

# AUSTRALIAN CAVER

THE AUSTRALIAN  
SPELEOLOGICAL QUARTERLY

**No. 122**

**1989**



# AUSTRALIAN SPELEOLOGICAL FEDERATION INC.

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Metropolitan Speleological Society, PO Box 15, Broadmeadow, 2292  
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RAN Caving Association, c/- 30 Douglas Ave, Nth Epping, 2121  
Sydney University Speleological Society, Box 35, The Union, Sydney University, 2006  
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Western Australia Speleological Group, PO Box 67, Nedlands, 6009

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Chillagoe Caving Club, PO Box 92, Cairns, 4870  
Cave Rescue Squad of NSW, PO Box 122, Bankstown, 2200  
Nth Queensland Speleological Association, 1 Boden St Edge-Hill, 4870  
PNG Cave Exploration Group, c/- G. Francis, PO Box 1824, Port Moresby  
Scout Caving Group (Sth. Aust), c/- 44 Fullarton Road, Norwood, 5067  
Sydney Speleological Society, PO Box 198, Broadway, 2007  
Tasmanian Cave & Karst Research Group, PO Box 338, Sandy Bay, 7005  
Rover Speleological Society of NSW, 12 Cobar Place, Cartwright, 2168  
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C/- 13 The Mall, Warrimoo, 2774.

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### DEADLINES FOR FUTURE ISSUES:

No. 123: end February 1990

No. 124: end May 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: Talus in Dalley's sinkhole (M35) P.Ackroyd 1983

## NOTICES AND NEWS

### ASF inc. Committee Meeting January 1990:

This will be held at The Jindabyne Sport & Recreation Camp on 26-28/1/1990 (Friday, Saturday, and Sunday). Tentative accommodation has been booked for the Friday and Saturday nights in self contained lodges which each have cooking amenities, lounge area, bathroom and two bedrooms each sleeping 4 persons ie.8 per lodge. The cost for this accommodation will be \$20.00 per person for the two nights (room only) ie.\$160 per lodge. The cost will also include a bar-b-que on Saturday night. At this cost there will be no discounted rates. If you wish to avail yourselves of this arrangement then you must send \$20.00 to Ian Mann 28 Stephen St. Lawson by 1-1-89. Note this date has been extended but is the absolute deadline (all cheques should be made payable to ASF).

Remember that at this meeting the restructure of ASF will be discussed so make sure either (1) your delegate attends and is well versed on your views on this matter or (2) you make your views known to the committee well in advance.

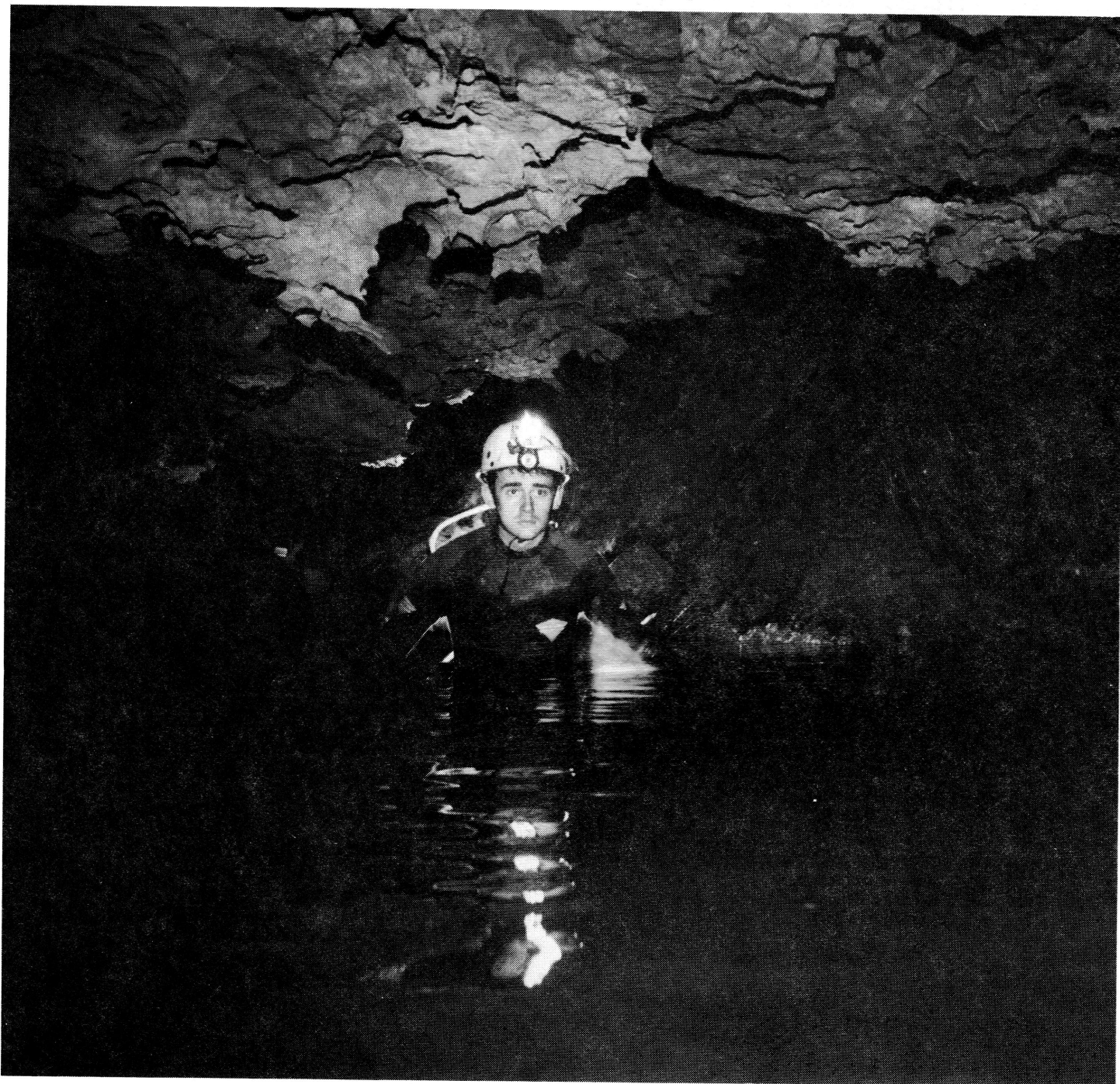
## MANAGING TASMANIA'S WORLD HERITAGE AREA— WHAT DO YOU THINK?

Are you interested in the future of Tasmania's World Heritage Area? How should this magnificent natural area be managed? The Tasmanian Department of Parks, Wildlife and heritage wants to hear your ideas. From the beginning of December 1989 until the end of February 1990, the Department will be seeking submissions from all interested individuals and organizations. Your submission can be as long or as short as you like. Pamphlets detailing the boundaries of the area, important management issues and giving advice on your writing your submission are available from the Department. So, have your say! Your ideas will be considered by the department in the preparation of a draft management plan for the area.

For further pamphlets and any further information, please contact:

World Heritage Area Planning Team  
Department of Parks, Wildlife and Heritage  
GPO Box 44A  
Hobart, 7001  
ph: 002 303912  
fax: 002 238765





RIVER PASSAGE IN DALLEY'S SINKHOLE (M-35), BUCHAN, VIC P.Ackroyd 1988



## ASF RENOVATION & RENEWAL SUBMISSIONS

1) By Ian Binnie 30 August 1989

Every organization I have been involved in - either on a hobby or work basis - at some time suffers from the "proportional representation" problem. Unfortunately none has adequately solved the problem, the best that can be achieved is to resolve the issues which brought it to a head. Changing the rules for representation will do nothing to resolve the underlying problems.

In the ASF case this is not a gerrymander as it is imposed, not from above but, by the members themselves. If VSA or SUSS feel under-represented they may divide into smaller groups and thus gain additional representation; this would of course create internal political difficulties.

Realistically, Australia is a federation of states which for better or (most probably) worse control environmental issues. An organization, like ASF, which wishes to influence fundamentally environmental issues MUST have an effective state organization and should ideally be a federation of state organizations. These state organizations may be comprised of clubs or not but there is no need for this to be nationally uniform. VSA seems to suit Victoria which has only one major caving area but this would not work in NSW.

I personally feel that caving itself is best carried out in a club environment. Logically caving should have a 3 tiered organization: club/state/national to reflect the natural division into day to day/cave management and access/ethical issues. Issues which are common or transcend state boundaries (such as codes of practice, ethics, etc.) should be nationally uniform.

The solution is for NSW to form an effective state organization to resolve state issues. Unless cavers can speak with a combined voice their views will not be respected.

ASF should adopt a federal structure, and/or limit deliberations to issues involving more than one state.

2) By Les Pearson 17 September 1989

As one of those who have consistently opposed joining ASF as a full member "until they set their house in order" it is incumbent on me to be forthcoming in what ought to be done to make joining worthwhile. try to solve interclub arguments at the expense of the rest of Australia.

What needs to be done is some clear thinking throughout the country on the following topics:

1. Do we really need and are we willing to support an Australian caving organisation.
2. If an Australian organisation is required what purposes is it to serve in addition to speaking for all cavers in Australia.
3. How is membership determined for an Australian organisation and what is its relationship to local clubs.

These and other matters should be asked of all Australian cavers in an effort to ascertain the "grass roots" opinion as to what is required. While I hate the thought of all the paperwork I believe that a comprehensive questionnaire needs to be sent out through clubs to measure their opinion of all cavers in this matter.

If an Australian organisation is necessary the management arrangements need to be thought out to take account of the wide spread of cavers across the continent. There may need to be a number of levels of management, perhaps along the lines:

1. Management executive comprising president, secretary and treasurer to deal with the routine operation between committee and general meetings, with allowance for meetings by telephone conferencing or any communication method suitable to the majority of the executive to allow business to be dealt with expeditiously without the need for travel.

2. Management committee, comprising one representative from every state plus the management executive, which meets at least once each year, with allowance for meetings by telephone conferencing or any communication method suitable to the majority of this committee to allow business to be dealt with expeditiously without the need for travel.

3. General meetings where all members elect the management committee and executive, attend to constitutional matters but no other formal business. These meetings should be a place for education of and communication between members on all matters related to caving in Australia particularly together with those on the world caving scene.

There is a need to delegate virtually everything to the executive and use the committee only where some wider opinions may be needed. The general meeting should not be involved in any management other than elections and revisions to the constitution.

Any Australian caving organisation must deal only with matters relating to Australian caving and not become involved in local or state matters at all. It should certainly should not act as a court of final appeal to solve disputes unless they involve several states. In states with more than one club the clubs or that state should set up their own state arrangement for state coordination and settlement of any state problems.

Where members are not happy with the way the executive run the organisation they must toss the executive out and elect others who will run things the way that members want. It is a waste of time to elect people to do a job and then expect them to consult you over all sorts of minor matters before making decisions. Any reasonable member of the executive will be aware of the opinions of other people in the organisation and should take steps to gauge the members needs in the most appropriate way in contentious matters. There are various ways of polling members where this is required and where people are asked for their opinions a nil response is fairly taken as a lack of interest in the final outcome.

The matter of finance for an Australian organisation will tend to solve itself. If cavers really see the need and want a national organisation they will support it. However it is vital to have a direct relationship between membership, voting rights and membership costs.

Some of the cost of Australian Caver could be well covered by the cost involved in producing and circulating the vast array of club magazines some of which are of limited and passing interest. We may be better served by one good Australian magazine of high quality rather than the assorted bag we now get. An Australian caving magazine of high quality would be worth supporting and would not be a drag on finances as is the present one. One might ask whether Helectite could be the vehicle.

It would seem that clubs should still produce their own publications for their own members but the Australian publication would have the right to extract material from the club magazines which appears to be worth a wider circulation and so avoid the need to circulate all club magazines to all clubs. This would not prevent clubs exchanging magazines if they wish but could result in some savings in printing/postage which would offset cost of the national magazine.

I personally believe that a national organisation is warranted and I would like to support it. However I think that the gerrymander in ASF could show Queensland, Western Australia and the Federal Government a few things they don't know yet. I would prefer membership to be on a club basis rather than a purely individual basis, but the clubs should be members having membership size related to the number of financial members in the club so that voting rights and membership fees are directly related to the number of financial members of the club. Where clubs have members paying less than the normal members fees the national membership, fees and voting rights for such members would be reduced in proportion to the fees paid by those members.

(Membership size =  $\frac{\text{Total club subscriptions}}{\text{Membership fee}}$ )

The management committee I have suggested to have a member from each state plus the executive. Election of the state members gives a spread of representatives over the nation and in many states where there is a state organisation this will be easily realised. In the other states the members of that state could elect

their member on an agreed basis to rotate around the clubs or if they fail to agree in this by secret ballot of the members within the state as they see fit.

While CCC as a club has sat for years as an Associate I suggest that a club that does caving should not have an option to be an Associate. It should be either in as a member or out altogether. It is questionable whether there is need for any Associate membership at all.

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## FRIENDS OF BUCHAN CAVES

by John Van Dyke

As the co-ordinator of the friends of the Buchan caves group I've been thinking of writing an article for Australian Caver, to explain the role of such a group in caving areas. With a (very) rough draught finished and the article put on hold, relief came in the form of a letter written to the Australian Cave & Karst Management Association newsletter (June 1989) by Graeme Parks (Ranger in charge ... Buchan Caves Park). This letter spells out what we are about and what we are doing in the area. I've taken the liberty of copying the letter in full.

\* The friends of Buchan caves group plays an important role in karst and cave management in Buchan. Formed in 1987, this volunteer group has been involved in a wide range of projects, provides valuable advice to management, and is an important link between management and caving organizations.

All friends groups associated with areas managed by the Department of Conservation, Forests and Lands are co-ordinated by the Victorian National Parks Association. The groups differ greatly in the way they operate. Some are highly organized with a committee structure and regular meetings, while others, such as the Buchan friends, are more loosely structured with no committee.

Most of the Buchan friends are also members of the Victorian Speleological Association. When the group was originally formed one option discussed was to have it structured under the V.S.A. All members preferred a separate organization under the V.N.P.A. They felt that this may encourage more non V.S.A. members. The group has a co-ordinator who organizes all group projects and activities. Four project week-ends are organized each year and prior to these the co-ordinator and ranger staff develop a suitable program. On the project weekends the co-ordinator organizes each project, with the ranger staff providing only general assistance and advice. At the start of the weekend the friends gather so that tasks can be allocated. This is also a good time for ranger staff to have a talk about management issues, and recent developments. The weekend programs have to be flexible. Some have attracted over twenty-five friends resulting in additional projects having to be quickly organized.

It is important that the friends group is not seen as a cheap source of labour. When the Buchan group started there were some magnificent rumours that the friends would be replacing full time staff. After time the real objective of the group became apparent. The friends group has many strengths:

The skills of experienced cavers can be applied directly to assisting management.

Healthy communications can develop by having management and friends "rubbing shoulders" while working on projects.

A good understanding between management and friends can give cavers the opportunity to communicate their point of view.

Additional minds on the job can assist with problem solving.

Important jobs get done.

The friends have tackled many projects both above and below ground. Some of these are very unusual and certainly capitalize on skills of individual members. Examples of complete projects include:

Removal of excessive wire netting and light fittings from Fairy cave.

Development of a walking track to Moon Hill.

Removal of rubbish from caves.

Installation of a water pipe through a difficult section of a show cave.

Investigation of a cave communication system. One friend with expertise in electronics has developed an F.M. communications system which will be installed in the show caves.

Training staff in caving skills.



The friends have also been of enormous assistance in the development of policies for the management of caves in the Snowy River and Coberras-Tingaringy National Parks. The resulting policies have been well accepted by cavers. It is hoped that the friends will also be able to assist with the management planning of the Buchan Caves Reserve.

The project weekends offer good opportunities for social events, especially on the Saturday night. These evenings probably provide the best forum for communication between management and cavers.

Over the last two years there have been many advancements in the management of the Buchan Caves. This progress has been assisted by the significant contribution of the friends of Buchan Caves group. \*

I have been the group co-ordinator of our group since its beginnings and this time has been very rewarding for me. As primarily a sporting caver it is one way of giving something back to the caves.

I think Graeme has explained the role of a friends group better than I could. If you don't have such a group in your area then perhaps now is the time to approach your local ranger to see if he/she is interested in having the help of a group. If anyone wants any further information on setting up a group I would be happy to assist in any way I can.

\* to \* is reprinted with the permission of the A.C.M.A. from the June 1989 issue of the A.C.M.A. newsletter.

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## WHEN UNDERGROUND WATER IS NOT PURE: -

### Karst Water Supplies At Mole Creek -

#### A Local Perspective by D. Hunter

##### Preamble

Karst is a German term meaning basically a landscape of distinctive landforms and drainage features formed on rock which exhibits a high degree of solubility in natural waters. In Australia this rock is usually limestone, sometimes dolomite. The features of those landscapes include underground drainage, caverns, and a variety of surface landforms such as enclosed depressions and fluted rock surfaces.

The Incidence of Karst in Australia is very low on the world scale but Tasmania on its own comes closer to the World average. At Mole Creek, one would expect that on climatic grounds the streams would be largely perennial, however, the Mersey River is the only one. All other streams lose sufficient water underground to either abandon reaches of their channels for periods of time or to have permanent underground courses over part of their length. Water sources such as springs and Karst windows (short surface sections of the underground streams) are vital water supplies.

Sinkholes or dolines are drainage points to underground aquifers. In Karst there is little filtration of waters passing into the underground streams as the rock is cavernous and porous and often overlying material is coarse and soil is thin so seepage of contaminants is direct.

Also, tracing of water supplies is difficult as actual hydrology in most cases is totally independent of apparent drainage patterns observed as surface drainage divides. The Mole Creek area is claimed to be the most elaborate example discussed in Australian Karst hydrology publications so far.

I intend to deal today only with direct health threats posed by ignorance and carelessness with pollutants - the threats to the integrity of the Karst systems, and thereby the water supplies, by other effects of development such as siltation, accidental and deliberate diversion, mining, accelerated collapse and subsidence, erosion caused by pastoral and forestry activities etc. are vast.

Text  
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Before addressing drinking water quality at Mole Creek, the (Microbiological) Health Department Investigation Levels are:

Coliforms: 20 per 100 ml  
E. Coli : 2 per 100 ml (Faecal Coliforms come from animal and human waste.)

Kevin Kiernan, a Tasmanian geomorphologist specialising in Karst, has been studying the Mole Creek area. In his publications, he has shown that samples of Karst waters in the Mole Creek area have been analysed after heavy rain to contain 33,000 Coliforms per 100 ml and 14,000 Faecal Coliforms (1,650 times and 7,000 times the investigation level respectively). Of 17 sites tested in 1984, only one site showed no detectable Coliforms - within a cave under unlogged State Forest. Most sites tested were many times over investigation levels - the Sassafras Creek is particularly of concern. For water known to be used for human consumption in the area, the maximum contamination recorded was 2,900 Coliforms per 100 ml, 40 E. Coli., and 110 Faecal Streptococci.

A figure of 2,000 Coliforms per 100 ml is regarded by the U.S. Federal Water Pollution Control Administration as the maximum permissible for treatment to procure a safe water supply. But at sites such as Sassafras Creek the water is not treated before being pumped as a supply to local houses and flowing through the areas principal tourist campground where it may be consumed by visitors. Analysis of a single sample from upstream of the pump station revealed Coliform, Faecal Coliform and Faecal Streptococci levels of 2,900 per 100 ml, 280 per 100 ml and 80 per 100 ml respectively.

The highest contamination levels of 33,000 and 30,000 Coliforms were recorded from a sinkhole pond adjacent to a dairymen's shed and the latter reading from the spring to which the sinkhole drains. The Faecal Coliforms recorded there were 14,000 per 100 ml and Faecal Streptococci 14,000 per 100 ml.

While bacterial levels in Karst waters flowing through subterranean aquifers do not increase underground due to cold, neither do levels decrease appreciably as with surface streams where ultra-violet light acts to reduce the levels. So, what is put in the water remains.

Carcasses (as well as chemical drums and other refuse) are commonly dumped in sinkholes which are drainage points. As well, animal wastes from dairy run-off and livestock drinking points at streams add to the problem.

The Mole Creek tip is in a complex sinkhole area of major drainage value to Sassafras Creek. This tip contributes to horrific water quality problems in Sassafras Creek, which is also polluted by cattle and sheep carcasses and faces and further downstream, milking shed waste. This water supply serves many houses, milking sheds and farm stock.

If the Mole Creek tip continues to be used, it will only be a matter of time before the tip is expanded into the wrong sinkhole when DRAMATIC rises in pollution levels will be observed.

In the Mersey Hill area, the large pothole entrance of Redwater Pot, a major cave with a permanent inflow stream, has been almost filled in with refuse; I have several times noted plenty of carcasses there. The outflows however only show moderate levels of bacteria; the lengthy duration of passage to the outflows ameliorating the levels to some extent.

Pasture run-off and sinkhole dumping along the drainage system are affecting water quality in the Mole Creek. One cave is called 2-4-D Cave. During low summer flows the water at the campsite in the reserve is undrinkable.

There was a case of gastric disorder during the Great Tasmanian Forests Walk last summer when a camper only brought the water to the boil instead of the advised 10 minutes on the boil. Streptococci need a minimum of 3 minutes on a hard boil.

Ignorance of Karst drainage patterns and carelessness in the protection of Karst waters can be extremely dangerous to public health. At Mole Creek, population pressure and intensification of development is yet relatively low, but overseas many occurrences have been recorded which point to an urgent need to address land management issues at Mole Creek before worse local problems develop.

For instance, in Southern Ireland, one stream was found to have been used by cattle, a farm, several households and a creamery as a water supply, after having twice been fouled at cattle watering sites and used once as a sewer. Cases have been reported of infectious hepatitis and gastroenteritis from drinking contaminated water. In the U.S. a typhoid outbreak occurred when a Karst stream which was later shown to be fed by stormwater and sewage was used for a town water supply during a drought. In 1978 there was a report of 759 cases of gastroenteritis after a sewage leak in a Karst area in Missouri and Arkansas. In Caintana Roon of the Yucatan Peninsula, enteritis and other diarrhetic illnesses are the principal cause of death, and more than 40% of the deaths are due to pathogens that may be transmitted through groundwater. Viral outbreaks have occurred following the leakage of septic tanks or sewage into underground water which has been intercepted via wells or used downstream of springs for human consumption. Some forms of bacteria may survive up to 5 years in groundwater. One American study records that water polluted by heavy metals and sewage which was discharged into a sinkhole was found to emerge from 46 separate springs in 16 locations between 8 and 9 km distant. Another study revealed that polluted water from sinkhole dumps travelled up to 25 km and reports exist of pathogenic bacteria being transported up to 100 km underground. Hence in some more populous areas the long nurtured belief that underground water is pure almost by definition might better be replaced with the alternative viewpoint "Most water in caves today should be considered suspect and a potential transmitter of diarrhea, hepatitis, typhoid and other diseases."

The risk of Karst subsidence means that particular care must be exercised in the design and siting of sewage lines through Karst terrain as the potential exists for their being ruptured and effluent reaching the aquifer. Australia has already seen at least one case of a sewerage main rupture through Karst collapse, at Railton, Tasmania.

But, in conclusion, the Mole Creek cause is not lost. We still have time. Karst land managers need an information base and a few new ground rules.

- Prohibition of doline dumping.
- Closure of the tip - establish a rubbish pick-up point in conjunction with recycling facilities.
- Use of incentives under the National Estate Grants Program to fence and revegetate dolines and systems entrances in conjunction with youth employment programs rather than fill them in.
- Water catchment conservation measures.
- Disallow direct stock access to streams.
- Carefully sited ponds for dairy shed discharge, vegetation strips, and encouragement of liquid manure spreading measures on safe paddocks.
- Septic tanks, sewage pipes and ponds safely sited.

Finally, hydrology tracing and Karst systems inventory must continue as soon as possible.

Unfortunately, contrary to the belief of many Mole Creek area residents, listing of the area on the Register of National Estate affords no protection in any immediately tangible way. The only restriction is that, should the Federal Government become aware that a landowner intends selling his logs for export i.e. woodchips or pulp, there is power of veto. But the real impact of the listing is that under the National Estate Grants Program funds are available to help with projects to conserve or improve the area in regard to its heritage values as listed, and to compile information and education material. Local government and incorporated organisations are to send applications through the State Government for recommendation to the Heritage Commission.

The very real and tangible hope is that Karst land managers through pride and concern for the land's future integrity will individually adopt enlightened practices which will ensure a halt to the degradation of Karst resources including our local water supplies.

References include works by Kevin Kiernan, Robert Stenuit and Mars Jasinski, John Hails, Rundle and the late Joe Jennings.



# OFFICERS

Please write direct to the Officer concerned

Public Officer      Jim Reid      14 Garrard Street   Spence   2615   (062)585849

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Documentation	Peter Mathews	66 Frogmore Cres Park Orchards 3114	(03)8761487
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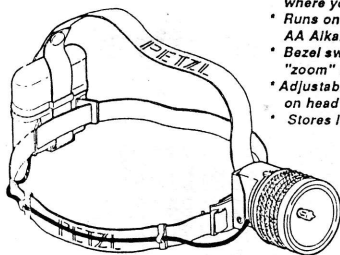
Beginners Manual	Peter Stewart	c/-V.S.A.Inc.G.P.O.Box 5425,cc Melbourne 3001	
Codes & Guidelines	Evalt Crabb	P.O. Box 154 Liverpool 2170	(02)6072142
Geodesy Karst	Pat Larkin	4 Holland Pl. Dundas 2117	(02)6841714
Jenolan World	John Dunkley	3 Stops Pl. Chifley 2606	(062)810664
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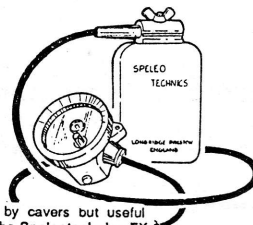


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## Lights

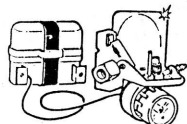
### SPELEOTECHNICS Sealed NiCd Rechargeable Headlamps

A rechargeable headlamp designed by cavers but useful wherever you need hands-free light, the Speleotechnics FX-2 is half the weight and half the size of a conventional miners light. The FX-2 features a Quartz halogen bulb and conventional low beam bulb plus a completely sealed battery. No chance of acid spills means no worries about your rope when you pack it with the light. High beam light is typically 10 hours. There's also a really neat and compact 12V recharger unit which just plugs into a car cigarette lighter socket or a 240V unit.



Books - SRT, Vertical, Bungonia, Timor, Jenolan, Nullarbor, Wee Jasper, Wombeyan

## Petzl Carbide/Electric Lights



PETZL LAZER Kaboom (headpiece)

ARIANE Plastic Carbide container



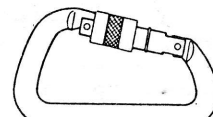
The Petzl Lazer "Kaboom" (L580) is a helmet mounted combination electric and carbide light which can be teamed with a waist mounted carbide and water container (L580, 202-200, 300 or ARI) - ideal for expedition use. The piezo-electric ignition system produces the distinctive "Kaboommmmm" and then you have a superb bright light.

The Lazer electric light is waterproof with a helmet mounted battery pack which takes 3 AA cells or a 4.5V cycle battery. The ARIANE plastic carbide container fills from the bottom - a good example of what can be produced from sound engineering design and modern high quality durable plastics.

Always take your spent carbide out with you.  
NOTE: Use of carbide is not permitted in caves within National Parks.

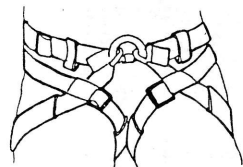


MERRELL Eagle/Lazer  
Bata 'Supaglug'

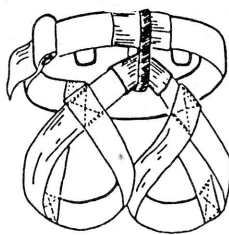


K250, C642 DMM Big D 11 mm

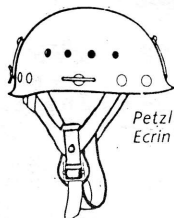
## Caving & Walking Boots Karabiners



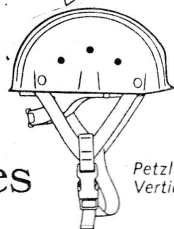
FRACTIO  
A NEW excellent, adjustable Cavers Harness



GEMINI  
Harnesses

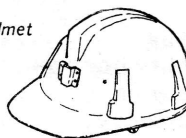


Petzl Ecrin



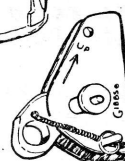
Petzl Vertical

Cavers Helmet

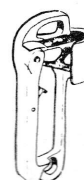


Joe Brown Climber

## Helmets



GIBBS Free Running

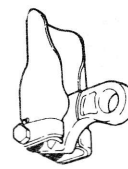


JUMAR '79

PETZL Croll



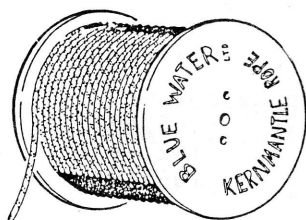
PETZL Expedition



PETZL Shunt



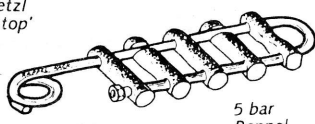
PETZL Basic Jammer



## Blue Water II+ Rope



Petzl 'Stop'



Spelean Whaletail

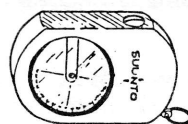
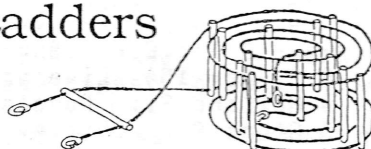
5 bar Rappel Rack



SPELEAN Rope Pack

## Rope Packs

## Ladders



SUUNTO Clinometer PM-5



SUUNTO KB14

## Suunto Compasses

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