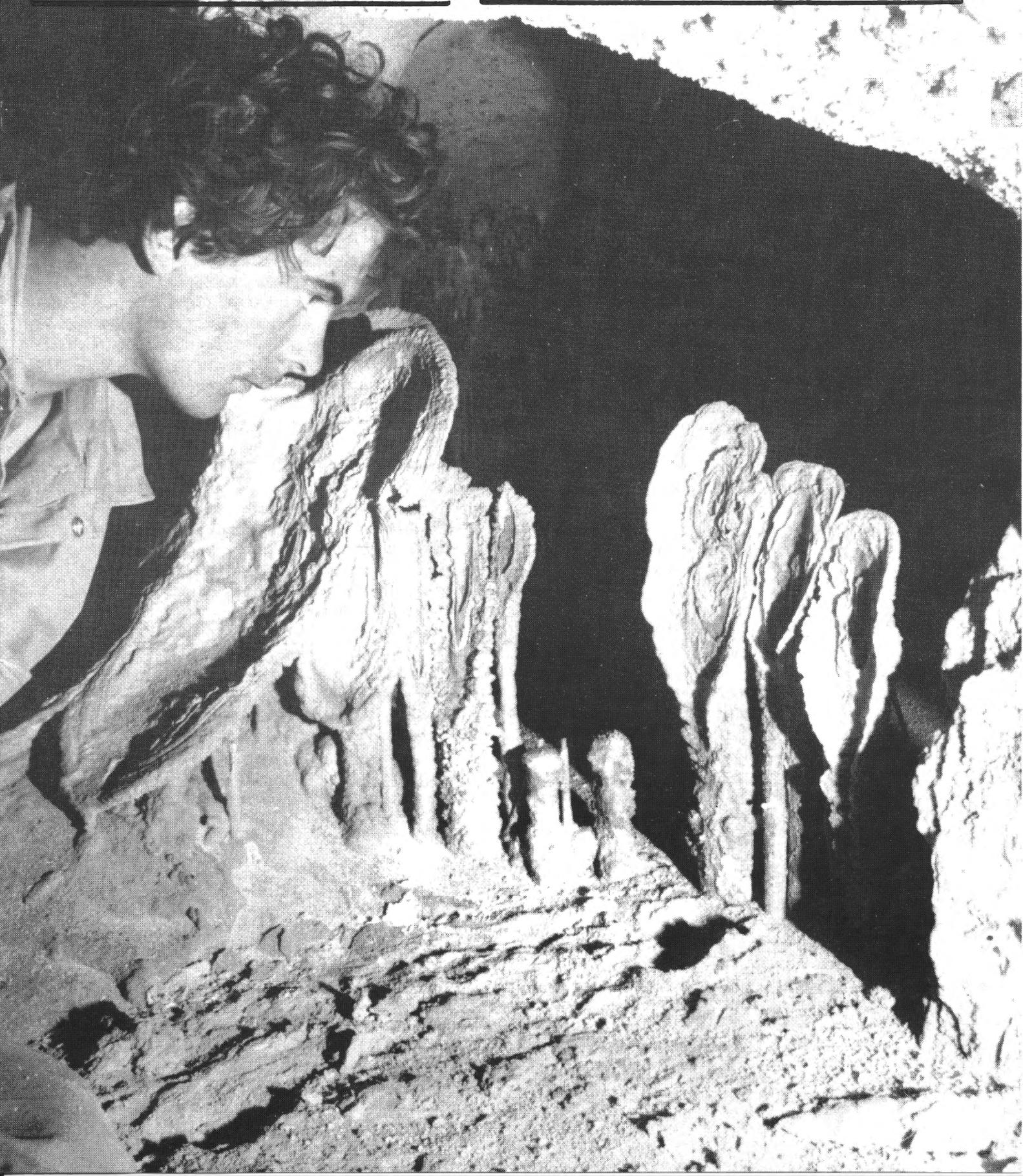


# AUSTRALIAN CAVER

The quarterly journal of the  
Australian Speleological Federation  
Issue No 134, 1993



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## EDITOR'S BITS

This issue of Australian Caver is late in getting to you for two reasons. Firstly the editor is flat chat at work and is likely to remain in that state until the end of the year. The second and major reason concerns the lack of material that comes in for publication. I cannot put together a newsletter without contributions. If this state of affairs continues then I will have no choice than to either: a) Reduce the number of issues per year to 1, b) go and sulk under my desk, c) print a chapter of my thesis on labour in Kenya and bore you all silly or, d) do all of the above. **Deadline for the next issue is Sept 30th and PLEASE get it to me on time.**  
**Clare Buswell.**

### WHAT'S ON.

**Wombeyan Karst Workshop.** November 20 & 21. Contact: Ernst Holland, Karst Resources Manager. Jenolan Caves Trust. P.O. Box 453. Oberon. NSW 2787.

**Australian Speleological Federation's Exit Cave Survey Project.** January 1994. Contact Arthur Clarke (002) 28 2099 or Ian Household (002) 33 3868. See details this issue.

**National Caving Conference.** British Cave Research Association. 10th-12th September University of Bristol Union. Contact Conference Manager Clive Gardener. 071 987 8820

**National Cave Management Symposium.** Oct 27-30 Carlsbad Caverns. New Mexico. Contact Dale Pate (505) 785 2232.

**New South Wales Cavers Dinner.** 3rd September. Contact Derick Hobbs (02) 652 1767

**Cavers Annual Picnic.** Oct 2-3. Jenolan Caves. Contact: Lucinda Coates (02) 888 5686

**Speleo Sports.** 30th October. Macquarie University Gym. Contact Phil Fleming (02) 660 2482

SEND REPORTS OF  
CAVING ACCIDENTS AND INCIDENTS  
TO MIKE LAKE  
C/- 2 Derribong Place, Thornleigh. NSW 2120.  
Ph (02) 4810949 ah.  
Note change of address.

This edition of Australian Caver was put together using some paper but mostly thin air.

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# LETTERS TO THE EDITOR

**Dear Editor.**

I have recently been awarded the Thomas Ramsay Scholarship of the Museum of Victoria. This prestigious fellowship is offered to those who can help to bridge the gap between the sciences and humanities, and in my case it will be to produce a social and scientific history of Australian caves. There will doubtless be other benefits as it will enable me to finalise and produce various other historical publications on the history of our caves.

I am planning to travel to a number of cave areas and to most major cities to search out further data and to tape record interviews with key people, including both those who have played an important role in recent cave exploration and research, and those who can recall aspects of earlier history.

One of the puzzles I am trying to unravel is what happened in Australian Caving between 1920 and 1945. There is virtually no documentation of the period, although Captain Maitland Thompson's Nullarbor Expeditions are well known.

It is clear from occasional graffiti, some newspaper reports (of which the most significant to my knowledge describe trips to Colong and Tuglow by Oliver Moriarty and his companions) and some oral history, that there were a considerable number of visits to caves, but little has been recorded.

So, I would be very glad to hear of any further information such as newspaper stories, significant graffiti, and particularly, contacts with people who were actually going caving during this period.

**Elery Hamilton-Smith**

P.O. Box 36, Carlton South, Victoria 3053.  
Phone (03) 489 7785 Fax: (03) 353 9212

**Dear Fellow members.**

I know you don't hear from me a great deal, although I have sometimes sent communication to some clubs requesting information updates, I'm sure you know who I am. Yes, I'm the person who maintains and updates the membership list. I occasionally hear from some of you, though not as often as I would expect, and it is hard to keep the records up to date if you don't tell me when you move.

Every issue of the Australian Caver has a note that carries my name and address and most of you received disks for transferring information from computer to computer. *Unfortunately that just doesn't seem to be enough.*

Take for instance the following: I recently received an address update list from a club. This list contained thirteen members. What was annoying about all this was the fact that only two of the people on the list were previously members of that club. The latest issue of Australian Caver was already on its way by then, so eleven of these members, all of them new to the ASF, will not receive

their copy, and eleven copies of the magazine are going to people who are no longer members!

I have a folder in my study labelled ASF 1993 Address Updates and at the moment it only contains lists from five clubs (some in fact received late last year) and some personal communication from members letting me know that their magazine was going to the wrong place or they had recently changed address etc.

Unfortunately some of these mistakes are going to recur. I have had people write to me with address updates only to receive updates from their own club that still has their old address on it. Without going through every letter and piece of paper in my files I can't avoid these instances so, if you think there is a problem, COMMUNICATE.

Also, if you send me your list on a disk, it would be a good idea to include a paper copy. Australia Post has a disconcerting habit of breaking anything that can be broken. If you would like the disk back please let me know. Generally, I don't return 5.25" disks but do return 3.5" disks. The reason for this is that a 3.5" disk will fit comfortably in a standard envelope whereas posting a 5.25" disk will quite often cost more than the replacement price of the disk. So send me disks, send a copy of the list on paper, write your name and address on the disk itself and remember: COMMUNICATE.

No system is perfect, even the most automated computerised system in the world still requires some effort from users and subscribers. That I have a new computer means not that the system works better, just that I can make mistakes faster! Remember, behind every major computer blunder there's a human quietly trying to sneak out the back door without being noticed, so if you think I have made a mistake - let me know.

**Steve Brooks.**

**Dear Oz Caver.**

Just a little plug for your poor relations: drain explorers. There are only about 100 of us registered with each other Australia wide. We explore storm drains, rail tunnels, public works infrastructure and the like. We stay out of sewers, Telecom tunnels and active rail tunnels. Just to wet your appetite, anyone interested in moths or bats in Sydney should examine Hercules Pillars: those wishing to examine Eels can find them in Eel Pit. There are also some unusual crystalline growths in SW00, greenish and sparkling and probably derived from some local industrial waste.

An extensive list of Sydney, Melbourne and Adelaide drains is available from P.O. Box 268, Abbotsford, Victoria 3067, or P.O. Box 649, Hurstville, NSW 2220. If anyone out there has a favourite local drain or tunnel location, could they please forward the information to the second of the above addresses.

**Mike Carlton.**

**Member of SUSS and Cave Clan Sydney Branch**

# CONSERVATION NEWS FROM TASMANIA

Arthur Clarke

## OTHER TASMANIAN QUARRY PROPOSALS

There are proposals to quarry calcareous carbonate in at least four areas of Tasmania: including south and west of Maydena and at both Redpa and Montagu in the northwest of the state. There has been limited karst research in some of these areas. Limestone in the Pillingers Creek/Risby Basin area southwest of Maydena is being investigated by the DMMR. Known to have high grades of calcium carbonate, the area is being considered as an alternate limestone supply for southern Tasmania. Speleologists have attempted to explore the karst potential but their studies have been largely thwarted by bureaucratic processes and the protests of local residents. However, a single dye tracing experiment from an obvious swallett in the region revealed a rapid throughflow time to an efflux stream 1300m away. The evidence suggested the possibility of a large underground conduit and cavers soon discovered a substantial cave. Known as Risby Basin Cave and located near the potential quarry site, cave exploration has revealed 400m of decorative stream passage.

Despite a proven 40year supply of high grade limestone at Risby Basin, Ray Bender has rejected offers to re-establish his quarry. The Tasmanian Government is now seeking expressions of interest to find another developer prepared to extract limestone in this virgin karst area. It is believed that the quarry site proposed is close to known karst features and in the vicinity of Risby Basin Cave.

Further west from Maydena there is a proposal for a quarry site in dolomite on Kallista Hill near the airstrip south of the STRATHGORDON ROAD. The karst potential is unknown. Similarly, little is known of the karst at REDPA in northwestern Tasmania where there appear to be two areas of limestone, each with a separate hydrology. Investigations for a potential quarry site have been or are being carried out at Redpa and there are similar proposals for a quarry in limestone at MONTAGU.

A large quarry at MOLE CREEK in northern Tasmania provides the other major source of limestone for industrial or metallurgical purposes. There are unconfirmed reports that, due to operational problems such as the need to remove excessive overburden, the quarry operator David Mitchell Estates may consider moving its operation to Dogs Head Hill. Located in State Forest at Mole Creek, Dogs Head Hill contains several significant karst sites including Bone Cave and Moss Palace. During recent research a local Mole Creek botanist, Michael Lichon, has discovered some unusual cave decoration in Moss Palace which he describes as phototropic phytospeleothems.

**Wylies Quarry:** This site is in Permian limestone at Glenorchy in the northern suburbs of Hobart. Calcium carbonate grades are reportedly around 80% and combined with the very fine silt sized sand component makes the product very suitable for agricultural lime. The product has not been marketed since the closure of Benders quarry and the Glenorchy site is reportedly up for sale!

**Karst Management and Problems in Forested Areas:** The potential threat to caves, karst and natural solution processes in other regions of Tasmania has provided the impetus for karst research and management studies in a range of surface and subsurface environments. At Mole Creek, an underground laboratory has been established in Little Trimmer Cave to monitor meteorological and hydrological conditions, in addition to faunal components in a cave ecosystem. In other areas of State Forest at Mole Creek, cave management plans are being formulated by PWH in two cave reserves: Kubla Khan and Croesus Cave. The caves warrant further protection and speleologists have made repeated requests for extensions to the present small reserves to provide a more adequate buffer from nearby surface activities. The formulation of cave management plans has been necessitated by the damage to the magnificent speleothems in these caves resulting from excessive visitor usage. In the Mt. Cripps State Forest area of north-western Tasmania, a co-operative approach has been adopted between APPM, the Forestry Commission and cavers.

Concerns have been expressed about proposals by the Forestry Commission to log parts of the Great Western Tiers over the next ten years. The logging will occur in areas being mooted for the Western Tiers National Park which includes much of the catchment of the Mole Creek karst.

**Magnesite Karst Under Threat in the Tarkine Forest:** In the heavily forested Arthur River/Pieman River/Savage River regions of northwestern Tasmania there are almost a dozen separate carbonate areas with varying karst potential. Located in a region described as the "forgotten wilderness" which forms part of the Tarkine Forest, this remote area includes deposits of limestone dolomite and magnesite. Significant features are recorded in the magnesite deposits. It is believed to be the only documented area of magnesite karst in the world. The magnesite karst area has been prospected for ornamental stone and magnesium deposits including the possible manufacture of magnesia. The karst area is unprotected and has been highly degraded due to soil stripping associated with the extensive mineral exploration. Due to the high regional rainfall soil erosion is very common. Exploration drilling indicates that the magnesite extends to a depth of 300m or more and some of the boreholes have intersected large underground cavities; one of these cavities is reportedly up to 100m deep. Documented features include: karst pinnacles and small karst towers, blind valleys, springs, small caves with limited speleothem formation and numerous surface solution features such as rillenkarren and large grikes.

**Tourist Development at Lake Lea in the Vale of Belvoir:** At least one karst area is threatened by proposals for a tourist development. Lake Lea in the Vale of Belvoir northwest of Cradle Mountain has been proposed as a site for a hotel tourist development including the construction

# CONSERVATION NEWS FROM TASMANIA

of a large "wilderness lodge". There are grave concerns regarding a range of environmental impacts, in particular the potential impacts due to the disposal of wastes and sewage effluent in a karst area. The development proposal has been opposed by government planning officers in the Department of Parks, Wildlife and Heritage (PWH), karst experts and recreational anglers.

The Vale of Belvoir is a sub-alpine karst area with *Poa* grassland similar to the Cooleman Plains area of southern N.S.W., the highest known karst area on the Australian mainland. The new Cradle Mountain link road traverses the Vale of Belvoir and several sinkholes were filled during road construction. Repair work to the road is a regular occurrence as collapse dolines appear with monotonous regularity. There is a considerable outcrop of limestone, however the relief is low. In the Vale of Belvoir, glacial drift deposits form a mantle or covering over the limestone. The landscape is pockmarked by cover collapse dolines and karst springs; Lake Lea is possibly a massive drowned doline or uvala. The suggested release sites for sewage effluent from the proposed hotel development have been vigorously opposed. Suggested sites include Lake Lea itself, the northward draining Lea River and the southern draining Vale River which flows through the Vale of Belvoir over Reynold Falls and into the lower Mt. Cripps karst area.

**Appointment of a Government Karst Officer:** In recognition of the importance of karst in Tasmania and the specialist knowledge required to manage caves and karst landscapes, the local PWH recently appointed a Karst Officer. There was considerable interest in the job and there were a number of applicants from around Australia. The successful applicant was Ian Houshold who interrupted his PhD. studies at A.N.U. (Canberra) to take on the position. Ian was appointed in November 1991 and has provided government with long awaited karst expertise. Although initially engaged by PWH in Tasmania to investigate karst resources in World Heritage areas, his job brief has been extended to cover a range of cave and karst management issues across Tasmania. Consequently, Ian has been actively involved in a number of cave management plans, including Exit Cave, the various studies associated with the surrounding Ida Bay karst, plus the rehabilitation plans for the Benders Quarry site.

**Cave Management Plans.** In addition to karst management issues, the need for cave management plans has been highlighted, particularly for caves with high conservation values. Management plans need to consider the whole cave, including the better known attributes such as cave deposits (sediments, speleothems and vertebrate remains), cave ecosystems and meteorological conditions. Other essential elements of cave management may include the preferred location of walking routes and track markers, cleaning or washing of speleothems with natural cave waters, delineating parts of a cave as temporary or permanent "no-go" areas, restriction of cave access and possible gating of entrances.

Cave management plans are essentially a response to demands for site protection and the need to conserve valuable karst resources. Some caves require protection due to the unmanaged impact of visitors, including well meaning speleologists! Cave deposits, cave ecosystems and cave faunas (aquatic and terrestrial) can be irretrievably damaged or destroyed by inadvertent or irresponsible caving, photographic or research activities. The impact of foot traffic is a particular concern, especially where there is uncontrolled movement with numerous tracks through large chambers or wide passages with unmarked routes or wide pathways in narrow passages. There may also be problems associated with general climbing or exploration activity, speleothem damage due to accidental breakage or dirtying by muddied hands and soiled overalls and the added problem of littering or removal of wastes.

**Hastings Caves and Thermal Pool:** The thermal pool at Hastings, just north of Ida Bay has been closed since early this year following a bacterial infection and contamination of the warm spring waters. It is believed that the contamination is coming from gravels in the base of the present pool site, but the nature of the bacteria: faecal Streptococci, *E. coli* and *Pseudomonas* suggest the possibility of some leakage from the nearby septic toilet system which adjoins the pool area where the changerooms are housed. These bacteria suggest a problem due to human or animal waste. Early attempts to disinfect the area resulted in the reported deaths of platypus in the adjoining Hot Springs creek. The state government has just announced a quarter million dollar upgrade of the Hastings Pool as the beginning of a new tourism complex in the area.

**Hastings Caves Carpark & Toilet Facilities:** A new toilet complex is about to be constructed in the rainforest near the Hastings Caves carpark. It is unclear whether this move is in response to the pool contamination - the actual caves and carpark are approx. 4km away from the thermal pool. The new problem now is that the new toilet block is planned to be built adjacent to a prominent karst feature - beside a doline.

**Radon Gas in Tasmanian Caves:** Following the report in "New Scientist" late last year concerning levels of radon gas in British limestone caves, there has been some over dramatised concern here in Tasmania. The issue has been used by some groups as an argument to counter the conservation value of some caves, with suggestions that if the caves are not safe for recreational use - what is the use in conserving them? Despite reassurances that these are only at barely discernable trace levels, depending on the trace element composition of the limestone, some ill informed critics including personnel from the Dept. of Mines and Mineral Resources (DMMR) in Hobart have stated that cavers and cave guides are at risk for continuing their caving activities. A suggested remedy to solve the problem is the installation of large fans to heighten air circulation and exhaust of "bad" air.

# NOTES FROM THE ASF EXECUTIVE MEETING

Chris Dunne and Miles Pierce.

Naturally, ASF Executive members attend our biennial Conferences and the ASF Council meeting each year. In addition, we meet twice during the year - last year in Melbourne and Adelaide in May and September respectively. Most recently, we met in Rockhampton on 17th May.

Rockhampton was chosen for a couple of reasons, one being that it's home turf for Vice President Peter Berrill and Conservation Co-convenor Craig Hardy. The other was to allow a joint meeting with the Executive of our sister organisation, the Australasian Cave & Karst Management Association (ACKMA).

ACKMA was starting the 10th Cave & Karst Management Conference at the "Tropical Wanderer" in Rocky over the four days 18th-21st May, followed by field trips to Chillagoe and Undara in Far North Queensland.

Field trips into the local show caves, Olsens and Cammoo just north of Rocky, were also staged during the Conference, and many of our Executive members stayed on for at least a few days of the Conference.

The evening prior to the meeting a Cavers' Barbeque was staged at Peter Berrill's place. This was an opportunity for ASF President Miles Pierce to present the Award of Distinction to Norm and Doreen Pershouse for their invaluable assistance to cavers in the longrunning struggle to save Mt Etna. Their farm adjoins the limestone quarry .

## Executive Meeting

In attendance were: Peter Berrill, Chris Dunne, Pat Larkin, Karen Magraith, Stuart Nicholas, Miles Pierce (President) and Keir Vaughan-Taylor. A phone hookup was made during part of the day with Clare Buswell, Brendan Ferrari and Peter Kraehenbuehl (Non-Executive Vice President) and Alan Jevons in Adelaide, but unfortunately their involvement was somewhat limited. Our other Non-Executive Vice-President, Mick Moylan (from Chillagoe) was unable to attend. Also on hand were Rauleigh Webb and Craig Hardy (two of our four Conservation Co convenors; Keir is a third).

Topics on the Agenda were: Future Directions and Promotion of ASF, Joe Jennings Tribute, Leader Accreditation, Insurance, Cave Diving, Conservation Issues (in Queensland, WA and Tasmania), Closer Working with ACKMA.

## Business

Two provocative discussion papers on ASF Future Directions were tabled by Clare and Stuart. Some changes already in place or in train are: more business-like Executive meetings, joint meetings with ACKMA, trialing of the Leader Accreditation scheme in SA. In preparation are: a promotional leaflet and design of a new letterhead. ASF's Administrative Handbook is to be expanded to include ASF's many Codes and reprinted in full every 5

years. An ASF wide caver insurance scheme is being investigated.

A part of the executive meeting was devoted to discussion of closer relationships between ASF and ACKMA. This session was attended by Andy Spate (ACKMA President), Ernst Holland and Kent Henderson. There was a general consensus on the sensibility of closer co-operation. Discussion included the ASF Caving Leadership Training scheme, possible joint hosting of selected seminars or gab-fests, possible joint participation in Consultancies, etc., a proposal for regular columns in each other's newsletters is in hand (see ACKMA's Column in this issue). A proposal for ACKMA to appoint an ASF liaison officer was supported by the ACKMA general meeting. ACKMA has already contributed to the evolution of the ASF Caving Leadership Training scheme and have registered an ongoing interest in it. Coinciding ASF and ACKMA biennial conferences are impractical because of different timing criteria. It was suggested however that an identified part of each organisation's conferences could be devoted to topics of specific interest to both bodies.

One venture which is looking good is the proposed book tribute to Joe Jennings, one of the founders and long time patron of ASF until his death in 1984. As co-ordinator of the project, Elery Hamilton-Smith is putting together an editorial committee. He has already had some discussions on the scope of the book, types of studies, etc.

On the matter of future ASF consultancies such as the one we undertook in Tasmania last January, some guidelines are to be developed and included in the Admin Handbook. It is important to retain intellectual ownership for work we might do as consultants. As mentioned above, some future consultancies might be done jointly with ACKMA. There may also be opportunities for ASF to undertake consultancies off shore.

On the conservation front: Arthur Clarke provided a written update on developments in Tasmania, mostly to do with the Benders Quarry issue - an alternative quarry at Maydena is to replace Benders which is being rehabilitated.

Rauleigh Webb and Craig Hardy gave verbal updates on developments in WA, Queensland and elsewhere. Craig would like to identify all potential limestone quarry sites so that we can steer the mining companies to the least sensitive sites. There has been no progress by the WA government on the Nullarbor World Heritage Nomination, should ASF have a role here?

ASF's role in the regulation of cave diving was discussed, a meeting between ASF and Directors of CDAA is planned for July to discuss penetration cave diving standards and other issues of joint interest with the aim of reaching a mutual accommodation.

Next meeting is planned for October. Any thoughts?

# RECYCLING MINE CAP LAMPS

Neville Michie

Many of the lamps of the Oldham or MSA type cap lamp units have found their way into hands (or at least on to the heads) of cavers. Because of the strength of their engineering design, they survive for many years, far outlasting the lead - acid accumulators that powered them.

The cost of the modern miner's lamp accumulators has become unreasonable and their performance in caving situations has become unacceptably poor. For example, whereas the old rubber cased accumulators from 1960 that I have will still give about 6 hours high beam operation, batteries as little as 3 years old become open circuit, or short circuit and are unusable. The old batteries used thick sponge - wood separators and tubular \*Exide-Ironclad\* type positive plates and so the batteries could survive being discharged and neglected. So when it comes to a matter of replacing the accumulators for miner's cap lamps there are several options:

Firstly, replace the accumulator with a new one (\$100+). If you do this be warned about a change to modern mine accumulators. They are now fitted with a fuse in the lid of the accumulator which is not accessible without special tools. That is, it is not likely to be able to be repaired in a cave. My advice is to open the lid of the accumulator when you get it and wire a link of two strands of 8 amp or one of 16 amp fuse wire across the fuse. This is easily available for repairing household fuses. This will ensure that the fuse in your lamp will not blow while you are underground. The original fuse was mainly used to satisfy mine safety demands that no spark should be generated by a lamp when in explosive atmospheres, even if a rail car ran over a lamp lead. I have not heard of any cavers having accidents with the old type of accumulator that had no fuse, but a short circuit in the cap lamp would blow a 16 amp fuse rather than melt the cable.

The second option is to buy a "gell cell", a sealed no maintenance (except to keep it charged) lead - acid battery, about \$30.00+. There are a large number of brands, sizes and voltages of these batteries so you can find one to suit your needs. They are not armoured for cave use, have no belt fixtures and have no strain relief facilities for anchoring the cable of the cap lamp. So to use these batteries some alternatives exist:

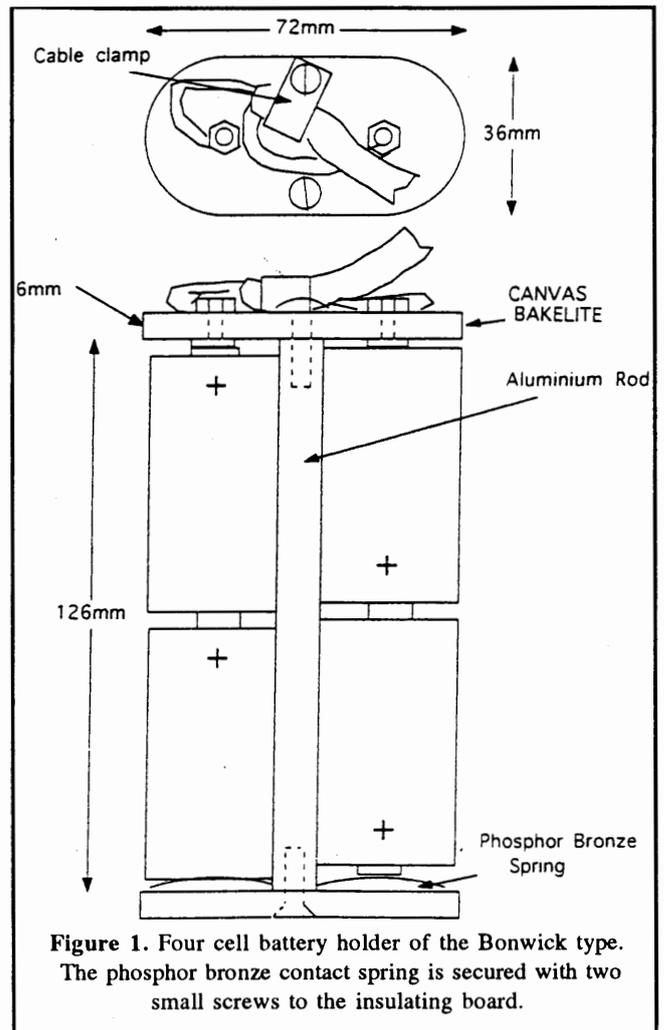
(a) find a type that will fit inside the emptied casing of your old miners lamp accumulator case, or (b) make or find a strong case with belt fixtures and anchor point for the lamp cable.

The third option is to find a nickel - cadmium accumulator to run the system. This may need a case, belt and cable anchor job as in (2) (b) above. The voltages that nickel - cadmium batteries come in are 1.2, 2.4, 3.6, 4.8 and 6 volts. There are reasons why the 2.5 volt system as is used by the Speleo Technics FX-2 is a good idea, the nickel cadmium cells run out very quickly and on a high voltage (e.g., 6 volt) system, as the battery runs down, one cell, the weakest, will run flat first and it will then charge in reverse

polarity by the current of the other cells. This is bad for NiCds. With two cells, when one is flat the other does not have enough voltage on its own to seriously back charge the other, besides the light has gone out and the battery will be turned off. The nickel cadmium batteries are rated as having a life of over 200 charge discharge cycles, but they should be deep cycled occasionally to avoid apparent loss of capacity. There is no practical quick top up charging system that is as good as that for lead - acid batteries.

The fourth battery option is to make up a system to use primary cells. These are the disposable torch batteries that are universally available. For caving the best type is the alkaline cell. A D size alkaline cell should have a capacity of over 10 Ampere/hours and a shelf life of about 4 years. Although they seem expensive, it is often found that in a four year period of caving the cost of a miners lamp accumulator, gel-cell or nickel-cadmium system is greater than the cost of running a system with primary cells.

To use dry cells, a battery holder is needed together with the attributes that a rechargeable battery needs. One solution is the Bonwick pattern dry-cell holders. The first of these was made by John Bonwick for his own use and used 4 D size dry cells to run 6 volt torch bulbs in a cap lamp. Figure one shows the version of the design that I made, slightly



# SPELEO SYNOPSIS

March - May 1993

by Peter Ackroyd

## IUS

**Informatics Bulletin 3 (May 1993)** The Informatics Commission of the International Union of Speleology is chaired by an Australian - Peter Matthews. In this, his third Bulletin, Peter discusses uniformity between various national karst databases, and between karst and geographical organisations. This issue also contains an article by Andrej Kranjc on the current status of karst documentation in Slovenia. The Bulletin is produced in English, with some French translations.

## AUSTRALIA

**JSSS 37(3) (Mar 1993)** In this issue Greg Middleton gives a detailed rundown of his 1992 visit to the classic karst of Slovenia.

## EUROPE

**Descent 110 (Feb/Mar 1993)** The memoirs of Len Cook are continued in this issue with part 3 covering Cook's forays into *Manchester Hole* and *Goyden Pot* in the late 1940s. As in the first two parts, the article is well illustrated by Cook's photos, taken using flash powder and film rated at a speed of only ASA 10! Martyn Farr describes a cave diving trip to County Galway, Ireland, and Gavin Newman tells us of the problems of caving in Irian Jaya, both political and physical. A report on a December 1991 expedition to Mexico details caves found in the Cuetzalan area and a rope care and maintenance article completes the issue.

**International Caver 5 (Oct 1992)** More international coverage in this high quality magazine, this time mainly concentrating on Asia. Caving areas in China, Vietnam, Thailand and Indonesia (in the "In Brief" section) are covered. There is also a detailed article on the country of Belize and its caves. Tim Stratford reviews the cave areas of Southern Italy in the Karst Atlas section and the "In Brief" section mentions that *Lamprechtsofen* (Austria) is now 1,550 metres deep following the discovery of a higher entrance. As always, some excellent photos accompany the text.

**Descent 111 (Apr/May 1993)** Wales seems to be where all the action is in this issue. *Carno Adit* is now about 8 km long following another half kilometre extension. Virtually below *Carno Adit*, in the Oolite Group limestones, the digging continues in *Agen Allwedd*, but with little success so far. Meanwhile on the same level as *Carno* in the Dowlais Limestone formation *Ogof Nant Rhin* is a new cave discovered in the Clydach Gorge. The cave is only 346 metres long but is quite a significant find for the area. Finally, from Wales comes some discussion on recent drownings at *Porth yr Ogof* with one author suggesting ways of preventing deaths and another suggesting that the cave is sick and needs to be healed! From the rest of the world, Pam Fogg reports on the 1992 China visit and Tony Jarrett tells us about Vietnam.

**Cave Science 19(3) (Dec 1992)** This issue contains a detailed review of the evolution of various theories of speleogenesis. There is also an article on the application of Electrical Resistivity Tomography in locating caves.

**Caves and Caving 59 (Spring 1993)** This is the first issue of *Caves and Caving* under the editorship of Mark Dougherty who appears to be continuing the usual high standard. The issue contains articles on caves in China, the lava tubes of Oregon, USA, a visit to *Pierre St Martin*, the conglomerate caves of Pokhara Valley, Nepal, and brief international news pieces. There are also two items on cave safety: an analysis of two recent drownings in *Porth yr Ogof*, South Wales, and the January 1993 death by drowning of a caver who was apparently dragged into a swiftly flowing sump by his tethered caving pack.

**Proceedings of the University of Bristol Speleological Society (1992)** This issue of the Proceedings has a detailed article on the geologically interesting *Cupp-Coutunn* cave system, Turkmenia, a series of limestone caves with a fantastic array of different mineral deposits. The article includes colour plates. Also discussed are Roman roads of Mendip, flints from a cave in Herefordshire, the Society's expeditions to Austria and a short article on the extension of *Drunkard's Hole*, Mendip.

## SPELEO SPORTS '93.

Organised by Highland Caving Group and Endeavour  
Caving and Recreation Club.  
Hosted by Macquarie University.

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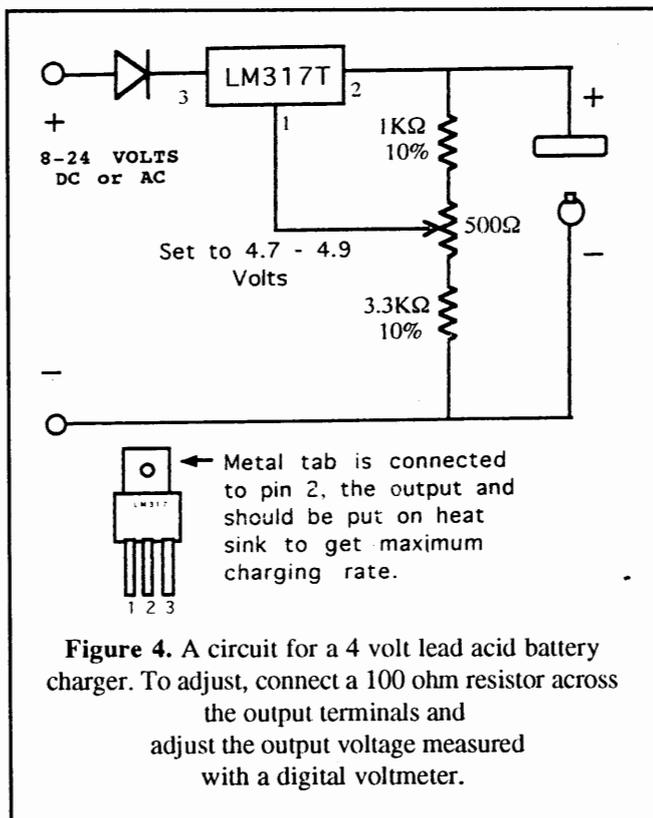
regulator has safe area operation limits unless the battery is very hot, (do not leave batteries in the sun as the high temperature degrades their operation). Simply connect the battery to the charger and the battery will regulate its own charging rate to safe levels and stop drawing power when it is fully charged. Figure four shows the circuit of a good automatic charger for 4 volt batteries (the same regulator can regulate from 2 volts to 24 volts by changing the resistors. Do not leave gel-cells in a discharged state: they sometimes get into a state where they will not accept charging, the only way to cure this is to charge them. This may mean leaving the battery on a charge for weeks until the minute current that leaks into them starts to build up to the normal charging rate. Dry cells are unsafe to recharge. Although some recharging is possible, the gas that may evolve can pressurise them and cause them to leak or explode. The state that the cells would be in would be too unreliable for cave lighting.

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## Acknowledgement:

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# EXIT CAVE, PAST, PRESENT AND THE FUTURE

Arthur Clarke

## INTRODUCTION:

Approximately 17% of the Tasmanian karst, cavernous and non-cavernous, is incorporated in parks or reserves. However, the protection status is limited and subject to pressures from political or developmental interests encompassing private land users and government bodies alike. The "vagaries" of Karst protection in Tasmania are exemplified by the conservation debacle over Exit Cave.

Located near Lune River in Southern Tasmania, the Ida Bay karst system including Exit Cave, was proclaimed as a World Heritage Area in November 1989. The Exit Cave system is internationally known for its fauna, ancient deposits including palaeokarst, its geomorphic significance and recreational value. Exit Cave is the only World Heritage cave in Australia. The total passage length of Exit Cave is conservatively estimated at approximately 23km. The figure is based on the presently surveyed and the known, but unsurveyed, passages plus various connections (Exit Cave has thirteen known entrances), and excludes the 3-4km Little Grunt extension.

As at 8/8/1993 there are 166 number-tagged caves in the Ida Bay karst and there are at least another thirty known features. Apart from three known small stream caves on the northern edge of the karst, Exit Cave appears to drain most of the Ida Bay karst. Because of the international significance of Exit Cave, all of the Ida Bay karst was listed as World Heritage Area.

Despite its apparent "protection" and closure for management purposes, the prestigious values of Exit Cave were being compromised by the continued mining operations of Benders Quarry. In addition, there were plans afoot to expand the Benders Quarry operation, despite the evidence that it was already polluting Exit Cave - the only World Heritage cave in Australia. The concern for Exit Cave has been foremost in terms of recent conservation effort in Tasmania.

The Australian Federal Government closed the quarry twice last year. In response to intense lobbying and political pressure by the Tasmanian Government and mining interests, a reprieve had been given to allow limited extraction of limestone in conjunction with site rehabilitation. After it became pointedly obvious that this "arrangement" was being abused, a permanent closure was effected. Site rehabilitation of the quarry is now well advanced in conjunction with a management plan for Exit Cave. However, the limestone crusher and associated infrastructure is still on site! Following is a dialogue of past and present issues related to the conservation, protection and management of Exit Cave.

## BENDERS QUARRY

### ....the effect of quarrying:

Concern was expressed with regard to quarrying practices at Ida Bay, particularly blasting and the unchecked surface runoff in and around the quarry. "Normal" quarrying has

effected the release and mobilisation of clays from the numerous fracture zones, fissure infills and weathered palaeokarst deposits in the limestone. Over half a dozen solutional "leakage" zones were known within the quarry itself. High sulphate levels had been recorded in the Eastern Passage of Exit Cave suspected to drain from the quarry area and, following periods of heavy rain, turbid water conditions were observed. Unlike other side passages in Exit Cave, the Eastern Passage appeared to have a poor diversity of invertebrate species and complete absence of some aquatic species. It seemed evident to karst people, but no-one else, that the quarry was to blame!

### ....proving the point - the mapping evidence:

During the mid to late 1980s Arthur Clarke co-ordinated the documentation and mapping of caves and karst features in the Ida Bay karst area with the assistance of local and interstate cavers. In 1988 and 1989 a map was produced showing about 130 karst features (mainly cave entrances) and their relationship to the known extent of Exit Cave. The mapping revealed a cluster of karst features immediately south of Benders Quarry and a line of cave entrances extending from the quarry to the known surveyed limits of Exit Cave. Mapped cave entrances included a number of significant swallets such as National Gallery, Mini Master and Marred Pile and deep vertical caves including the 130m deep Little Grunt and 192m deep Cyclops Pot.

The alignment of entrances shown by the mapping suggested the distinct possibility of a hydrological connection between the karst near the quarry and Exit Cave. The concept of a hydrological connection to Exit Cave was further supported during later studies in the karst south of the quarry which failed to locate evidence of any efflux.

### ....hydrological connections between Benders Quarry and Exit Cave:

Dye tracing experiments were commenced south of the quarry in 1990. In July 1990, two positive dye traces to Exit Cave were made from National Gallery, a spectacular but normally low flow swallet entrance barely 200 metres south of the quarry. (The first "injection" of fluorescein was placed in National Gallery by Arthur Clarke and Rolan Eberhard on July 2nd when there was a deluge of water tumbling into National Gallery. This happened to be a tragic day for Ida Bay and Tasmania - on the other side of Marble Hill 500 metres northwest of National Gallery, two students and a teacher were swept away by floodwaters entering Mystery Creek Cave following a period of constant rain and snowmelt.)

In October 1991, Dr. Kevin Kiernan began an investigation of the underground hydrology at Ida Bay and dye was placed into a number of prospective sites. Eight potential injection points (PIPs) were chosen; five within the quarry (north of the surface divide) and three south of the quarry and surface divide, including Little Grunt following a recommendation by Arthur Clarke. The tracing experiments

# EXIT CAVE, PAST, PRESENT AND THE FUTURE

revealed a hydrological connection to Exit Cave with rapid throughflow time for dyes: Rhodamine from Little Grunt and Fluorescein from one or more of the PIPs within the quarry. The dye tracing was repeated in February, 1992 aided by the input of tank loads of "foreign" waters transported to the quarry. The results confirmed a hydrological connection to the Eastern Passage in Exit Cave from PIP3, a swallet entrance located within the quarry on the western side, below EMP Pot, about 150 metres north of the surface divide.

Following the first successful dye traces in November 1991, cavers re-entered Little Grunt in search of further leads. Explorations revealed a previously unexplored rift leading to a bypass aven with a narrow meandering streamway at its base. A short distance downstream there was a connection to "Exit Cave size" passage.

Over the space of a few weeks in November 1991, cavers explored and surveyed almost three kilometres of new stream passage in Little Grunt. At the downstream end the passage is terminated by a large rockfall believed to be within 150m of Eastern Passage in Exit Cave. Included in this "new" cave was an upstream section which extended back under Benders Quarry where it was described as being comparable to walking along a concrete gravel pathway in a streamway. The gaps between the stream pebbles or gravels are filled with clay. The few calcite speleothems are ochre coloured and clay is permanently impregnated into flowstone layers and gour pool formations. The upstream sections include muddied fissure zones with loose shattered material although the passage is around 80 metres beneath the quarry.

## ....a "new" significance - the ancient palaeokarst structures:

The palaeokarsts in Benders Quarry include a range of "fossil" karst structures such as dolines, solution tubes, fissures and shafts, which were formed during an earlier period of karst solution. Most of these solution features are now filled and contain a mixture of friable or compacted sediments as breccias or shales, often enclosed by massive calcite. Palaeokarst fills are found in roof level passages off the Eastern Passage in Exit Cave and also occur in EMP Pot. These palaeokarsts are likely to be quite ancient, dating back to the Permian (260 million years ago) if not older. Following exposure by quarrying, the natural palaeokarst shales have been weathered to form clays. The subsequent effect of unchecked runoff has mobilised the clays causing pollution in Exit Cave.

## ....government inaction or bureaucratic apathy:

Towards the end of 1991, neither the Tasmanian nor Australian (state and federal) governments had given firm commitments to close down Benders Quarry. Neither of the major political parties were prepared to take a firm stand. Government departments were adopting a "wait and see" attitude. The Tasmanian Department of Environment appeared to have their hands tied; Parks, Wildlife and

Heritage had no expertise or motivation; but the Mines Department was "all-go" for continued quarrying and expansion. Plans were afoot by Bender for an extension of operations to maximise extraction of the higher grade limestone. Much of this limestone is fissured or fractured, incorporating pockets of clay as infill or associated with the palaeokarst deposits.

## ....the plan to extend Benders Quarry:

There was a proposal to expand the quarry southwards and westwards towards Exit Cave, encompassing more of the presumed catchment and consuming more caves and karst features. Tasmanian Government statutes required Bender to submit an environmental management plan (EMP) prior to any further new development. The quarry proprietor, Ray Bender, engaged a team of "environmental" consultants (a geologist and mining engineer) to formulate an EMP document.

## ....the EMP - a document for disaster:

The EMP proposed a number of options for re-development of the site and proposed continued mining over a fifty year period. Untested filtering devices and limited rehabilitation methods were proposed, designed to minimise (but not prevent) the impact on Exit Cave and return the site to semi-natural bushland. The EMP for the Benders Quarry development was completed at the end of December 1991 and the period of public comment closed at the end of January 1992. The EMP stated that no significant or unacceptable impacts had been identified, although the groundwater geochemistry revealed abnormally high sulphate levels in the Eastern Passage of Exit Cave and comparatively high levels of sodium and chlorine. It was suggested that the sulphate was due to sulphides in the dolerite on nearby hills. (Karst specialists suggested that the sulphates were emanating from the quarry clays.)

The main author of the EMP, Mr. John Miediecke, came to the dubious conclusion that the quarry expansion would only account for 0.1% of the catchment area of Exit Cave. Based on this figure, it could be suggested that, proportionally, the expanded quarry would only contribute 1/1000th of the significance of impact to the karst system! The EMP recommended the use of clays from dumped overburden solution cavities and infill deposits for rehabilitation of quarry benches. It was suggested that caves or "openings" in the quarry should be plugged with coarse rock and boulders covered with a layer of geotextile and backfilled with fine crushed rock. (During the EMP, a massive 100m deep cave was found within the present quarry workings. Appropriately named EMP Pot, it was estimated that it would require 12,000-15,000 tonnes of crushed rock to fill this cavity!)

The EMP belittled the hydro-geological evidence produced by Kevin Kiernan and ignored the damning evidence of other studies. The shortcomings of the EMP were noted by State and Federal Govt., so further studies and reports were requested.

# EXIT CAVE, PAST, PRESENT AND THE FUTURE

## ....media coverage and the A.B.C.'s "Summer Edition Report":

Prior to the EMP, media reports were generally offside with a bias towards continued mining. However, following the discovery of the Little Grunt extension and proof of a hydrological connection between the quarry and Exit Cave, there was a gradual turnaround. Possibly acting as a catalyst, there was the ABC-TV's coverage on New Year's Eve 1991 (virtually coincidental with the release of the EMP).

Screened nationally as part of ABC-TV's "Summer Edition", the report contained some of the first live colour footage of Exit Cave to be seen on Australian television. Compered by Rod Wallis, this report showed the proximity of the quarry to Exit Cave and filmed a truck load of limestone emerging from the World Heritage Area. Apart from shots of the quarry and speleothems in the Ballroom (with appropriate musical background), there was footage to demonstrate the effect of quarry pollution in the caves. Crystal clear waters running over a gravelly streambed in Exit Cave were contrasted with the murky waters and deep mud in Bradley-Chesterman Cave, a site with acts as a sewer, taking surface runoff from the quarry. The report also showed a doline beside the quarry which had been used as a dump for rubbish.

## ....the impact on aquatic fauna:

Following the discovery of the Little Grunt streamway, PWH instigated a study to determine the impacts on aquatic fauna from quarrying. Normal stream sections in Exit Cave are known to contain a diversity of aquatic species including anaspidean syncarids, amphipods, insect larvae, flatworms and hydrobiid molluscs (aquatic snails). Stefan Eberhard from the Zoology Department at the University of Tasmania used the relative population densities of the minute hydrobiid molluscs to determine the effect of stream sedimentation on aquatic fauna.

Identified as a new species of *Fluvidona*, these tiny 1-2mm snails cling to pebbles in streamways and are abundant in many natural waterways. As expected, snail numbers were either extremely low or absent in the stream passage draining the quarry compared to unpolluted passages in Exit Cave. One of the reasons, the clogging of the interstitial spaces between stream pebbles with flocculated clay particles, was suggested as an explanation for the dearth of hydrobiids in the passage draining from the quarry.

[More recent investigations of aquatic fauna were conducted by Arthur Clarke in Base Camp Tributary, downstream from Eastern Passage in Exit cave. The stream cobbles of this crystal clear stream contain abundant numbers of the hydrobiid snails and the 7-10mm long insect larval tubes of *Trichoptera* (caddis flies). The presence of trichopteran larvae in streams is sometimes used by ecologists as an indicator of high water quality. This is believed to be the first international record of caddis fly (larvae and adults), from the dark zone of a cave. Base Camp Tributary is

located almost 2km from the Exit Cave entrance and about 250m below the surface.]

## .. "fallout" from the EMP in 1992:

Following the release of the EMP and the results of the hydrological studies, there was mounting pressure on both the State and Federal Governments for closure of the quarry. Successive State Governments, Labor and Liberal, had stalled on the issue, insisting that the quarry remain open. More reports were requested relating to the impact on Exit Cave and basic rehabilitation needs.

The formal supply contract between Pasminco E.Z. and Ray Bender expired at June 30, 1992, but a verbal contract was negotiated. Bender was requested to avoid blasting operations in the sensitive area above the Little Grunt extension. Officials from the Dept. of Mines suggested that the best grades of limestone occurred in this most sensitive area. Some government officers began to openly cast doubt on the viability of continued longterm operations. While there was debate over compensation liability, safety requirements for closure of quarries and persistent denials by Bender regarding impacts on Exit Cave, the quarry continued and blasting exposed or released more clay into the karst system.

## ....site occupation, quarry closure and "re-opening":

Following months of government inaction, some direct action was taken. Cavers and TWS supporters occupied the quarry site in an attempt to prevent further blasting. Although Exit's Nostrils, a draughting cave in a region of palaeokarst was used as a base site, most protesters scurried to and fro, into or out of the surrounding bush. Despite pleas to the media and Ray Bender that the quarry was occupied, the quarry manager declared this a bluff. He could not see any cavers, so the blast went ahead! A few cavers received a nasty scare and a near miss from showering blast debris. Eventually, Russel Fulton, a member of the Southern Caving Society was arrested on a charge of trespass (all charges were later dropped!).

The quarry was initially closed when the federal Government invoked its powers under the World Heritage Properties Conservation Act (1983). Proclaimed by the Governor General on August 3, 1992, it was gazetted on August 19, 1992.

Squabbling occurred over compensation payments to Ray Bender and redundancy payouts to his workers. Ray Bender launched a 24 page media release "Press Kit" in September 1992. Titled as "An Appeal for Support", and calling for "justice and a fair go", Benders Quarry was likened to Wesley Vale and Coronation Hill. Intense lobbying and political pressure followed from the Tasmanian Government, mining interests and orchardists, and there was a call to re-open the quarry.

The Department of Mines stated that in order to issue any further certificate of closure, the mine had to be declared safe.

# EXIT CAVE, PAST, PRESENT AND THE FUTURE

In the case of a quarry, bench faces had to be reduced to rubble slopes. It was suggested that this blasted material could be put aside for rehabilitation purposes, and some could be used for commercial needs.

Government bureaucrats were conned into believing that commercial limestone extraction could continue alongside rehabilitation. Further rehabilitation plans for the quarry had not been completed. Despite protests from karst experts and conservationists, the quarry was re-opened on September 30, 1992. Saturday afternoon barbecues were arranged at the quarry in October 1992, as part of the "re-opening", with special connecting bus services from Hobart!

## **....request to blast more limestone for rehabilitation:**

It had really been "a Clayton's closure"; quarrying had never actually stopped! The re-opened quarry was permitted to operate within redefined limits, but no-one seemed to know where the defined limits were. Quarry operations continued in full swing, including blasthole drilling above the Little Grunt extension.

It was subsequently revealed that the quarry operator planned a massive 25,000 tonne blast in the guise of rehabilitation and bench stability. Members and supporters of TWS conducted an overnight operation (by candlelight), filling in over 140 drillholes. Again using her powers under the defined regulations in the World Heritage Properties Conservation Act, Ros Kelly refused consent for further blasting in the quarry on September 14 (gazetted 15-9-92), and ANNOUNCED FINAL CLOSURE, October 30, 1992.

## **....waste disposal at Benders Quarry:**

After the ABC-TV report showing the use of dolines as rubbish dumps, statements were made in the Tasmanian Parliament relating to truckloads of waste that had been dumped at Benders Quarry. There were reports of dumped drums filled with sump oil, old tyres and engine parts, and assorted workshop waste. Following the report to Environment and Planning in December 1992, a further site cleanup was ordered.

## **....Benders Quarry - Re-opening!**

Following closure of the quarry, debate continued regarding methods of rehabilitation and costs. The Tasmanian Department of Mines was still insisting that bench faces needed to be stabilised by blasting before it would issue a certificate of safety for closure of the mine. It was argued that the quarry could still continue, if only to supply local Huon orchardists with agricultural lime. Despite the second (final?) closure, Ray Bender had still been crushing and removing limestone, ostensibly for his own agricultural purposes.

In March this year, members of the Huon Region Action Group illegally "re-opened" Benders Quarry. Deliberately staged as a media event, with police present and television cameras rolling, the former quarry manager defiantly started

up the crusher. Several opportunistic locals carted away trailerloads of crushed agricultural lime.

## **....rehabilitation commences:**

Rehabilitation finally commenced early April following the announcement of a rehabilitation package deal between the Commonwealth and State governments. Three of the five former quarry workers (the younger ones!) are employed by Ray Bender, along with a supervisor from the Tas. Dept. of Construction and Ian Houshold from PWH as an advisor - the "real" supervisor! Bender is being paid to do the rehabilitation and for the hiring out of his machinery.

## **....quarry rehabilitation methods:**

Benders Quarry has been divided into a crosswork net of over a hundred sections, each section surrounded by a bund of rocks and logs. The sections are being dosed with a mixture of natural substances including shredded mulch and topsoil. Swallets in the quarry are surrounded by an inner ring of oaten straw bales, then a centre ring of chopped bark and leaves and an outer ring of fibrous bark from the old Port Huon chip mill. The bund walls are acting as drainage diverters. Some seeding has taken place in the mulch and sandy topsoil, and a native tree planting operation is scheduled over the next six months using ten longterm unemployed persons from the Huon district. The clayey banks have been sprayed with a paper pulp and seed mixture, but the unstable rock zones are being presently left alone. Further organic input has come from the recycled slashings (shredded) from roadside clearing and under the hydro-electric transmission lines. Apart from native plants, some fast growing (but sterile) rye corn grasses have been planted. After the intensive re-seeding and planting, rehabilitation should continue for another two years at present estimates.

Although largely innovative and experimental, it is likely that this work will become a textbook model, for rehabilitation of quarries in karst areas. Rehabilitation of the quarry effectively represents part of the management plan required for Exit Cave.

## **....Management Plans for Exit Cave.**

In recognition of the importance of karst in Tasmania and the specialist knowledge required to manage caves and karst landscapes, PWH appointed a Karst Officer in November 1991. Ian Houshold, who took up the position, was initially engaged to investigate karst resources in World Heritage areas. The job brief was later extended to cover a range of cave and karst management issues across Tasmania. Since late 1991 Ian has co-ordinated many of the studies associated with Exit Cave and the surrounding Ida Bay karst as well as the rehabilitation plans for the Benders Quarry site.

## **....water quality and connecting hydrology:**

Exit Cave has been closed to recreational use for almost two years in order to produce a management plan. Plans were put on hold during the quarry debacle. Since the

# EXIT CAVE, PAST, PRESENT AND THE FUTURE

commencement of quarry rehabilitation, a monitoring program has commenced in Exit Cave to record changes in water quality. The monitoring program is being carried out by Jason Hammel, a TCC member, now based at Lune River. Dye tracing experiments are also envisaged to further define the hydrology.

Numerous hydrological connections to Exit Cave have already been established from known caves. These include: IB-10 (Mystery Creek Cave) and IB-22 (Con Cave) on the north side of Marble hill; IB-18 (Western Creek Swallett) on the western side; IB-23 (Little Grunt) and IB-47 (National Gallery) on the eastern side. Other likely connections include IB-7 (Log Rift) and IB-38 (Milk Run), both possibly draining into Base Camp Tributary, plus IB-129 (Great Expectation Cave) and IB-143 (EMP Pot). [To date there are 166 tagged entrances at Ida Bay]

## ....cave entrances to Exit Cave:

Two new entrances into Exit Cave have been discovered in the past twelve months. IB-20 (Thun Junction) has a passage length of 500m and drops into the Southern Passage near the Acoustic Chamber, south of the New World Streamway connection to Valley Entrance. IB-136 (Halfway Hole), the most recent addition, drops into Western Passage; it includes 300m of passage and is 162m deep comprising pitches of 10, 59, 17, 7, 9 and 44 metres.

There are currently thirteen known entrances; ten are number tagged, three remain untagged. Tagged entrances include IB-8 (Mini Martin), IB-14 (Exit Cave), IB-20, IB-23 - direct walk-through connection not yet achieved, IB-34 (Skyhook Pot), IB-85 (Slip In), IB-87 (Drop In), IB-120 (Valley Entrance), IB-131 (Old Ditch Road) and IB-136. Entry to the cave is forbidden via any of these entrances, except during the course of prescribed management activities. Prior arrangement needs to be made with the PWH Karst Officer, Ian Houshold.

## ....Exit Cave survey:

An accurate re-survey of Exit Cave is essential to produce an adequate management plan. A conservative estimate, based on known passage lengths (excluding the 3-4 km Little Grunt system), places Exit Cave around 22.7km. During post-conference surveying in January 1993, passage length of Eastern Passage quadrupled from 400 to 1700 metres, and since then, two further passages have been found. One of these, estimated at 140 to 150m long extends back towards Little Grunt, terminating in a rockpile. Present mapping suggests that Exit Cave is separated from Little Grunt by a single rockpile. This will not be known for certain until the more precise survey of both systems has been completed.

Volunteers are requested to assist in the continuation of this survey. The "main drag" is being accurately surveyed with Electronic Distance Measuring (EDM) instruments, a conventional theodolite and a gyrotheodolite. Most of the 107 original survey stations have been relocated. It is hoped

that volunteers can assist in doing handheld instrument (Suunto and Tape) surveys for side passages, tying into the original stations. It is proposed that the Australian Speleological Federation Survey Project be conducted in January 1994 to further this work (see elsewhere in AC 134).

Survey of the "main drag" is being conducted by Glen Young, a final year surveying student at the University of Tasmania. The work is being conducted in conjunction with Ian Houshold. The survey has currently reached The Rockfall, taking eight shots from the entrance, using EDM and theodolite to cover a little over a kilometre!

The "x", "y" and "z" co-ordinates have been established for two entrances: IB-14 and IB-120 using GPS receivers. It is hoped that similar fixes will be achieved from at least one other entrance, possibly IB-8.

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# DEFINITIONS AND COLLOQUIAL TERMINOLOGY

Written by Garry K. Smith with assistance from Pat and Geoffery Hyde,  
members of Newcastle & Hunter Valley Speleo Society.

Often people outside caving circles overhear or are literally left in the dark when talking to cavers who throw around words like abseiling, pitch, fissure and flattener. To the lay person we cavers must sound crazy. For example, how many people would know what was meant by this simple description of a caving trip.

"We ground-trog for an hour before locating the entrance in a doline on the ridge above the resurgence. The first section was easily chimneyed to a large ledge overhanging a pitch. At the northern end of the ledge we used a jug-handle as the anchor point for the ladder trace and a large stalagmite for the belay point. A few of our group abseiled using crosskrabs. Next there was a tight squeeze followed by a long flattener. We emerged in a railway tunnel and followed it to the stream passage which eventually ended in a boulder choke."

I am quite sure we could all spin a few convincing yarns about the definitions of some of these words. Listed below are some of the not so correct word definitions and colloquial terms used in speleological circles.

**ANCHOR** A heavy rock attached to a string line, which is dropped down a pitch to check the depth before lowering abseiling ropes or ladders.

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**BAT** A small flying mammal, which is capable of excreting with precise accuracy while in full flight.

**BATTERY** The thing that always gets stuck in a tight squeeze.

**BELAY** A group of cavers lost underground and not able to find their way back through a maze of passages, sometimes referred to as a **DELAY** by experienced cavers.

**CAVER** A rockclimber who wants to get away from bad weather conditions in the mountains.

**EXPERIENCED CAVER** A person who has no idea of time or distance while underground.

**CHIMNEY** A vertical shaft with a bright-spark at the bottom.

**CHOKER** An over sized caver, firmly wedged in a small passage.

**CLAUSTROPHOBIC** Someone who is frightened of Santa Claus.

**CLEFT** An open wound on a cavers chin which may require stitching. This type of injury is often incurred while following too closely behind the boots of the caver ahead.

**COLUMN** A continuous procession of cavers winding their way through the cave passages.

**CORALLOIDS** A form of haemorrhoids (piles) which develops when a caver spends too much time sitting on a cold damp floor.

**CRAWL** What you do when you want to gain access to a cave under the control of another club.

**DEAD CAVE** A cave that smells of a partly decomposed animal.

**DECORATIONS** A collection of trendy, state of the art climbing gear hanging from a caver's waist harness.

**DOLINE** An environmentally friendly, decomposing string made of spaghetti, used to accurately measure caves during surveying expeditions.

**EFFLUX** A resulting gaseous reaction which occurs after consuming a large meal of baked beans.

**FAULT** Something that goes wrong, which you can blame on another person.

Cont'd p. 16

# GETTING PERSONAL WITH THE KARST INDEX

Peter Matthews

ASF's book, which listed all Australian caves and karst features at the time, the *Australian Karst Index 1985*, was produced from a computerised database of caves, maps and references on a VAX minicomputer. Currently this database is being converted to run on PCs so that it can be distributed to local clubs where it can be of more use to them, and can easily be kept up to date. Technical Paper No.3, *ASF Distributed Karst Index Specification*, describes the system being produced.

Prototypes of both the *Karst Index* and field definition databases were demonstrated at the ASF Conference last January. By the time you read this a pilot version will probably be distributed to a few clubs for testing, before the final version is released generally. The system uses Paradox relational database software, and will be distributed with the Paradox Runtime licence, thereby not requiring the user to own Paradox software. At this stage, the older Version 3.5 is being used so that clubs having only XT's or 286 AT's with 640K of memory can still run the software: the newer versions of Paradox require much more powerful hardware.

The original range of data fields is being expanded considerably. Via the Informatics Commission of the International Union of Speleology (UIS), and in conjunction with the International Geographical Union, efforts are being made to standardise the definitions of karst data fields so that data can be effectively compared and transferred between

different database systems in different organisations and countries, regardless of the database software being used. ASF, as a member of UIS, is of course a part of this effort. In fact, the ASF system is being used as a testbed. The use of numeric codes keeps most data independent of national languages.

An ASF working group headed up by Sue White is looking at the vital data-use agreements which will be necessary before clubs can use the existing computerised data. Sue would be glad to hear from anyone who wants to contribute ideas in this area. (123 Manningham St., West Parkville, Vic. 3052. (03) 328-4154)

We still have about 300 copies of the *Karst Index* book to sell. This represents a lot of money which could help States publish future volumes. I have plenty of ideas to move the books but can't do everything. I need a volunteer to help: sales-oriented if possible, but in fact anyone willing to take the overall selling job seriously, and do something, is the main criterion.

Peter Matthews

ASF Documentation Commission Convenor  
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Tel. (03) 876-1487 (Hm)

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## DEFINITIONS AND COLLOQUIAL TERMINOLOGY

Cont'd

**FISSURE** A caver who has become bored with the sport and spends most of the time fishing for perch or trout in the nearby river.

**FOUL AIR** Often encountered in a tight passage, when following a caver who has eaten baked beans for breakfast.

**GUANO** A lubricating substance which when liberally applied to an oversized caver, assists in extracting them from a tight squeeze. Works better when applied fresh.

**PITCH** The Colour of a cave when all the lights go out.

**RIFT** A divorce or irreparable marriage breakup of a couple, brought about by one partner's desire to go caving more than once a week.

**SPELEOLOGY** An addiction to which there is no cure. The only treatment is more caving.

**STALAGMITE** A small cave dwelling insect. A bite from this nasty insect will result in a skin irritation, followed by severe itching. However the bite is not fatal.

**STALACTITES** Tightly fitting jeans.

**STATION** A place which inexperienced cavers look for, to find the easy way out of a cave. Usually located at the end of a railway tunnel.

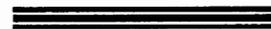
**SUMP** The part of the caver's car that is left behind on the rough track to the Karst Area.

**TIGHT SQUEEZE** Five cavers and all their camping equipment in a Suzuki Vitara 4WD.

**TRACER** An armchair caver who spends most of their time drawing cave maps from survey data.

**TROG** A well dressed caver, who frequents the local dance with suit and tie, but hasn't had a shower for a fortnight.

**WHALETAIL** A very long and unbelievable caving story about a past underground expedition.



# SPELEO SYNOPSIS

March - May 1993

by Peter Ackroyd

## IUS

**Informatics Bulletin 3 (May 1993)** The Informatics Commission of the International Union of Speleology is chaired by an Australian - Peter Matthews. In this, his third Bulletin, Peter discusses uniformity between various national karst databases, and between karst and geographical organisations. This issue also contains an article by Andrej Kranjc on the current status of karst documentation in Slovenia. The Bulletin is produced in English, with some French translations.

## AUSTRALIA

**JSSS 37(3) (Mar 1993)** In this issue Greg Middleton gives a detailed rundown of his 1992 visit to the classic karst of Slovenia.

## EUROPE

**Descent 110 (Feb/Mar 1993)** The memoirs of Len Cook are continued in this issue with part 3 covering Cook's forays into *Manchester Hole* and *Goyden Pot* in the late 1940s. As in the first two parts, the article is well illustrated by Cook's photos, taken using flash powder and film rated at a speed of only ASA 10! Martyn Farr describes a cave diving trip to County Galway, Ireland, and Gavin Newman tells us of the problems of caving in Irian Jaya, both political and physical. A report on a December 1991 expedition to Mexico details caves found in the Cuetzalan area and a rope care and maintenance article completes the issue.

**International Caver 5 (Oct 1992)** More international coverage in this high quality magazine, this time mainly concentrating on Asia. Caving areas in China, Vietnam, Thailand and Indonesia (in the "In Brief" section) are covered. There is also a detailed article on the country of Belize and its caves. Tim Stratford reviews the cave areas of Southern Italy in the Karst Atlas section and the "In Brief" section mentions that *Lamprechtsofen* (Austria) is now 1,550 metres deep following the discovery of a higher entrance. As always, some excellent photos accompany the text.

**Descent 111 (Apr/May 1993)** Wales seems to be where all the action is in this issue. *Carno Adit* is now about 8 km long following another half kilometre extension. Virtually below *Carno Adit*, in the Oolite Group limestones, the digging continues in *Agen Allwedd*, but with little success so far. Meanwhile on the same level as *Carno* in the Dowlais Limestone formation *Ogof Nant Rhin* is a new cave discovered in the Clydach Gorge. The cave is only 346 metres long but is quite a significant find for the area. Finally, from Wales comes some discussion on recent drownings at *Porth yr Ogof* with one author suggesting ways of preventing deaths and another suggesting that the cave is sick and needs to be healed! From the rest of the world, Pam Fogg reports on the 1992 China visit and Tony Jarrett tells us about Vietnam.

**Cave Science 19(3) (Dec 1992)** This issue contains a detailed review of the evolution of various theories of speleogenesis. There is also an article on the application of Electrical Resistivity Tomography in locating caves.

**Caves and Caving 59 (Spring 1993)** This is the first issue of *Caves and Caving* under the editorship of Mark Dougherty who appears to be continuing the usual high standard. The issue contains articles on caves in China, the lava tubes of Oregon, USA, a visit to *Pierre St Martin*, the conglomerate caves of Pokhara Valley, Nepal, and brief international news pieces. There are also two items on cave safety: an analysis of two recent drownings in *Porth yr Ogof*, South Wales, and the January 1993 death by drowning of a caver who was apparently dragged into a swiftly flowing sump by his tethered caving pack.

**Proceedings of the University of Bristol Speleological Society (1992)** This issue of the Proceedings has a detailed article on the geologically interesting *Cupp-Coutunn* cave system, Turkmenia, a series of limestone caves with a fantastic array of different mineral deposits. The article includes colour plates. Also discussed are Roman roads of Mendip, flints from a cave in Herefordshire, the Society's expeditions to Austria and a short article on the extension of *Drunkard's Hole*, Mendip.

## SPELEO SPORTS '93.

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Hosted by Macquarie University.

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of the great prizes to be won!  
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just come along and spectate.  
Most important though, is to make sure that your group is  
represented.

**Contact: Highland Caving Group**  
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Phil Fleming: (02) 660 2482.  
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# SPELEO SYNOPSIS

## USA

**NSS News 50(12) (Dec 1992)** "The News" is now edited by Glenda Rhodes alone. This issue has a long article on the exploration and mapping of *Pinney Cave*, Tennessee, followed by a brief report on the 1992 Biospeleology symposium held in the Canary Islands, Spain, and a historic flashback to the 1972 discovery of a significant extension to *Grassy Cove Saltpeter Cave* in Tennessee. A report on a week long cave rescue seminar held in West Virginia in mid 1992 completes the issue.

**Nylon Highway 35 (Dec 1992)** This issue is very lightweight. The only worthwhile items appear to be for ropewalker fans who will find Bruce Smith's detailed description of the "double bungee" ropewalker interesting. There is also a short piece on possibly the first description of a descender, written by Galileo Galilei no less.

**NSS News 51(1) (Jan 1993)** This issue contains a full report on the 1992 *Cueva Cheve* expedition to Mexico, including maps of the 22.5 km system. There is also a report on *Wind Cave* in South Dakota where almost a kilometre has been added to the 113 km long cave. Other items include a report on speleo art and an examination of the efficacy of synthetic down in sleeping bags for use in cave camping.

**NSS News 51(2) (Feb 1993)** This is a special cave conservation issue containing many articles dealing with cave access and cave cleaning. Strangely, many of the photos show cavers, dressed in ordinary caving garb, draped over various bits of stunning calcite.

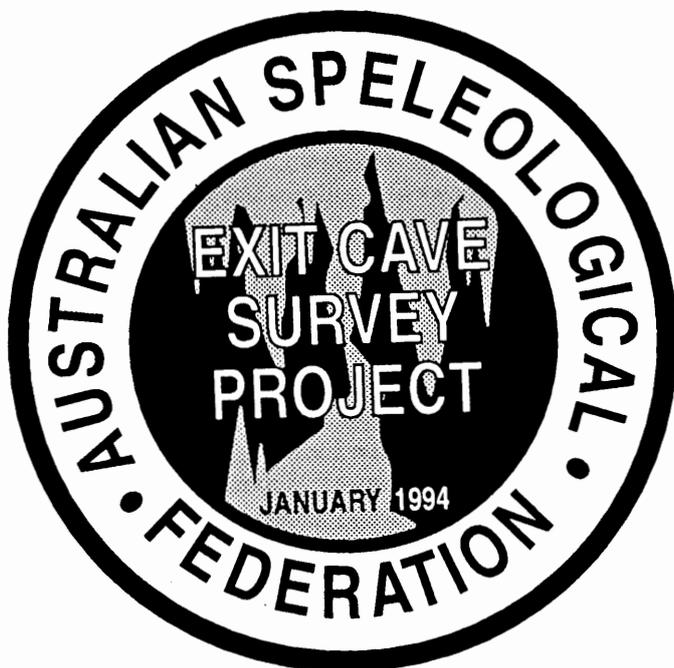
**NSS News 51(3) (Mar 1993)** A stirring article

describing the exploration and mapping of the *Rio San Ramon* in Guatemala, Central America, leads this issue. The cave is only one kilometre long but it carries a huge river with a flow of 10 cubic metres per second throughout its length. This makes exploration a very challenging task!! This issue also carries the news that *Lechuguilla Cave*, New Mexico, is now almost 100 km long.

## **American Caving Accidents 1991 (Dec 1992)**

This journal is a useful listing of details of each recorded accident in the Americas throughout 1991. During that year the much publicised rescue of Emily Davis-Mobley from *Lechuguilla* occurred, as well as the death of Chris Yeager in *Cueva Cheve*, Mexico. In the year six cave deaths occurred, generally due to falls, which, with the three drownings of cave divers, brought the total number of deaths to nine. Many of the cave accidents can still be attributed to young people pushing themselves to be like the "hard cavers" - the American way of "bigger and better" may encourage this. The massive media coverage surrounding Davis-Mobley's five day rescue from *Lechuguilla Cave*, New Mexico, apparently did a lot of harm to caving in the US, and soured caver relations with the National Parks staff who apparently encouraged the press for publicity reasons. A postscript to the report is that the editor of the journal, Steve Knutson, has pronounced the Figure 8 descender dead, 10 years after it had been buried here in Australia.

**NSS News 51(4) (Apr 1993)** This issue features the caves of Prince of Wales Island, Alaska. This area includes *El Capitan Pit* which has a 182 m pitch in it. The caving is hard because of the low temperatures but apparently very rewarding.



The Project's aim is to continue the survey of Exit Cave.

Participants should be competent surveyors.

Please note that the conditions of Exit Cave require warm clothing, (temperature around seven degrees).

All participants will need to be self sufficient in camping gear, food & transport etc.

### Contact:

Arthur Clarke (002) 28 2099  
or Ian Household (002) 33 3868

# REVIEWS

*Income Tax Deductions for Landcare Related Activities.* A guide to sections 51 (1), 53, 54, 75B and 75D. Commonwealth Department of Primary Industries and Fisheries in consultation with the Australian Taxation Office. 1992. Free.

*1992-1993 Directory of Assistance Schemes for Trees on Farms and Rural Vegetation.* Boutland A., Bryron N., & Prinsley R., (Eds). Bureau of Rural Resources, Greening Australia, and the Australian National University. 1992. \$10.00

The Australian Speleological Federation has not gone into the tax advisory business but both these books will be of interest to cavers who do a great deal of farmer liaison work.

*Income Tax Deductions for Landcare Related Activities* outlines expenditure on landcare activities which may be deductible under certain sections of the Taxation Assessment Act. Most farmers and managers of properties will, of course, have a good understanding of what is deductible re: plant depreciation and expenses incurred in running a business etc. In 1991 the Commonwealth Government amended the Act, section 75D, which related to the treatment and prevention of land degradation. It is this section which is of interest to caver/farmer relations.

The booklet deals with deductions available for such activities as property management planning, water conservation strategies, soil improvement measures, tree planting, fencing, and the control of pests and weeds. For example, the costs associated with tree planting primarily and principally for the purposes of preventing or combating soil degradation, (for example around an eroded doline or along creek beds) can be fully deducted. Similarly, the costs associated in fencing that doline to keep out the rabbits or to protect existing native vegetation from such pests is also deductible. On-going costs incurred from planting the trees, such as weed control measures are also allowable.

The booklet is a handy first point of reference for such expenditures and offers some very useful information to both farmers and cavers trying to protect our soils, karst, and native habitats. It is also free from the taxation office, Dept of Conservation and Land Management and the Dept of Primary Industries.

The second book, *1992-1993 Directory of Assistance Schemes for Trees on Farms and Rural Vegetation*, is a practical guide to the wide variety of assistance schemes, grants, loans, and incentives available from State and Commonwealth agencies, forest industry companies and other sources to enable community groups, farmers and corporations to start up landcare related projects.

If you want to help farmers revegetate some of the land around dolines or get rid of blackberry infestations then this book certainly opens avenues for possible funding for such

activities.

The schemes are divided into two groups, conservation schemes, such as the creation of wildlife habitats, shelter for crops and livestock, and private forestry schemes, such as the commercial production of industrial timber. The book then lists these schemes according to whether they are sponsored by the State or the Commonwealth. The book covers a total of 30 conservation schemes and 25 private forestry schemes.

Of the nationally funded large community schemes covered in the book, the One Billion Trees Programme is probably the most well known. The publication however, details similar schemes such as the Save the Bush Grants Scheme, the Murray - Darling Basin Natural Resources Management Strategy, the National Landcare Programme and the National Soil Conservation programme. These schemes are available to community based organisations differing from the individual farmer programmes in that they often require a group of farmers or interested organisations such as caving groups, to get together to improve the management of the land. For example, establishing wild life corridors often means linking sections of remnant vegetation on neighbouring properties. Similarly, controlling salinity problems also requires a strategy that involves more than just what goes on inside individual farm boundaries. The National Landcare programme, which is linked to the other large national schemes listed above, offers financial assistance to community groups whose projects may include such things as catchment planning, vegetation and wetland rehabilitation, soil salinity and ground water surveys, tree planting, community awareness and education.

As one of the major shortages that land owners have to deal with is labour, the concept of planting trees or fencing off areas of land for conservation is often viewed as time consuming and expensive. I was then, delighted to find a listing for volunteer labour that carries out such activities on farms. The listing outlined what the organisation does, (in this case the Australian Trust for Conservation Volunteers, which provides volunteers, basic tools, and transport for those volunteers to carry out work on farms). If they are a national organisation, what costs are involved, who is eligible to receive the assistance, and contact numbers for the organisation in each state. This is only one of many schemes that are listed, others deal with information on what seeds to grow where, cheap seedlings, what trees make good wind breaks or what ground covers to plant to hold the soil together.

It is this access to information that makes this book such a valuable resource for those of us who spend a lot of time working with farmers and land managers as it enables us to know where we can obtain assistance and the best way of going about applying for it.

Clare Buswell.

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# NEWS FROM ACKMA

Kent Henderson

Superbly organized by Ann & Ken Augusteyn of Olsen's Caves, the 10th Australasian Conference of Cave and Karst Management was held in Rockhampton from May 17 - 23. The Conference attracted a record 64 delegates from Australia, New Zealand, and Thailand. 25 papers were presented, all of very high quality. Topics included Cave Classification, Cave Permit Systems, Minimal Impact Caving, The Effects of Fire on Karst, The Impacts of High Pressure Cleaning, Karst Research, Trends in Recreation Usage of Caves, Radon Monitoring, and many others.

Field trips included inspections of Olsens and Cammo Tourist Caves, Ballroom Cave on Limestone Ridge, Johannsen's Cave which included mist netting of ghost bats, Mt. Etna and several of its caves, and karst surface features at various locations.

At the ACKMA General Meeting on the Friday of the Conference, elections resulted in a new Committee; President - Andy Spate; Vice Presidents - Peter Dimond (NZ), Neil Kell (Aust); Executive Officer - Ely Hamilton-Smith; Assistant Executive Officer - Dennis Rebbechi; Publications Officer - Kent Henderson; Education Officer - Sue Hardy. Ernst Holland continues on the Committee, by right, as Immediate Past President.

The meeting also elected five members as Fellows of Cave and Karst Management: Andy Spate, Ely Hamilton-Smith, David Williams (NZ), Ernst Holland, and Michael Chalker. In addition, three former cave managers

were elected as Life Members: Alan Costigan, Clyde Stiff, and Roy Skinner.

The week was also a great social success, with many reputations being spoiled or reinforced. Highlights included the Saturday night Conference Dinner at the Koorana Crocodile Farm, and the following day on Great Keppel Island.

At the conclusion of the conference, 24 members departed on a week long ACKMA study tour to North Queensland, which included visiting the incredible Undara Lava Tubes near Mt. Surprise, and the Chillagoe Caves and Karst. At Undara, members were most impressed with the way a private enterprise concern was effectively managing a public resource, while at Chillagoe the development by the QNPWS of its three tourist caves was considered excellent considering past financial restraint.

Just prior to the ACKMA Conference commencing, ASF and ACKMA held a joint Committee meeting, judged on both sides as most worthwhile. Topics centered on issues of mutual interest, such as caver accreditation, and a joint working party will continue to work through this issue. Among other decisions, the meeting resolved to appoint a liaison officer in each organization, and to reciprocate columns in Australian Caver and the ACKMA's newsletter. ACKMA's ASF Liaison Officer is Ernst Holland. In addition, the meeting decided to hold future joint committee meetings, with the next planned for May, 1994.

## TRAVELLING AROUND THE COUNTRY?

Some Club meeting times.

### Cave Exploration Group South Australia.

Meets on the fourth Wednesday in each month (no December meeting). 8pm. The Royal Society Rms. Off Kintore Ave. Adelaide.

### Flinders University Speleological Society.

Meets on the first Tuesday in every month. 6.30pm Kelly Morris Rm. Union building, Flinders University. Adelaide. Pre meeting drinks, Union Tavern 6pm.

### Hills Speleology Club.

Meets on the first Tuesday of the month. 8pm. Castle Hill Community Hall. Cnr Old Castle Hill Rd and Old Northern Rd Castle Hill. Sydney.

### Northern Caving Club.

Meets every Monday night at the Backwater Creek Hotel. 1 Tamar St, Launceston. Tasmania. 6pm to around 7.30pm.

### Victorian Speleological Association.

Meets on the first Wednesday in the month. 8pm. Tutorial Room, ground floor Old Commerce Building. Melbourne University. Pre Meeting dinner at the Clyde Hotel, cnr Elgin and Cardigan Sts Carlton, Melbourne. 6.30pm

### Western Australian Speleological Group.

Meets on the first Tuesday in every month. 8pm. Scout Shop, 581 Murray Street. Perth. Enter from Harvest Tce.

### Speleological Research Group W.A.

Meets on the last Tuesday in every month. 7.30pm. 81 Hamersley Place. Morley. Perth W.A.



*Sir Gavain, said, he was sorry he had slain the women. Sir Bors then proposd a resolution opposing the slaying of women, which was passed. A very large knight rode in and challenged the entire company: this was tabled for a twelfthmonth. There being no further business, we adjourned.*

### Looking back through past issues

of the Australian Caver recently I noticed that very little news from WASG had appeared between the covers of this fine publication, apart from Rauleigh Webb's piece in No. 129, "Western Australian Cave Exploration in the 90's" and a brief mention in SRG's piece in No.128 regarding the notes from Mullamullang Cave. I guess all the rest of Australia must think WASG a load of do nothings. Far from it, in fact the lack of news in the Australian Caver goes to show just how busy we are, we just don't have time to write. But now I have made time, and I have quite a lot of news to impart.

Several years ago the Dept. of Conservation and Land Management (CALM) proposed that a permit system for cave entry be introduced for the Leeuwin-Naturaliste National Park. For those of you who were at the conference in Margaret River in 1990/91 this was a topic discussed at that conference. The permit system is now up and running and to date is functioning smoothly. It has had little effect on WASG or SRG activities in the area but has made our members more aware of our privileged position. So if you come caving in W.A. and wish to visit caves in the Leeuwin-Naturaliste National Park remember *permits are required*. Contact WASG or the Margaret River Tourist Bureau for information on how to obtain them.

It would be of no surprise to me if the same or similar system was introduced within a few years in the South Hill River caving area (Nambung National Park) and the Yancheep caving area, both heavily used caving areas fairly close to Perth.

As I said in my opening paragraph WASG has been busy despite appearances. A number of new projects have been started in the Leeuwin-Naturaliste National Park. Underground streams in the area are being examined for the first time in many years. Dye testing was performed many years ago by members of WASG to establish outflows and connections between various cave streams. Many of these streams are now being fitted with V-notch weirs and drip counting devices (drip-o-meters). A team of WASG members has been hard at work beginning a long term hydrological study of the streams. Another long term project just begun in that area is the Cave Inventory Survey, currently being undertaken by members of the Sub-Group WASG with help from all directions. A continuing series of cave repairs and clean up projects are currently running, no sooner is one problem fixed than another needs attention. Some members of WASG are also working towards having a cave ECO CENTRE opened in the area as part of a WA Government initiative.

North of Perth, in Yancheep, surface survey, cave discovery and exploration continue apace with more than 350 features recorded as well as many old features, some from the early 1900s, being rediscovered. Cave exploration further north, in the Cape Range National Park is still being pursued. Many interesting discoveries in the field of cave fauna have been made there in recent years. Cave discoveries have also raced ahead in that region, with around five hundred features now recorded. Hydrological and biological work is still

being carried out in the Cape Range and surrounding areas. Interestingly, an entire new cave area has recently been opened, the Borrow Island caving region with a total of 18 known caves and features some of these also containing interesting and unique fauna. Articles on these caves and those of the Cape Range, have been published in past issues of The Western Caver by Bill Humphreys.

Apart from this "in House caving" some of our members have taken part in an overseas expedition to China led by Rauleigh Webb. He has kindly supplied some of the details of the expedition for publication.

"A combined Chinese-Australian expedition was held in January 1993. Six Australian cavers, three from WASG, two from MUCC and one from CEGSA were joined by up to twelve Chinese cavers. The main area visited was around a provincial town called Nan Tong which is south of the large city of Chongqing.

The expedition was very successful with over 11 kilometres of cave being surveyed during the month. The major cave explored was called Liang Feng Cave (Cold Wind Cave), with 4.9 kilometres of passages and 318 metres of depth. Another cave called Houzhi Cave (Monkey Cave) was 920 metres long and 246 metres deep.

An extremely unfortunate accident occurred on day 4 of the expedition when seven Chinese cavers were standing in the entrance chamber of a well visited cave. A large boulder fell from the roof onto a boulder slope starting an avalanche. These rocks struck the cavers, killing two people and hospitalising three others. This was a tragic accident that was purely bad luck. One caver was saved from serious injuries by his helmet, which was destroyed".

On the local scene again two trips have been made to the Nambung area to relocate caves not visited by cavers since 1972. Both of these trips were successful with not only the known caves, Strathmeore and Kinnenabba being relocated but three new small caves and two features also found. Another inflow cave was found that is

# DOWN UNDER ALL OVER

currently about 200m long and still going. Unfortunately Kinnenabba Cave could not be entered as a large feral beehive has been established in the entrance solution pipe.

Well that's a quick overview of WASG caving for the last few years. We do cave, we just don't get the time to write about it.

**Steve Brooks. WASG.**

Since the beginning of the year SRGWA has been successful in obtaining some \$1100 in grants from the previous Labor Government (\$500), CALM under the direction of the Liberal Government (\$600) and the South - West Development Authority (unknown amount at this stage) to continue its cave protection strategy using reflective makers, PVC fittings and signs.

A press tool has been ordered which will enable 30 and 50mm reflective markers to be produced more efficiently. The concept of purchasing (or 'obtaining') plastic price tags for use as track markers has been abandoned in favor of manufacturing 'garden pot' tags from flexible PVC sheet, a less expensive and longer lasting proposition.

A recent trip to Weelawadji Cave saw the establishment of 200 sites for track markers and restoration of foot-damaged sections of the cave. A trip later in the year should see the deployment of the new-style markers. Other sections of the cave will be track-marked at a later stage.

Plans are afoot for another expedition to the Nullarbor over the Christmas period centering on Mullaullang, 30 years after its speleological discovery. Continuation of cave numbering will also feature in the program.

**Norm Poulter.**

**Have you moved house?**

**Then let  
Steve Brooks know.**

**6 Kidbrooke Place,  
Westfield 6111.**

**Ph: (09) 495 - 1661**

## NEW CHALLENGES TO DIVERS.

Could there be a silver lining in some of those mushroom clouds? Under a US National Park Service proposal, the Bikini Atoll lagoon in the Marshall Islands in the Pacific may soon open as the world's first nuclear marine park.

At the lagoon's bottom rest roughly 20 US Navy vessels, which were used as targets for some of the 23 nuclear tests the atoll withstood between 1946 and 1958. Untouched for decades, the wreckage is said by the Park Service to now "comprise an incomparable diving experience." We're sure it does!

The park could mean a new tourism based economy for Bikini and the long awaited return of the Bikinians who were shipped off the island in 1946. They currently live on the island of Kili, a few thousand kilometres to the south and have endorsed the Park proposal and are ready to move back as soon as it's made habitable. (The US Congress has approved \$A126 million to clean up the still radioactive topsoil, although it's not clear where it's to be put.)

Some of the sunken vessels the Bikinians have inherited were destroyed beyond recognition: others remain intact with cargo and armament. It's as attractive underwater package, says the Parks Service's Dan Lenihan, who's getting calls from as far away as Japan, Australia and the US. But Dan advises caution.

"The ships aren't radioactive," he says, "but there's still live ordnance down there, like bombs and rockets. If divers go pounding around long enough, sooner or later someone's going to get vapourised. That will be unfortunate."

**The Third Opinion Autumn 1993.**

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