.)
- 4.6 Ensure that you are properly equipped for the trip.
- 4.7 Accept that the party leader has the final decision as to who is considered properly equipped, trained and physically fit to be included on the trip.



- 4.8 Accept that the party leader may request to inspect personal equipment and provisions for suitability.

5. ABOVE GROUND ORGANISATION

- 5.1 The following items should be within easy reach of the cave entrance:

- a) A fully equipped first aid kit.
- b) A sleeping bag and sleeping mat.
- c) Food, fuel stove, and water.
- d) Tent (which can be erected IN the cave).

- 5.2 All members of the party must be able to gain access to cars carrying support equipment.

6. EQUIPMENT TO BE CARRIED UNDERGROUND

- 6.1 Mandatory personal equipment

- a) Helmet with rigid chin strap (ie not elastic).
- b) Reliable and independent primary and secondary light sources, which should be carried on the person at all times.
- c) Adequate clothing for cave attempted.
- d) Adequate footwear - boots are recommended.
- e) Waist tape (5m x 50mm webbing is recommended).
- f) Small first aid kit.
- g) Whistle and penknife.
- h) Spare globes & batteries.

- 6.2 Other recommended personal equipment

- a) Third light source.
- b) Self-rescue hardware (ascenders & pulleys) if vertical caving.
- c) Prussik loops.
- d) Extra clothing.
- e) Space blanket.
- g) Triangular bandage and/or compression bandage.

- 6.3 Mandatory party equipment (should be carried by Leader):

- a) First Aid Kit - leave at entrance or in car for short trips; take along on longer trips.
- b) Food and water if the cave warrants it.
- e) Notebook and pencil.
- d) Rescue rope and hardware (ascenders & pulleys) if vertical caving.
- e) A watch.
- f) Pocket knife (Swiss army instant repair kit!).

7. CLIMBING AND CALLS

*\* Note that most caving accidents are falls from unbelayed climbing. \**

- 7.1 Any member of a caving party always has the right to request and receive a safety line.
- 7.2 Safety lines (belays) should be used on all pitches where a ladder is more than just a hand-hold.
- 7.3 There should only be one person at a time on a climb.
- 7.4 Climbing calls should always be used. The Party Leader should ensure that everyone understands and agrees on proposed calls before going underground. Recommended calls are the "UP, DOWN, STOP" system, as detailed:

- "UP" means "I want to come up", "take up slack", "haul up", etc.
- "DOWN" means "I'm coming down", "pay out more rope", etc.
- "OK" should be used for any affirmative.
- "STOP" means quit whatever you are doing - stop feeding out line, stop hauling up, stop ascending, hold line taut - and wait for further communication.
- "BELOW!" is a warning that anything is falling down toward those below. It does NOT mean "look up"!

An example is as follows:

Climber:	"UP" or "DOWN"	as appropriate (meaning 'I want to come up/down')
Belayer:	"OK"	meaning 'On belay, come up/down'
Climber:	"SAFE"	when finished climbing & off safety line

NB: The word "slack" should NOT BE USED in calls, as it is ambiguous, and could mean either "up" or "down". Similarly for the word "rope", which is also ambiguous.

- 7.5 Whistle signals should be used on pitches where voices cannot be heard (eg. near waterfalls). If different whistle signals are used because of 'local rules', each member of the party should be told what the communication will be before entering the cave.

Recommended signals are:

One blast	STOP
Two blasts	UP
Three blasts	DOWN
Four blasts	OK/SAFE
One very long	HELP!

## 8. SINGLE ROPE TECHNIQUES

### 8.1 Minimum skills required --

- 8.1.1 Any person engaging in vertical caving must be able to tie the following knots:

- a) Tape knot
- b) Figure Eight
- c) Double Fishermans
- d) Prussik knot

- 8.1.2 All SRT cavers should be able to tie and use a two-knot prussik system for use in emergencies.

- 8.1.3 Cavers must be familiar with equipment and be able to demonstrate proficiency in the following:

- a) Fitting of SRT harness and correct attachment of equipment.
- b) Crossing re-belays, rope-protectors and re-directions.
- c) Changing from descent to ascent and vice versa.
- d) Crossing knots - both ascending and descending.

### 8.2. Equipment --

- 8.2.1 A spare (emergency) rope should always be available when engaging in vertical caving.

- 8.2.2 Each member of the party should have their own personal equipment - sharing is unacceptable.

- 8.2.3 A helmet with a four-point attachment CHINSTRAP should be worn for any vertical work, whether above ground or below. A construction worker's helmet is NOT suitable for SRT work.



- 8.2.4 Gloves should always be worn when engaging in SRT work.
- 8.2.5 A knife and whistle on a breakable lanyard should be carried when engaging in vertical caving.
- 8.2.6 Both ascending AND descending equipment should always be carried, irrespective of which direction you are heading. The gear should be so arranged that it is ready to be used to reverse direction without delay.
- 8.2.7 Two or more ascenders must be attached independently to the seat harness in an ascending rig, such that if either fails or is accidentally disengaged, the caver will remain upright.
- 8.2.8 There must be TWO POINTS OF ATTACHMENT AT ALL TIMES when ascending. Therefore, a third ascender/cowstails should be used when crossing re-belay, rope protectors, or transferring to tails at pitch tops.
- 8.2.9 For abseiling, the use of variable friction devices is recommended, such as rappel racks and bobbins. Figure 8, Harpoon devices and the "classic" style are NOT recommended.
- 8.2.10 If karabiner/brake-bar devices are used, then a large steel screw-gate karabiner and extended length piton should be used.

### 8.3 Safety Checks/Procedures --

- 8.3.1 Long hair must be tied back for vertical work and jewellery should be removed.
- 8.3.2 Rigged ropes should have a knot tied in the end to prevent accidentally abseiling off the end. A double Figure-8 with a loop large enough to put your foot in is recommended.
- 8.3.3 Every person descending a pitch should check the rigging for soundness. Pay particular attention to anchor points, karabiner gates, knots, rope protection and free-hang.
- 8.3.4 Calls should be used for both ascending and descending. Recommended code is:

#### *Descending*

Abseiler: "DOWN" When abseiler is clipped into rope and ready to descend  
Belay: "OK" When bottom belayer is ready. If belay is not being used, then "buddy" gives this response.  
Abseiler: "SAFE" Once unclipped from rope and clear of the pitch bottom.

#### *Ascending*

Ascender: "UP" When caver is attached to rope and wishes to ascend.  
"Buddy" : "OK" If safe to ascend.  
Ascender: "SAFE" To cavers at bottom when ascent is complete and caver is off rope and clear of pitch head.

## 9. CAVING IN FOUL AIR

### 9.1 General Comments

Brief exposure to foul air will cause a rapid increase in the rate of breathing.

Prolonged exposure may have some or all of the following effects on party members:

- a) Lack of attention to details
- b) Clumsiness
- c) Fatigue
- d) Anxiety
- e) Severe headaches and in some cases, nausea

The flame extinction test is the best simple indication of danger. The relative percentages at which CO<sub>2</sub> will cause a flame to extinguish are:

Match	1% CO <sub>2</sub>
Candle	4% CO <sub>2</sub>
Carbide lamp	6% CO <sub>2</sub>

- 9.2 As soon as foul air is suspected, a test should be made by striking a match. If the match will not strike or burns only briefly, the party should begin to exit immediately, but should NOT PANIC OR RUSH.
- 9.3 If ascending vertical pitches, great care and thorough checking should be carried out to ensure equipment is properly attached.
- 9.4 Beginners or others suffering fatigue and/or anxiety should be guided, watched and encouraged until out of the cave.
- 9.5 All cavers, and most particularly Party Leaders, should recognise the fact that exposure to foul air has an effect on a person's ability to function normally. The likelihood of an accident is therefore greatly increased. All care and precautions should be taken.
- 9.6 Under special circumstances such as search and recovery operations, exploration and scientific work, it may be decided to enter into foul air deliberately. Under such circumstances, the following is recommended:

9.7.1 CO<sub>2</sub> 1-4%

- a) A CO<sub>2</sub> tester should be carried - if nothing else available use a candle. If the CO<sub>2</sub> rises above 4% (ie. the candle goes out) - get out slowly.
- b) Cavers with no experience of foul air should be introduced to it gradually by an experienced leader.

9.7.2 CO<sub>2</sub> 4-6%

Only experienced foul air cavers should enter these regions. In addition to the recommendations in 9.7.1 -

- a) A CO<sub>2</sub> tester must be carried eg. a Draeger Gas Analyser.
- b) An "oxygen rebreathing" apparatus should be taken (one kit to four people). The rebreather set should go down the cave with the first person.

9.7.3 CO<sub>2</sub> 6% and above

Breathing apparatus (such as SCUBA) is necessary and all the precautions against equipment failure taken in mines rescue and cave diving should be followed.

## 10. CAVE DIVING

Cave Diving is defined as the diving of waterfilled passages/caverns using SCUBA or other supplied breathing apparatus, and guide lines. All persons attempting cave diving should be properly trained and certified by a body such as the Cave Divers Association of Australia (CDAA).

Safety Guidelines for cave diving are contained in "ASF Cave Diving - Code of Practice (1988)".

## 11. FREE DIVING

Free Diving is defined as breath-held diving of (relatively) short waterfilled passages, without the use of supplied breathing apparatus, and is most commonly practised in the "free diving of sumps". Just as with Cave Diving, the use of guide lines is mandatory.

Safety Guidelines for free diving are contained in the (proposed) "ASF Free Diving - Code of Practice".



## **SOME MORE THINGS YOU WANTED TO KNOW ABOUT BLASTING, BUT WERE AFRAID YOUR CONSERVATION OFFICER MAY OVERHEAR**

by Peter Ackroyd

Following the publication of my first article on blasting in caves (Australian Caver 117:3-5) I was asked to provide more information on the subject (see, for example, Spate 1988). Again, I must emphasise that only people licensed to use explosives should do so. In the first instance it is illegal to do otherwise, and in the second instance a licensed shot-firer knows and understands explosives and what may be achieved with them with the minimum cost and fuss.

My first article concentrated on the widening of solid cave walls, thereby allowing exploration to continue along a passage. In this article I wish to deal more with the removal of loose blocks and boulders in rockfall and talus piles.

### **CHOICE OF EXPLOSIVE**

The choice of explosive may be dictated by availability, but, if at all possible, one of the extremely good water gel or emulsion type explosives should be used. The reason for this recommendation is threefold. The most important is that these explosives are extremely safe and forgiving. Cavers are by nature impatient and keen to get on with the exploration, and hence often enter caves shortly after blasting. If this is done with conventional gelignite, the caver runs the risk of quite severe lung damage on the following day. Gelignite is a "dirty" explosive in that it releases a lot of NO<sub>x</sub> fumes (oxides of nitrogen). These, if inhaled, are converted to nitric acid which attacks the lung tissue over the following hours. In one case, in Great Britain (Wales), a caver was severely disabled for several weeks, and did not fully recover for several months after exposure to high concentrations of gelignite fumes (Williams and Williams 1963). Water gels or emulsions, on the other hand, are oxygen balanced, which means NO<sub>x</sub> concentration is very low. Cavers in Victoria have been known to push into blasted passage after only one hour's wait when using such explosives, without suffering ill effects. It should be noted however that a longer wait of up to six hours is recommended.

The second reason is its good moulding and adhesion properties. The emulsion type explosive, Powergel (an ICI product) for example, has the consistency and handling characteristics of putty. It can be shaped and applied to any surface, wet or dry, on walls or overhead, and it will stick. Since shaped charges are far more effective than 'blobs' plastered onto the rock, this is a distinct advantage.

The third reason is that, being non-nitro products, water gel and emulsion type explosives don't give the shot firer and others on the trip, the classic thumping 'nitro headache' (nitroglycol is a vasodilator and therefore causes head-aches). After suffering a nitro headache, shot firers find non-nitro products a big plus.

The only disadvantage these 'gelignite alternatives' have is that they are not yet quite as powerful as gelignite. For the caver however, this is a minor consideration given that it is only a few percentage points difference between the two types.

### **REMOVING ROCKS AND BOULDERS**

Rocks and boulders are often near the cave entrance, in which case it may be OK to use safety fuse to initiate the explosive. A rule of thumb would be that, if daylight is visible, safety fuse may be an option. The important thing to keep in mind is that once the fuse is ignited, there is a finite time before the whole lot goes up. If in doubt, cut the safety fuse longer than the minimum (which is 1.0 metres = 1.5 minutes of escape time) or, better, go to electric initiation. Personally I prefer to use electric initiation anyway - it's a nice feeling to be certain of the exact moment a charge will be initiated.

Large rocks right at the entrance are best broken into manageable chunks to be lifted out, either by hand or winch. If the obstacle to be removed is a large limestone block, for example, a single centrally placed charge 'aimed' perpendicular to the bedding will ensure it breaks into four neat quarters (see figure 1). The charge size will vary according to the mass to be broken but a rough guide would be 1 kg per tonne when plastered on top of the block.

Blocks of sedimentary material (eg limestone) located further into the cave may still prove troublesome even if broken into smaller chunks. A good solution is to "go for gravel". This method calls for one or more charges placed so that the explosive force is directed parallel to the bedding. Igneous or completely metamorphosed rocks swept into the cave may be dealt with similarly, but will require larger quantities of explosive, since there are no bedding planes to exploit. The principle used for sedimentary rocks is that the explosive force cracks apart the weakest links of the block - the bedding planes. The residual forces ensure that only gravel remains (see figure 2). After a successful blast of this type it is common to return to the site and find a hole - the block simply 'disappears'.

Both these techniques have been used with considerable success by the author, removing the need to expose cavers to dangerous digging practices in rockfall zones within caves. The break-it-into-chunks method is best applied to large to very large blocks near the entrance, where there is plenty of room to lift and manoeuvre the resulting chunks. The gravel method is the method to use in confined spaces where the passage clearly continues beyond a single medium to large sized rock. The result is quite startling and again eliminates the need to expose cavers to dangerous techniques as would be the case if the attempt were made to move a heavy block in a confined area on one's own. An added advantage of the gravel method is that there is virtually no force transmitted to adjacent blocks. This aspect is particularly useful in unstable rockfall where it is imperative that the basic structure of the rockfall be maintained in order to preserve the route through to the new caverns beyond.

And if you notice your conservation officer looking daggers at you as you read this, just keep in mind the fact that 80% of the caves you visit now were only piles of rock at the bottom of dolines 20 years ago, and he or she probably helped dig out more than one or two of them at the time.

#### REFERENCES

SPATE, Andy (1988) Letter to the editor. Australian Caver 118:6.  
WILLIAMS, RM and WILLIAMS, Ann M (1963) Hazards of using explosives. Transactions of the Cave Research Group 6(2):71-78.

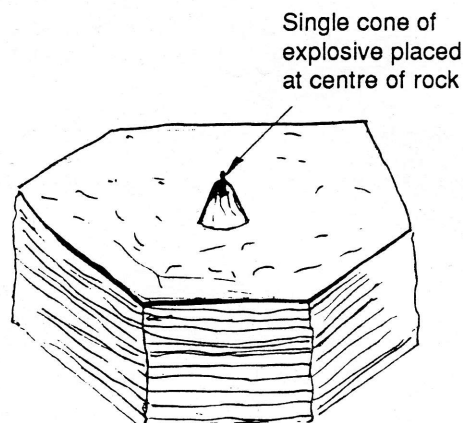


Fig 1 - Breaking a block into manageable chunks

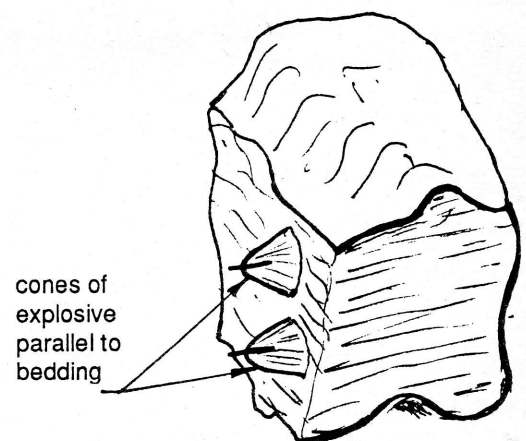
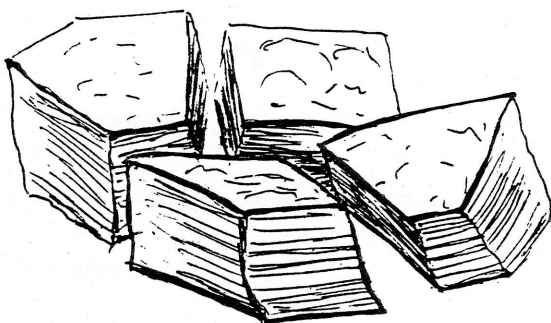


Fig 2 - Turning a block to gravel

# A NOTE ON ICE TUBE [JF-345]

by Peter Ackroyd

Ice Tube is undoubtedly one of Australia's more exacting caves. There is not much room for error once having penetrated this almost purely vertical cave's 345 metres of depth. The added fillip for a caving party is to carry on from the bottom and exit via *Growling Swallet* [JF-36] to complete what is arguably the best through trip available in this country. Although relatively short (less than 5 km cave length), the variety of passages and pitches taxes the ingenuity and stamina of anyone contemplating the through trip.

During Easter 1989 (23-27 March 1989) a team of three cavers from the Victorian Speleological Association decided to conduct a full blown rigging trip down Ice Tube, complete the through trip, then de-rig the cave. Later research has revealed this to be the fifth conventional rigging trip to the bottom of Ice Tube and only the eighth bottoming trip in toto. A summary of previous trips and their contributions to the rigging may be found in Ackroyd and Taylor, 1989. VSA's trip in 1989 resulted in the addition of three more bolts and some reappraisal of the rigging. Ropes used were 9 mm and 8 mm diameter and therefore it was considered important that the rope was free-hanging on each pitch. The following notes detail the rigging for each pitch as carried out by the 1989 VSA trip.

## RIGGING NOTES:

Using the same numbering scheme and notation as found in Bunton and Eberhard (1984):

### *Pitch 1 Phreds Downfall, 25 m.*

Traverse well out over the pitch - use a traverse line if deemed desirable. A bolt with hanger has been installed on the left hand wall in the last available bit of competent rock. A redirect via a small thread-through on the right gives a free hang down to Malcome's Cuss, an obvious rebelay 7 m below the traverse. Use a wire trace for this - the rock is very sharp.

Rope: 29 m if using traverse line.

Rigging: 1 maillon at bolt, plain karabiner with short tape for redirect and wire trace with maillon for re-belay.

### *Pitch 2 Degenerated Man, 22 m.*

Two bolts have been installed low down at the head of this pitch. The original exploration bolt has had the anchor (spit) exposed to the elements for some years because of a "public spirited" group's habit of cleaning caves by collecting pocketfuls of other people's bolts and hangers. We were able to recover the use of this anchor by the careful use of a purpose built cleaning tool (Ackroyd, 1989). The second, back-up, anchor installed by Al Warild(?) was well greased and still in excellent condition. Use of these two bolts gives a very good hang with an exhilarating descent in a showering waterfall.

Rope: 22 m.

Rigging: 2 maillons plus bolts and hangers.

### *Pitch 3 Short Pitch, 7 m.*

If the dry Placebo Effect is followed, this is the next pitch reached. A very good hang can be gained using a quite short (0.5 m) tape looped around a small horizontal projection on the right, well over the pitch. A back-up can be gained by employing a wedged knot in a crack 2 m back from the projection. Note that, if necessary, the pitch can be free climbed.

Rope: 8 m.

Rigging: Very short tape, long tape, 2 karabiners.

### *Pitch 4 Inlet Pitch, 19 m.*

Traverse, right over the head of the pitch onto a small landing. A traverse line is useful here for coping with heavy gear sacks. Once on the landing a 50 mm chock can be inserted into a crack overhead. This acts as a back-up to a tape wrapped round a short arch of rock at knee level. Unfortunately this arch consists of laminar layers of rock, and is steadily fretting away. It is necessary to descend the back-up in order to get onto the free hanging main rope. There is an inconsequential rub a few metres from the base of the pitch if rigged in this way.

Rope: 25 m if using traverse line.

Rigging: 2 tapes, 50 mm chock or equivalent, 2 maillons.



*Pitch 5 Ramp Pitch, 29 m.*

Touted as the best pitch in the cave, this drop didn't do much for us. We felt that the crashing water and good hang of Maelstrom was far superior. Ramp Pitch has, for some inexplicable reason, a bolt on the left approach to it. Directly opposite, about 600 mm away and in a better location is a perfectly good horizontal projection. A tape on this gives a good back-up while a dinky knobby projection over the pitch itself can be used to give an excellent hang. A wire trace should be carefully positioned on this projection. Expect some tightening up once on the rope - some of the knobby bits are fragile.

Rope: 32 m.  
Rigging: Short tape, medium trace, 2 maillons.

*Pitch 6 Spangley Pitch Part I, 47 m.*

Just above this pitch the China Crisis route joins in, and since most of the draught follows this route, it suddenly gets very cold. On our trip, typical air temperatures were 8°C, but the chill factor caused by the draught was very high, bringing the effective air temperature well below this value.

Vertigo Traverse is followed out to an alcove above Spangley Pitch. Apparently there are two bolts here, but we preferred to use a horizontal projection on the far 'nose' of the alcove as a back-up while the main belay was around an enormous bollard at our feet. Descending the tight back-up rope brings one directly onto the pitch. A quick change over and away. A rebelay has been installed on the last (60 mm thick) bed of competent rock just below the waterfall ledge. This is about 15 m below the pitch head. Below this bolt the wall consists of soft mud, which can be easily penetrated by an index finger. This pitch was rigged using 8 mm diameter rope - it was quite fast on worn racks, especially with added lubrication from the mud.

Rope: 50 m.  
Rigging: Medium tape, long tape, 2 maillons, 1 karabiner (on rebelay)  
or 2 maillons & 2 bolts & hangers, 1 karabiner.

*Pitch 7 Spangley Part II, 13 m.*

By rights this is a separate pitch. There is quite a substantial landing with passage leading off, at the base of Spangley I. A 'spit' has been installed (by Warild?) on a verandah of rock directly over the pitch. After the bolt recovery tool was employed, a bolt could be inserted into the spit to give a free hang. The back-up was to the previous pitch. This is quite a draughty spot to hang about in.

Rope: 15 m.  
Rigging: 1 maillon and bolt and hanger.

*Pitch 8 Handline, 3 m.*

Useful for pack hauling on the way up. A bollard on upper left takes a loop of rope for a belay.

Rope: 5 m.

*Pitch 9 Killing Joke, 44 m.*

The most aptly named pitch in the cave. This pitch was vastly improved by a bolt placed by Warild in May 1986, way out over the pitch. Two bolts for back-ups are located further back at the start of the traverse. One of these is hopeless and should not be used. (It will be obvious which one.) The hang from the main bolt allows one to descend the rope down a spray spattered pitch with no serious problems for just over halfway. A major ledge at this point requires a rebelay. Apparently a spit has been inserted here, but 20 minutes of fruitless, freezing searching failed to find it. So a bolt with integral hanger is now located on the left hand (looking down the cave), or northern, side of this waterfall pitch. This new rebelay takes care of the worst rub, but a second bolt should ideally be placed about 10 m above the pitch bottom to take out a lesser rub. However, given the time already spent, this was considered to be non-essential although its omission marred the aesthetics of the pitch somewhat.

Rope: 45 m.  
Rigging: 2 maillons, 2 bolts and hangers, one karabiner for rebelay.

*Pitch 10 Maelstrom, 35 m.*

Amazingly the ring hanger for this pitch is still in its spit (if only because the bolt is screwed into the spit too tightly for the public spirited boys to be able to undo it). The bolt is almost on the lip of the pitch on the right hand side. A back-up to the "thread-throughs" in the stream, and a rope tail allow a pretty good take off for this great pitch. It's a real classic, free hanging and with lots of crashing water - great stuff.

Rope: 37 m.

## Australian Caver No. 123

Rigging: 2 long tapes (back-ups), 2 maillons, rope protector for main rope over lip.

Descend on a tail and change over to main rope just below lip - a ledge here is of immense use.

### *Pitch 11 Never Forever, 14m*

Most people will be wishing to do the through trip so the rock projection on the floor suggested by Bunton and Eberhard is of no value. On the left hand wall, several thin flakes allow a trace to be placed to give a hang over a severe, but rounded, lip almost directly onto the uppermost wedged boulder pile that it is necessary to reach if the Mothers Passage into Growling Swallet is to be followed.

A gentle pendulum, at about 7 m below the lip brings one onto this boulder pile, where a wedged knot will allow the rope to be held in place for the following cavers. A Plumrose Deli Ham tin (opened) marks, in a rather gross way, the correct landing point.

Rope: 12 m (16 m if going to very bottom).

Rigging: 1 long wire trace, 1 maillon.

## REFERENCES

ACKROYD, Peter and TAYLOR, Roger. (1989) Endorphin abuse amongst cavers - the VSA Ice Tube to Growling Swallet through trip. *Nargun* 22(2):16.

ACKROYD, Peter. (1989) The bolt restorer - an effective means of re-using old bolt anchors. *Nargun* 22(2):17.

BUNTON Stephen and EBERHARD Rolan. (1984) Vertical caves of Tasmania - a caver's guidebook. Adventure Presentations, Sydney:45-47.

WAILES Trevor. (1982) Ice Tube - 5 June 1982. *Speleo Spiel* 177:3-7,9-10.

## 34TH ASF COUNCIL MEETING - JINDABYNE

January 1990 - By C Dunne

This meeting of the ASF Council was held at the Sport & Recreation Centre, Jindabyne in southern NSW. For perhaps the first time in years we managed to cram all the business into one day instead of the usual two. However, there was a short NSW Speleo Council meeting held on Sunday morning. Ian and Rosie Mann (those compulsive organisers!) staged a barbeque on Saturday night. Thanks are also due to them and to Bob Kershaw (ISS) for setting up the venue - most comfortable.

19 out of 24 Member clubs were represented at this ASF Council meeting. Only three of our Associate clubs were represented. One of these, Flinders University Speleo Society, was granted ASF Membership. They had a letter of support from CEGSA, our only other member club in SA.

Our offer, in early '89, for two of the Tassie clubs, TCC and SCS to rejoin the Federation, has not so far been taken up. However, Stuart Nicholas (TCC) was present and was asked to personally approach both clubs to reconsider. (TCC has since joined as an Associate.)

One of the Tassie clubs' "beefs" had been the high cost of fees. Capitation Fees for 1990 increased only 50c to \$13 (\$17 for Individual Members), with the big \$6 discount for fees paid by 30 June being maintained for another year. Thus, fees are effectively \$7 (and \$11 for Individuals). This fee reduction did not entice SSS or CCC to apply for Membership during '89; they remain as Associates. Fees will rise another 50c next year.

To finance the cut in fees, Newsletter costs were lowered dramatically. In practice this meant a cut in size for each issue coupled with a scaling back on print quality. The next problem here is to get some improved quality articles.

On the Conservation front, we had three separate reports: Craig Hardy - Queensland; Rauleigh Webb - WA/SA; and Arthur Clarke - Tasmania. Pat Larkin resigned in September, due to a conflict of interests. He is to be replaced by Mike Gibian, based in Sydney. Derek Hobbs (President of the NSW Speleo Council) and Pat Larkin, reported on NSW issues, particularly the mining threat at Yessabah, near Kempsey.

Craig brought us up to date on Mt Etna. This culminated in the needless destruction of "Speaking Tube" in June '89. It is now hoped, especially with the change of government, to gain National Park status over parts of the mountain.

Rauleigh advised that both WA clubs are represented on the government's Cave Management Committee for Leeuwin-Naturaliste National Park. An ASF submission was lodged on the Draft Plan of Management for the South Coast Region (which includes much of the WA Nullarbor). (Note that Highland Caving Group also lodged a detailed submission.) Development at Exmouth, on the Cape Range karst, is likely to proceed despite environmental concerns.

Arthur reported on the impact of Benders Quarry on Exit Cave, at Ida Bay. The many through-trips in Exit Cave are leading to problems with mud-tracking (he suggests several gates). There are similar problems with Kubla Khan Cave, at Mole Creek. The proposed Great Western Tiers National Park would include many of the Mole Creek caves. Parks, Wildlife & Heritage are seeking input before they prepare a Draft Plan of Management for Tasmania's World Heritage Area, which includes parts of the Mole Creek and Ida Bay karst areas, and others. Tassie clubs are seeking changes to the Permit system, including removal of restrictions to Lynds Cave, where only responsible cavers bother to get a permit!

Peter Matthews reported progress on sales of the "Australian Karst Index", and on making the Karst Data Base more accessible and adapting it to run on PCs.

After a year's consideration and numerous changes, the Cave Safety Guidelines developed by Ann McLaren, were adopted. They now include a front end of "legal cautions". Ann is encouraging people to report ALL "incidents", as well as accidents occurring in caves.

The elections saw the return of the incumbents: Lloyd Robinson, Pat Larkin, Rauleigh Webb, Chris Dunne, Derek Hobbs, and Brendan Ferrari.

Main item of business was discussion of the proposed changes to ASF's structure. During the year, Lloyd Mill and Derek Hobbs drafted some proposals culminating in an article by Lloyd Mill, "ASF: Renovation and Renewal", published in "Australian Caver 120". This was the only paper discussed, with no new issues being raised. A paper by Evalt Crabb, "Some Comment on the Future of ASF", was circulated but not discussed.

Some of the main proposals the meeting agreed on include: election of the Executive (not including the President) as a "block", by Senate-style voting; a one representative per fifteen members system of "proportional" representation for clubs, although clubs will be allowed a minimum of six members. It is anticipated that Constitutional changes to bring the restructure into effect will be voted on at next year's CAVE LEEUWIN Conference, in WA.

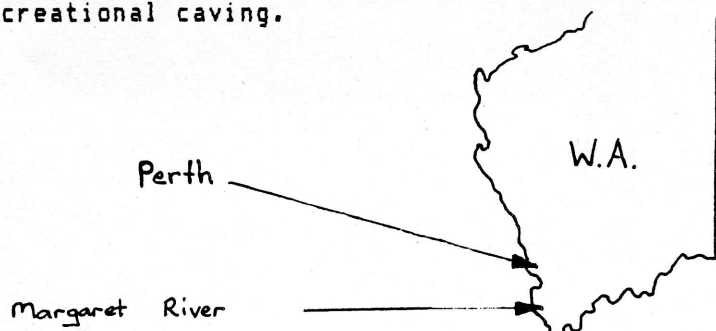


## CAVE LEEUWIN

The 18th Biennial Conference of the Australian Speleological Federation Inc.

All enquiries to CAVE LEEUWIN, P.O. Box 120, Nedlands, Western Australia, 6009

1990 has finally arrived and with it the run-up to the 18th Biennial Conference, CAVE LEEUWIN. The Conference is to be held at Margaret River in Western Australia from 30 December 1990 to 5 January 1991 inclusive. The theme is recreational caving.



Due to the fact that the Conference is being held in the middle of a tourist region during the height of the tourist season - the public will be encouraged to observe proceedings.

Specific details of accommodation will be published at a later date but as mentioned in previous Conference notes, all types of accommodation are available. However, 20 four berth rooms (\$12/night) have been reserved at the local Backpackers as well as 3 four berth caravans (\$30/night). These reservations can only be held for a limited time so early confirmations are sought. See the back of this issue of Australian Caver for Letter of Intent and booking details.

A call for papers is issued. Papers must be either typed double spaced or preferably on computer disc - any word processing format. Handwritten text is NOT acceptable. Due to the desire of CAVE LEEUWIN to pre-publish Conference Proceedings, the deadline for Abstracts is 1 July 1990 with completed papers due no later than 1 October 1990.

CAVE LEEUWIN is inaugurating POSTER SESSIONS also. Individuals and societies are encouraged to present a POSTER - even if they are not attending. The posters will be on display for the duration of the Conference and may reflect any speleological or environmental theme. Remember that the Conference will be open so posters will have maximum public exposure - they need to be educated in cave conservation etc., just the same as we do. So get your thinking caps on - present a poster on pet projects, theories, achievement/s, equipment or environmental concerns. Bear in mind that you may not get here but your message will. Tourists from all states and overseas visit this region of WA so if your message has an environmental theme it may help your cause.

Societies and individuals wishing to sell products will be expected to be responsible for their own sales - provided they register with Conference organizers well beforehand. Technical workshops are also planned.

For those attending the Conference but not participating in the formal proceedings, short excursions should be available on a collective or drive yourself basis. More details will be given as they come to hand.

### PROPOSED SCHEDULE

Sun. Dec. 30	Registration	Excursions
	Evening.....Ice Breaker Barbeque	
Mon. Dec. 31	Committee Meeting	Poster Session
	Evening.....New Year's Eve Party	
Tue. Jan. 1	Official Opening	Papers
Wed. Jan. 2	Papers	
Thur. Jan. 3	Papers (half day) Poster Session	Speleo Sports
	Evening.....Display of Competition photographs	
Fri. Jan. 4	Papers	
	Evening.....Caver's Dinner..Presentation of Awards	
Sat. Jan. 5	Committee Meeting	End of Conference

# PHOTOGRAPHIC COMPETITION -- Conditions of Entry

The aim of a photographic competition is to entertain and educate while at the same time compete against other entrants for favourable criticism.

1. An entrant need not be an attendee of the Cave Leeuwin Conference. All posted entries must enclose cheque/money order to cover return postage.
2. Photographs that have been awarded prizes at previous ASF conference photographic competitions are not eligible.
3. A limit of 5 photographs per category. A maximum of 3 photographs may be submitted in any category as a story entry and be classed as 1 entry.
4. An entry fee of \$3 per category is imposed irrespective of the number of photographs entered in that category.
5. All entries must have been principally taken by the entrant ie. directed operations.
6. Photographs that in the opinion of the judge/s depict unsafe acts or equipment will not be eligible.
7. If insufficient entries are received for any category - entries in that category may be suppressed or absorbed into another appropriate or open category.
8. If all entries in any category are deemed to be of insufficient quality - that category will be suppressed.
9. All slides must be within the 50mm x 50mm (35mm) format. A 5mm black dot must be in the bottom left hand corner of the viewing side. The entrant's name, division number and title must also appear on each slide entered - it need not be on the viewing side.
10. The minimum size for black and white and colour prints is 250mm x 200mm. Entries must be mounted with the entrant's name, division number and title printed on the rear of the mount.
11. A trophy will be awarded to category prize winners.
12. If an entry in any category is deemed by the judge/s to warrant further significance - a special Grand Prize will be awarded. Only one Grand Prize will be awarded.
13. The principal judge's decision will be final.
14. Deadline for entries is Monday 31 December 1990 - either handed in at registration desk or posted to CAVE LEEUWIN - PHOTOGRAPHIC COMPETITION, P.O. Box 120 Nedlands 6009 - with no other conference documents. All posted entries will remain unopened until 31 December.

## CATEGORIES

	SLIDES	B & W PRINTS	COLOUR PRINTS
SURFACE must contain Karst features	S1	S2	S3
ENTRANCES	E1	E2	E3
PASSAGES/CHAMBERS	PC1	PC1	PC3
DECORATION	D1	D2	D3
SCIENTIFIC	SC1	SC2	SC3
ACTION/TECHNIQUES	AT1	AT2	AT3
HUMOUROUS	H1		

Australian Caver No. 123

CAVE LEEUWIN

-- LETTER OF INTENT --

Please return this notice to  
CAVE LEEUWIN  
P.O. Box 120  
Nedlands 6009

I, . . . . . intend/do not intend attending CAVE LEEUWIN

Address.....

I shall present a paper/s

YES

NO

☐☐

Title.....

Title.....

Title.....

I shall present a poster/s

☐☐

Title.....

Title.....

I shall be entering the Photographic Competition

☐☐

I intend bringing .....dependants with me

☐☐

I intend bringing .....other cavers with me

☐☐

I shall arrive by BUS / PRIVATE VEHICLE / TRAIN / AIRCRAFT

\*\*\*\*\*  
ACCOMMODATION BOOKING FORM

BACKPACKER'S Hostel-type accommodation close to the Conference venue. Twenty 4 berth rooms have been reserved at a cost of \$12 per head per night. These reservations cannot be held until the end of the year without confirmation and ultimately deposits. So - book early, preferably NOW.

CARAVAN PARK There is also a caravan park close to the venue. Three 4 berth on-site caravans have been reserved at a cost of \$30 per night (for 4 persons). As with the Backpacker's, these reservations cannot be held indefinitely without confirmation. Tent sites are available for \$4.50 per head.

HOTELS There are hotels and there are hotels. Some cost a lot while others cost a lot more than a lot. Prices range from \$65 to \$125 per night for those that can afford such outlays to well beyond \$125 for those who feel that they have comfortably 'arrived'. See below for booking.

I, . . . . . wish to book the following accommodation;

BACKPACKER'S

\$12 per head per night Number of berths wanted - place number in box

CARAVAN PARK

\$30 per night for a

4 berth on-site van

Place number of berths wanted in box

Do you mind sharing with others? Y/N

Tent sites

\$4.50 per head per night

Number of people and  
number of tents

HOTELS

I require hotel accommodation for ..... people at \$65 per night  
\$125 per night  
more than \$125 per night

I and ..... people will be staying with friends/relations

I and ..... people already have our accommodation organised



# Australian Caver No. 123

## OFFICERS

Please write direct to the Officer concerned

Public Officer	Gary Mayo	21 Gaunson Cres	Wanniassa 2903	(062)316862
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