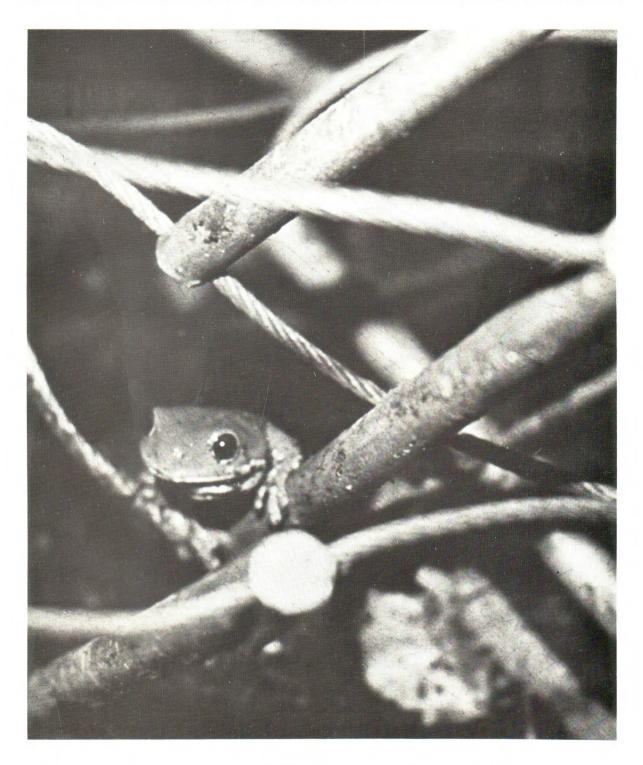
SUMMER 1982: No. 98

# ASF NEWSLETTER

THE AUSTRALIAN SPELEOLOGICAL QUARTERLY



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photo by Peter Cockle

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# \_\_\_\_ASF NEWSLETTER\_\_\_\_\_

# **SUMMER 1982: No. 98**

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# **EDITORIAL**

# Franklin, Fraser, Federation and Fees

GUEST EDITORIAL by John Dunkley, ASF President

What has been the most important event in the history of Australia? Cook? The First Fleet? Federation? The Dismissal? According to distinguished historian Geoffrey Blainey, the most significant event of all was the rising of the sea at the end of the last Ice Age. Among other things, it drowned the massive tunnels of Cocklebiddy Cave and depopulated much of the Nullarbor area.

More significantly, it detached Australia from New Guinea and the nearer islands of Indonesia, separated Tasmania from the mainland and isolated the Tasmanian aborigines for the next 10,000 years.

Around that time also the last of the people who had lived along the Franklin and Gordon Rivers for maybe 10,000 years left Fraser (Kutikina) Cave forever. These people were contemporaries of those who painted Lascaux Cave in France, and they probably abandoned Fraser Cave before the famed cave paintings of Altamira even existed.

And ASF? The Federation is not anti-dams as such. But according to our Constitution our first aim is to safeguard the karst heritage of Australia. We can't do that if it's under water, and for this reason ASF called for the previous Commonwealth Government to prevent construction of the Gordon-below-Franklin dam, and we are conducting our own campaign in relation to the caves.

ASF does not see itself as a front-line conservation force; indeed the Sydney Morning Herald even labelled us 'non-green'. ASF policy on cave conservation over the last decade has concentrated on long-term implementation of cave and karst resource management plans, and we have acted as consultants in preparing reports

on the Nullarbor, Yallingup, Outta Outta, Tantanoola and Naracoorte. Preparation of such reports is very costly in both manpower and money, and members participating have usually been well out of pocket for their trouble. Certainly this is less glamorous than gung-ho caving in Tassie or getting arrested on the Gordon, but in the long term this is where the Federation helps save our cave areas, and that's where ASF subscription fees find their end justification.

At the Canberra meeting in January 1982, member societies criticised ASF for not communicating enough about what was going on. Since then money has revamped the Newsletter and regular circulars go to clubs. But even a photocopied circular to all clubs costs \$20 to \$30 a time. Perhaps it has come to your notice that since ASF last raised fees, petrol prices have trebled, housing doubled and paper, printing and postage have all risen faster that the inflation rate of 12% or so. Then again, average wages have doubled. Perhaps we should have raised fees each year in line with inflation. Perhaps, but that's not what member societies wanted at the time.

Still, the fact remains that a 57% rise in fees knocks a hole in any caver's budget. Are we supposed to say to members, "well, sorry, but ASF can't afford to do what you say you want"?. What ASF can or can't do is determined by the votes of member societies, not by the executive, which doesn't have a vote. Or do we say, "if that is what you want this is what it costs"?.

The member clubs confirmed that they **do** want a better Newsletter, they **do** want better

# NOTES ON THE ASF

communication, they do want a campaign to save the Franklin. All but two societies said they do want to pay for it with a fee rise roughly equivalent to inflation since the last rise, plus a dollar for the Franklin. ASF has not, and cannot, do any more than the member societies want it to do. Inflation hurts us all, and I hope you will keep a sense of perspective when considering the problem of fees.

By the time this Newsletter reaches you the outcome of the Federal elections will be known to you. However, it would be naive to believe that this alone will settle the future of the Franklin. A lot of political persuasion will still be needed, and ASF will continue lobbying politicians until the result is certain. What is more, hard economics and maybe the High Court have yet to show their weight. Politicians of all persuasions might reflect on what former Liberal Attorney-General Bob Ellicott said in 1974:

"Uncertainty as to the extent of constitutional power should never of itself be a reason for opposing an otherwise worthwhile legislative exercise where angels of constitutional probity have formerly feared to tread. The High Court, as we know, will readily give an answer."

The history of Tasmania's dealings with its aborigines is tragic in the extreme, and it will be no less tragic if the record of their long prehistory recorded in Fraser Cave and elsewhere is now obliterated for all time. States rights must not prevail this time; Australia and the world deserve something better, and our time and ASF money must persuade politicians to this view.

# CONSTITUTION AND INCORPORATION

At the Adelaide meeting in January the member societies grappled with administrative problems such as those brought about by the requirements for incorporation of the Federation, and that of ensuring that all members are properly represented at ASF Council meetings. Nomenclature relating to the meaning of "membership" came up once again.

The outcome was an amended constitution to be presented for incorporation in the Australian Capital Territory. Most of the amendments are cosmetic, although they do impose certain obligations on the Federation, and its member societies and Councillors. A complete copy is being circulated to all member societies and any society foreseeing problems is asked to contact ASF without delay.

# **NOTICE**

# WE NEED COPY SO PLEASE START WRITING

### INTRODUCING - Hills Speleology Club

Peter Ceapa of the Hills Speleological Club writes to introduce the most recent addition to the membership of ASF.

"We would like to thank ASF for accepting our application for membership at the conference in Adelaide this year. Hills is pleased to be able to participate in the ASF, at a time when the Association appears to be growing in maturity and influence.

Our club has been very active over past years and we have found ourselves devoting much time to small, but interesting areas. Time is our major concern, since there is a great deal of work to be done in areas which still have not been adequately investigated.

There is currently an application for a mining lease on the limestone in the Timor area, and it appears that the local council has approved the construction of a crushing plant at Blandford.

The area is divided, and managed in two distinctly different manners. The Isis River area has controlled access caves. This was achieved by agreement with the landowners and the current conditions are that any ASF clubs are more than welcome to visit the caves. Groups such as Scouts and Outdoor Clubs, as well as interested individuals are also welcome, providing they assist with the current work programmes. The work includes cleaning formations, assisting in scientific sampling and cleaning rubbish out of the caves and campsites at Isaac's Creek.

The Isaac's Creek caves are on a council reserve and there are no access restrictions. The area has one of the few campsites in the Hunter district, therefore the caves are continually being abused and polluted by careless cavers.

We feel very strongly that the caves are of valuable and scientific interest and some of them should be gated to allow rejuvination and the continued existence of bats in this area. The approval and support of ASF clubs is sought to achieve this goal. Some valuable fossil bones as well as a few new caves have recently been found at Timor.

A great deal of time and energy has been spent at Mount Fairy but the rewards have proven worthwhile. Fossil bones such as the Sthenourus (a gaint kangaroo of which the fifth speciman discovered in Australia was found at Mount Fairy), Tasmanian Tiger teeth, and several fossil wombat and guall (native cat) bones have been found. There is a definite need for intense studies in the area as there are several caves that need to be tagged, mapped and documented. Much of the limestone (about 55 million tons) is under lease by Southern Portland. This makes the need for a thorough investigation of the area critical.

Our third area of exploration is Lake Barrinjuck. The limestone associated with the 'Lake' is not only one of the largest deposits in the state but also one of the most fossiliferous and geologically interesteing.

The caves are amongst the largest and prettiest in NSW but are prone to over-use and vandalism (especially at Wee Jasper), since there is no adequate management policy for the area. Burrinjuck (originally called "Barren Jack") is

certainly a great place to take novice members and teach them something about geology and the tectonic origins of caves. Cave flat is an important part of this large region as it has a complex and twisted limestone geology and a surprising density of cave development. This area is usually underwater but has been exposed by the drought conditions.

On our recent trip to South Australia we were impressed by the diverse nature of the caves, and by the excellent cave management system employed in this State. Most of the limestone features are in the National Parks and access is controlled by either the National Parks Service or CECSA The Cave Exploration Group of South Australia have done a brilliant job in preserving their caves, considering the size of the State and the fact that they are the only major club in the State. They have achieved this through close liaison with the National Parks Service and landowners.

There are many areas in NSW which need this type of protection. Considering the number of speleological clubs in NSW, it is tragic that many of the smaller areas are being neglected. It would be to our advantage if clubs could work together and collect enough data to formulate successful management plans for these areas.

Recently our club produced a pamphlet and it should be pointed out that there are a couple of printing errors in this publication. Firstly, the age for prospective membership is incorrect, it should read .... "applicants must be 16 years of age" .... Secondly the photograph of the helictites is upside down.

The pamphlet is an attempt to pick up new members for our own club and to attract people interested in caving into existing speleological clubs. The pamphlet will be revised to give some information about ASF and contact information about its constituent clubs.

HSC meets every Tuesday at the Castle Hill Community Centre and each meeting serves a specific function. The first meeting of the month is the least formal since we show slides and films and organise trips. The second meeting of the month is dedicated to giving scientific talks, either by guests or ourselves. The third meeting is exclusively for publications and the fourth meeting is a formal committee meeting. Why not come to a meeting. Coffee, tea and biscuits are provided, all you have to bring is your enthusiasm."

# ASF PHOTOGRAPHY COMPETITION

The ASF photographic competition was held at Speleovision, as usual there was a fine selection of photogaphy to test the judges. Listed below are the FIRST PRIZE winners in each category. Congratulations to each of you.

Al - Scenic R Frank A2 - Scientific R Frank A3 - Speleothems R Frank Bl - Scenic R Frank Cl - Scenic - Entrance R Webb Cl - Scenic - Chamber R Allum C2 - Scientific N Poulter C3 - Decoration N Poulter C4 - Action R Allum C5 - Series of Photos R & P Clarke

PRIZES were donated by: Andres Camera House, Adelaide Thor Adventure Equipment, Adelaide

### A NOTE FROM YOUR EDITOR

This aimed at all of you out there who are doing things but not telling me. This Newsletter is only as good as the articles you send me and I DON'T HAVE ANYTHING LEFT TO PRINT::

I have received many promises from clubs and individuals around the country but very few have actually sent me anything. Down Under All Over has existed because I have repeatedly rung people and hasselled them for copy. I can no longer afford to do this.

At the Adelaide committee meeting you all said that you wanted the Newsletter to continue, your lack of support makes this very difficult. I am willing to be Editor, but I'm not going to write the blasted thing.

Please could each member of each club ensure that their club has someone who will at least send me a Down Under All Over four times a year.

I am aware of many interesting trips that have taken place to NZ, PNG, Thialand, remote areas of Tasmania, the Kimberlies and the Nullarbor. Could some of the participants please put pen to paper.

I am not joking when I say I have nothing to print. It is up to you to provide the material for this year's issues.

Judith

### EDIE SMITH AWARD

The Edie Smith Award recognises those persons who have made an outstanding contribution to Australian Speleology. In 1983 two awards were made, one to Kevin Kiernan and one to Vince Kinnears (Qld).

The citation for the award to Vince Kinnears appears below, the citation for Kevin Kiernan will appear in the next issue.

Vince Kinnear together with his late wife Pat, arrived in Chillagoe in 1959 to conduct the Post Office and telephone exchange. At that time Vince became interested in the caves of the area, and commenced both exploration of the caves and the restoration of the Royal Arch and Donna Caves.

As a result of Vince's work, he was initially appointed as an honary ranger and later as full time ranger of the National Parks in the area. Until that time the Parks had existed in name only with no on ground management. Today, the Parks have become a major tourist attraction which employ three rangers.

Vince established contact with other speleologists throughout Australia and assisted them (particularly the members of the Sydney Speleological Society) in visits to the area. In 1973 he presided over the inaugral meeting of the Chillagoe Caving Club.

Vince's gentle enthusiasm for and commitment to the Chillagoe Caves has been retained for over twenty years. In the early years it included removing immence ammounts of rubbish from Royal Arch Cave - a truly arduous task.

In presenting the Edie Smith Award to Vince, the Federation has recognised the contribution of one who demonstrates the determination and pioneering enterprise which characterised Edie's own work.

# Letters to the Editor

Herewith are a few points which the members of NSW Cave Rescue Group felt need explanation, having read the various reports of this incident.

1. Cave Rescue has NO Authority to call out any other group. We can only <u>advise</u> the police on suitable action. This was done when the accent changed from surface search to underground - but still some time elapsed before this advice was acted upon.

As a rule police are reluctant to use volunteers of unknown discipline for obvious reasons.

Guy Cox, in his letter would seem to be supporting the old system, whereby various clubs sent lists of names to the Police to be called out in case of accident. This was found to be unsatisfactory by the police as those so named, dropped out of caving, changed address etc., without notifying them.\*

This is one reason the CRG was set up - so that the NSW Police Disaster and Rescue Branch would have a reliable, current call-out list of disciplined people to call on. In turn, CRG guarantee to supply further personnel if required.

NOTE: Because the NSW Police are charged with the total responsibility for rescue in this state, the UK system cannot operate effectively.

2. The first feeling of the police was that the lost boy was injured, above ground within reasonable distance of Caves House. Then it was suggested that he may have left the area, but this was not allowed to detract from the search activities. CRG was called in to check thoroughly, cave entraces within the probable area. But this was only meant as assistants to police searchers.

That Aladin Cave was not checked by cavers in the initial sweep was an unfortunate 'luck of the draw'. This is likely to occur in all similar situations. (It should be noted that CRG did specifically ask police if Aladin Cave had been carefully checked.) The need for additional assistance to search caves became evident to the policie towards the end of the day when they were going off duty and CRG had been twelve hours in the field.

- 3. Fatigue is an insidious deterrent to safe caving and particulary so in the rescue situation. The planned night search was of limited duration to ensure the safety of all.
- 4. Another major concern was our lack of communications. This was to be overcome by the arrival of WICEN operators.
- 5. The mechanism for the search was in operation prior to the arrival of the additional helpers. B Welch and R King were seconded to advise on optimum search patters using their local knowledge. Previously, we were using CRG and cave guides (being most knowledgeable of tourist activities). Team allocation was done in consultation with CRG.
- 6. The only efficient search method is that of a systematic and disciplined pattern. CRG were operating along standard police

guidelines (unchangeable) with their inherent advantages, safeguards, and hence, limitations. Thus, Devil's Coach House (and environs) was searched three times, each time with increasing penetration before the pattern was extended to cover the next degree of probability. David Sime could have been found two hours after the search commenced or four days after the time he was actually located, or at any time in between.

It is interesting to note the comments (unrecorded) of one member of the party that actually found David Sima

- a while standing at the entrace to Aladin Cave he could clearly hear the conversation between the lost boy and his rescuers
- b he also commented that there was no sound from the boy until about the time he rescuers saw him.
- 7. CRG are very willing to send observers to the individual club's rescue practices but to this date no requests have been received.

Surpassing this would be the need for those who are likely to respond to a request from the police via CRG to assist in a search and rescue situation, to be disciplined, to understand the limitations of operations under which CRG works, to appreciate the responsibilities imposed upon the police and their reacation to them. To achieve this there must be a degree of personal contact with CRG, ideally membership of and total involvement in CRG.

Yours faithfully B McQuillan, R Steenson, M Attard, S Murray, E Byrnes, L Zanker, D Matts, G Matts, R Taylor, et al - CRG.

\* Ed'Note. My understanding of Dr Cox's letter was that he was advocating that the Cave Rescue Group hold current callout lists for each club.

### PROPOSED NOMINATION OF THE NULLARBOR KARST AS A WORLD HERITAGE AREA

Adrian Davey is preparing a draft nomination for the Nullarbor karst area to be listed under the World Heritage Convention. The draft nomination will be discussed at the next committee meeting of the Australian Speleological Federation (at the end of the year). It will then be submitted to the Commonwealth Government, through the Western Australian and South Australian Governments, for formal nomination.

The proposed draft will include a review of the natural and cultural history of the Nullarbor Plain area and will emphasise the outstanding aesthetic, scientific, educational and recreational values of the landscape, archaeological and historical sites, plant and animal communities, caves and other landforms.

Any person or society wishing to put forward suggestions for incoporation into the draft nomination is asked to send their comments to P O Box 668, GRAFTON NSW 2460, as soon as possible.

### ADRI AN DAVE Y

# **Conservation Column**

CAVE CONSERVATION IN WESTERN AUSTRALIA

WORKING GROUP ON CAVE MANAGEMENT AND PROTECTION

J R WATSON \*

The Western Australian Working Group on Cave Management and Protection evolved from a recommendation made by the Western Australian Environmental Protection Authority in its 1976 "Red Book" report on national parks and nature reserves.

'1.4 (7) noting the three possible uses of caves, viz, commercial, recreation and archeological, the Department of Conservation and Environment (should) convene a meeting with the Conservator of Forests, the Director of the WA Museum and the Director of Tourism and cave exploration groups with a view to establishing liaison for adequate protection and management of commercial and non-commercial caves in the Leeuwin Naturaliste Ridge.'

As a prelude to the formal meeting proposed in this recommendation three informal meetings were held over a six month period at the Department of Conservation and Environment in order to prepare a discussion paper on the special requirements for cave conservation in the South West of the State. In addition to Departmental officers, seven speleologists participated: Ray Hart, Ken Lance, David Lowry, Duncan Merrilees, Norm Poulter, Sid Roach and Kerry Williamson.

In June 1977, the discussion paper prepared by the working group was considered by the formally convened meeting, chaired by the Director of Conservation and Environment, and was accepted in principle with some minor amendments. However, by this stage, the working group had become involved in several other related aspects of cave conservation including concern over the publication of cave locations on readily available maps and the need for cave management. Furthermore, several unanswered questions and requests for further advice arose out of the formal meeting. It was therefore decided that the working group should continue to meet as necessary to deal with cave conservation matters arising anywhere within the State.

In the first five years of its deliberations the Working Group has met eleven times and other key personnel involved with the conservation of Western Australian caves have participated, including Richard May (National Parks Authority), George Kenrick (WA Museum) and speleologists Rauleigh Webb and Jim Campbell.

Several offices of the Department of Conservation and Environment have helped to service the working group and provide specialist advice on specific issues. Similar advice has been obtained, where necessary, from representatives of other organisations, including the Forests Department, Department of Fisheries and Wildlife, and country tourist bureaux who run four of the public show caves in Western Australia.

The Working Group has provided an informal medium for the exchange of view between speleologists, representatives of the cave managing agencies and other involved parties. The overall thrust of the Group's deliberations has been to make Covernment aware of the special issues involved in cave management and protection, and to make speleologists more aware of the restraints and practical difficulties faced by cave managing agencies. At all times increased protection for caves has been of paramount concern.

In some instances the group has been unable to effect change that would be beneficial to cave conservation - for example, the marking of cave location on publicly available maps. It has, however, had success in several areas and has also provided advice to the Lands Department with regard to the creation of new reserves for protection of caves.

As early as 1978, the Working Group prepared a small bulletin entitled "Caves in Western Australia" in which a cave classification scheme for the State was proposed. This publication has been circulated widely and has undoubtedly helped to create a more enlightened public awareness of the need for a cave conservation strategy. It is interesting to note that the simple four-tier classification adopted in the paper is quite similar to the now recommended by the Fourth Australasian Conference on Cave Tourism and Management. With only a few changes in terminology and emphasis the national classification is already workable within the State classification.

Also in 1978, members of the Working Group played a key role in the organisation and presentation of a seminar on tourist cave management held at the Busselton Tourist Bureau and Yallingup Cave. This seminar was attended by representatives of all major cave managing agencies and user groups in Western Australia, and again helped to increase awareness of the issues involved in cave management, especially in show caves.

By late 1979 it seemed that the Working Group had fulfilled its initial role and there was some discussion of terminating its activities through the Department of Conservation and Environment.

However it was eventually decided that the Working Group still had a major advisory role to play, particularly in relation to recommendations for the reservation of land for conservation purposes throughout the State. It was felt that the Group should continue as the State's major advisory body on caves until such time as a more appropriate alternative emerged.

Although the group has no formal status, it has proved invaluable in assisting cave conservation in Western Australia. The core membership has been retained by those actively involved in cave conservation and consequently motivation has been sincere and the Group's views respected, though not always heeded. The system has worked well in Western Australia and there seems no reason to change it in the foreseeable future. Although the majority of Western Australian caves fall within National Parks where there is

\*J R WATSON is the CHAIRMAN of the WORKING GROUP ON CAVE PROTECTION AND MANAGEMENT and SOUTHERN REGIONAL SUPERINTENDENT OF NATIONAL PARKS ALBURY, WESTERN AUSTRALIA a good working relationship between users and managers, many highly significant caves and karst features do not - and it is here particularly where the group will continue to have its greatest impact on improved cave protection and conservation measures.

### Bibliography

Environmental Protection Authority, Western Australia 1976. Conservation reserves for

Western Australia as recommended by the Environmental Protection Authority, Systems 1, 2, 3, 5.

(the second "Red Book")

Cave Working Group, Western Australia 1977. Submission to the Department of Conservation and Environment on cave protection and management in South-western Australia. Western Caves, (17(1)), 9 - 13

Watson, J.R. 1978. Caves in Western Australia, Department of Conservation and Environment, Bulletin 51:6

Watson, J.R. (Editor) 1978. Cave Tourism in Western Australia, W.A. Department of Tourism, p 28 (Proceedings of seminar, Busselton, W.A. November 1979).

# 

# FIFTH AUSTRALASIAN CONFERENCE ON CAVE TOURISM AND MANAGEMENT

Venue: Glenara Motel, Lakes Entrance, Victoria.

Dates: 11 - 15 April, 1983.

Field

Trips: will include Buchan and the little

known Narguns Cave.

These conferences are organised by the A.S.F.'s Commission on Cave Tourism and Management and have been very successful in promoting sound policies for cave and karst management in Australia and New Zealand. Previous meetings in N.S.W. (1973), Tasmania (1977), S.A. (1979) and W.A. (1981) have attracted cavers was well as guides, rangers and cave managers.

Cavers will be very welcome even if only able to turn up for a day or two, and Lakes Entrance is only 4 hours from Canberra or Melbourne. For further details, write to Arnold Clarks, Accounts Branch, Crown Lands and Survey Department, 2 Treasury Place, Melbourne, Vic. 3002.

Copies of the Proceedings of earlier conferences are available from Elery Hamilton-Smith, P.O. Box 36, Carlton Sth, Vic. 3053.

A report on joint conservation work by cavers and Government officers in Western Australia is given elsewhere in this issue.

### 

# CAVE MANAGEMENT PLANS FOR TANTANOOLA AND NARACOORTE

A draft management plan for the Tantanoola Caves Conservation Park prepared by an A.S.F. team is presently at the printers. Another team is about to commence work on a draft plan for the Naracoorte Caves Conservation Park, South Australia.

### MEDIA RELEASE

SPELEOLOGISTS PROTEST AGAINST CAVE FLOODING

The Australian Speleological Federation has condemned the failure of the Commonwealth Government to act on the "NO DAMS" issue in South Western Tasmania. The Federation believes that the Commonwealth must intervene and that the only responsible option is for no dams to be built in this outstanding world heritage area.

The ASF represents about a thousand persons throughout Australia who are interested in the study and exploration of caves. Federation president Mr Ken Lance said today that the caves in the Gordon-Franklin river systems were the most outstanding wilderness caves anywhere in Australia.

"The Commonwealth's failure to restrain the Tasmanian Government from flooding the outstanding archaeological site in Fraser Cave (on the Franklin River) is quite irresponsible. At least nine other archaeological sites nearby which have not yet been fully investigated will also be flooded," he said.

Mr Lance said that the Federation deplored the apparent dismissal of the caves in the area as expendable. The many wilderness caves had only recently been discovered and explored. He said that they contained important geological features and cave life and had an unusually close relationship with the rivers. If flooding went ahead, virtually all of the hundred or so caves so far discovered would be innundated.

"The idea of preserving these irreplaceable assets under water is quite absurd. Caves are an extremely limited resource in Australia and we cannot afford to lose any of them," he said.

Mr Lance also said that destruction of the Gordon-Franklin cave systems by flooding would be at the expense of the potential for permanent and satisfying employment to be created in a service industry associated with wilderness tours and tourism.



# The Wild Caves

One of the first places which I headed for on my arrival in Israel was the School of Geology/Archaeology at Tel-Aviv University. I was instantly invited on a trip the following weekend which included "a descent by rope" into Teffen Cave, situated in the mid-north of Israel. The entrance pitch was a slightly sloping, but extremely slippery 60-foot descent. With the aid of a rope, we descended into the large entrance chamber, very active, but carpeted by moss due to the exposure to daylight. A crawl (aided only by candlelight) was the only apparent way to proceed. Numerous damaged and sooted roof pendants, and some larger stalagmites in the entrance chamber didn't impress me as much as the view looking up at the daylight hole from the floor of the main chamber.

The "Chimney Cave" is particularly interesting as its position is right alongside the serene



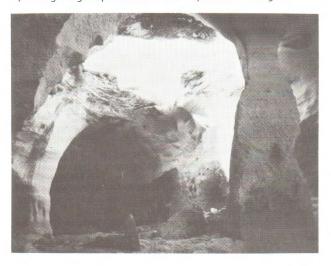
Chimney Cave by the Dead Sea

Dead Sea, the lowest point on the earth's surface. A short open passageway leads to the single chamber of this "daylight cave", impressive because of the way the walls tower straight up some 150ft! Flour Cave (also close to the Dead Sea) offers an impressive climax to the walk along the usually dry Paratizim River. A tall ceiling and unusual powdery white walls are the principal characteristics of this 300 metre long cave.

Haritun Cave, situated in the Tekoah Valley in the Judean Hills, is the largest known cave in the country. It is 4km in length and contains 55 separate chambers. The SPNI holds regular explorer's trips there.

In the Judean Desert just north of the Dead Sea Works Refinery, which extracts potash from the water, one can find Sodom Cave and Castel Cave. Of special interest in the Castel Cave is the presence of speleothems made up principally of salt crystal.

Another famous region for caves is the Bet Quvrin region and there are numerous holes to explore and crawl into. The geology in this region of the Western Hebron Hills consists mainly of chalk, and, unless a cave has been extended by digging and carving, it doesn't usually go very far in. One particular Bell-shaped cave with an imposing daylight opening high up creates an impressive sight.



"Columbarium" type cave near Bet Guvrin

In the Hashphela area are situated the caves of Hurvat Madras. These are the remains of past Jewish civilization dating back to the time of the Second Temple.

Other caves of interest include: Twins Cave (near Bet Shemesh), Atorot (well-decorated, near Jerusalem), Alma Cave (east Meron Hills, largest cave in the Upper Galilee region), and the Qumran Cave (Judean Hills, where the famous Dead Sea Scrolls were found).

In conclusion, I feel confident that there is plenty of scope for future work and possible discovery. Archaeological finds would be a more likely reward than any depth or length records.

SRT is practised by many Israelis as part of army manoeuvres, but equally as often as a weekend hobby.

If anyone is contemplating a trip to this unusual and fascinating country and has intentions of caving there, contact one (or both) of the following:

Amos Frumkin
Ofra Field School
Harei Bet El
P.O. Box 52
Jerusalem 91000
Telephone: 02-951740

"Society for the Protection of Nature in Israel" 4 Hashfela Street Tel-Aviv 66183 Telephone: 03-335063

or

13 Queen Helena Street Jerusalem 95101 Telephone: 02-222357

(and don't say that Yasser sent you!)

Good Luck: Or, as the Israelis say, MAZAL TOV:

# Ice Tube - A New Depth Record

S and R Eberhard Introduction

The Junee/Florentine area, near Maydena in southern Tasmania contains many deep caves, including such classic sporting trips as Khazad-Dum, Cauldron Pot, Serendipity and numerous others.

The largest stream-sink in the Florentine Valley is Growling Swallet, first entered by TCC in the 1950's. The wet, noisy and flood-prone streamway was followed down by a series of cascades and short waterfalls to a sump with an estimated depth of 176 metres. Although thought to be the deepest cave in Australia at the time, a recent survey showed its depth to be only 155 metres.

This record stood for many years and it was not until some of the superb potholes on Marble Hill at Ida Bay were investigated that the record was challenged and broken. In 1967 the 110 metre entrace shaft of Mini Martin was laddered, closely followed by 30 metre and 25 metre pitches into the colossal Exit Cave system 220 metres below. This gave Exit Cave the title of the longest and deepest in Australia.

As the potential for deep systems at Maydena was realised an even deeper cave was explored. Tassie Pot was initially located by TCC, however, members of the Southern Caving Society pushed the cave to 231 metres after a final pitch of 82 metres. It is interesting to note that cavers from SUSS recently pushed a crawl at the apparent bottom to discover more than a kilometre of horizontal stream passage.

Tassie Pot's fame was short-lived, however, as exploration by TCC in some of the major swallets above the Junee Resurgence got underway. The entrance to Khazad-Dum was located in 1969 and explored down a series of dry and wet pitches along an exciting streamway. In 1971 a depth of 290 metres was reached in a 21 hour epic, giving Khazad-Dum the status of deepest in Australia. The enormous basal chamber and sump were later reached at a depth of 314 metres, eleven pitches from the surface.

This was increased to 321 metres when a dry upper level entrace (JF5) was linked to the system. Yet a third entrance, Dwarrowdelf, descends very steeply via pitches of 21 metres, 25 metres, 47 metres, 10 metres, 36 metres and 67 metres into the final chamber of Khazad-Dum.

In 1976 a crawl was pursued by some visiting Sychey cavers finding a further two sumps. A later survey in the Depths of Moria proved that only a few metres were gained, establishing Khazad-Dum's final depth at 323 metres.

With the use of single rope techniques Khazad-Dum has become a popular trip for visiting and local cavers alike, both for its reputation as one of the best sporting exercises in the nation, and naturally for its appeal of holding the depth record.

Ice Tube was located in 1980 in a comparatively inaccessible region of the Florentine Valley.

The subsequent trips, which reached a depth of 345 metres are described below.

# Discovery and Exploration

It was whilst searching for caves in the vicinity of Serendipity and Growling Swallet on 15 December 1980 that Stefan Eberhard stumbled upon a small stream sinking in the base of a large doline. The walk-in entrance was followed down a loose boulder slope to the top of a waterfall. Numerous glow-worms covered the walls and a noticeable draught issued from the narrow rift.

A return was made on 15 April 1981 with a novice to caving, although it was uncertian as to whether or not we would be able to re-locate the entrace. After thrashing around in sodden rainforest for a time we eventually found the entrace and laddered the waterfall, which turned out to be a 25 metre pitch down a smooth cylindrical shaft. The very cold  $(5^{\circ}\text{C})$  and wet nature of this pitch prompted the cave's name, Ice Tube. Only a few metres further on the stream cascaded into another shaft where the bottom could not be seen. Lack of gear prevented a continuation in this potentially deep and exciting pot.

Ice Tube was neglected until 28 August 1981 when Stefan and Rolan Eberhard returned with ropes and SRI gear. Much rain and heavy snowfalls meant the cave lived up to its name, the first pitch being especially wet. Thirty metres of rope was lowered down the next unexplored pitch, which turned out to be 22 metres and free-hanging beside the waterfall. A short section of passage led to another short waterfall but by traversing carefully out along the rift it was possbile to climb back down to the streamway again. Several more short climbs and a wet 8 metre pitch led into a narrow serpentine passage and a further waterfall pitch of unknown depth. An alternative was a sloping ramp which ended in an awkward squeeze and a climb down into a pleasantly dry section terminating on the brink of a large shaft.

The promising noise of the stream could be heard below. At this stage time had run out so leaving the ropes rigged we retreated to the surface.

Armed with more rope, the next day started well, with a tension traverse and a re-belay around a large flake partway down the first pitch, making it mostly dry.

This apparently bomb-proof flake later detached itself from the wall - fortunately there was no one below at the time! At the extreme end of the "hairy" traverse below the second pitch a dry fossil passage was checked out and found to connect with the limit of the previous day's exploration via pitches of 7 metres and 19 metres. This passage conveniently by-passed the cold, wet streamway, the awkward climbs and squeezes. The next unexplored pitch was easily

rigged from a bedrock "chockstone" in the roof and proved to be a very pleasant 29 metre abseil against the wall. The pitch ended in a large chamber with the stream reappearing from a hole in the wall. Predictably, a short section of passage preceded yet another spray-lashed pit, apparently much deeper than anything encountered to date.

It was obvious that bolts would be required to avoid the torrent of falling water. The surface was reached after five and a half hours underground followed by a two hour stagger back to the car in the dark carrying 36 kilogram packs full of sodden rope and gear.

Saturday, 5 December and the 1981 Search and Rescue Exercise was being conducted at Mole Creek. A trip was also run to Ice Tube and, ironically, a potentially serious incident involving a visiting mainland caver, was narrowly avoided. The TCC members present were Andrew Briggs, Nick Hume, Janine McKinnon, Rik Tunney, Trevor Wailes and Stefan Eberhard.

With such a large and apparently capable team and stacks of gear, prospects initially looked bright for a stong push into this promising pothole. Much procrastinating eventaully saw everyone stagger up to the entrace at the ridiculously late hour of 2.30 pm. Even more discussion ensued before Rik and Janine volunteered to remain on the surface inorder to reduce waiting time on the pitches. At this point Andrew also decided not to go underground opting for surface trogging instead.

Fortunately the stream level was comparatively low, reducing what was a severe drenching in winter to a mere spraying. By the time the bottom of the second pitch was reached it was obvious that nothing would be achieved by continuting, so it was decided to retreat. This proved a wise decision; at this stage the competence of the visitor had never been doubted since he handled the 47 metre abseil without any problem.

Nick and Stefan started out but it soon became apparent to Trevor, still down the bottom, that something was wrong for the visitor took an hour the ascend the 22 metre waterfall pitch above. It appears that he had never prusiked before! The next 25 metre pitch involved a pendulum into a dry parallel shaft, with a tie-off around a large spike. Trevor removed this re-belay on his way up so that the visitor would be able to ascend directly witout having to perform the potentially dangerous act of crossing over ropes. (How he managed to pass this obstacle on the way down without coming off remains a complete mystery.)

Because of the awkward pendulum across a knife edge, the essential rope protectors seemed redundant. It was therefore necessary for someone to redescend and position the rope off the edge, whilst the visitor prusiked slowly up past the critical section.

By now the trip had taken on the proportions of a minor epic and by the time the surface was reached the visitor was exhausted and suffering from the cold. It was strongly felt that a major accident was narrowly avoided, if catastrophic gear failure had not done it, simple exposure/exhaustion may well have.\*

Despite an apparent excess of people keen to continue the exploration of Ice Tube it was only the three of us (Nick Hume, Rolan and Stefan

Eberhard) who eventually set out on 27 March 1982 along the all-too-familiar track to Growling Swallet. The small size of the party and limited gear carrying ability necessitated utilising the harder wet route along the streamway. This probably contribuited to the increasing air of apathy which coincided with our descent. In any event, at length we arrived at the exploration front, the deep black void that was pitch six. An exposed treverse out above the waterfall terminated on a tiny ledge where a bolt had to be placed to rig the rope dry and free. Stefan abseiled down a truly superb 47 metre shaft to a broad ledge and ascertained that a further 13 metre drop continued to the base of the shaft proper. That was the end of trip number five, at a depth of 220 metres.

Ice Tube was now recognised as more than just a typically scungy Junee/Florentine pot. Despite appalling weather conditions and recent snowfalls, on 15 May 1982 a mostly keen team consisting of Malcom Handel, Nick Hume, Tevor Wailes and Stefan Eberhand carried heavy packs of gear up to the entrance where late patches of snow still remained in the dark, chilling atmosphere of the rainforest.

Taking advantage of the dry route this time, with 7 metre and 19 metre pitches, efficient progress was made down the fine upper pitches to pitch six where a 50 metre rope just reached the ledge. No anchor points were available so another rope was tied to the bottom of the rope above in order to descend the next slightly damp 12.5 metre pitch.

A narrow serpentine passage continued down a 3 metre drop, requiring some tape as a handline, before shooting off down another waterfall shaft of uncertain depth. Again, there was no anchor point so a bolt was placed and the remaining 50 metre rope lowered into the unknown. The length of rope proved just sufficient on this excessively wet pitch which proved difficult to protect as it spirals around a corner. Everyone quickly descended, but only 15 metres further on we stared in disbelief as the stream plunged down another large pit. The bottom could only just be perceived through the misty spray and so at an estimated depth of 290 metres we were purched on the edge of at least a 30 metre drop. The possibility of exceeding the depth of Khazad-Dum looked very real indeed.

The retreat to the surface went smoothly except for the slipping of ascenders on the fourth pitch. Hauling heavy packs full of wet ropes was hard work. It was a tired group of cavers who cralwed back to the cars after a 14 hour absence.

Plans for returning a fortnight later were thwarted by heavy snow. So Saturday, 5 June 1982 was planned to finish Ice Tube. Rolan, Nick and Malcom Handel (who flew down from Sydney for the trip) would rig most of the way to the exploration front, while Trevor, Stuart Nicholas and Mike Martyn would follow-up with more rope as well as surveying. Stefan brought up the rear placing rope protectors.

Having expended their supply of ropes the rigging team waited in a small draughtly chamber above the 44 metre Killing Joke Pitch shivering and shouting abuse at the slower survey team. Eventually everyone else arrived, minus Stuart who had been forced to return to the surface when he felt ill. Stefan had taken over his post with the surveying team.

With the arrival of the extra rope we soon descended the pitch arriving at the edge of the unknown. This extremely wet pitch of 36 metres was given the self-explanatory name of Maelstrom and brought us, unbelievingly, to the top of yet another pit! This tenth pitch was pleasantly dry for a change, abundant quantities of mud confirmed our suspicions that it was the last.

A short distance from the base of the waterfall the stream sank into a gravel choke, the only continuation being a narrow serpentine passage above. This was pursued for several metres before becoming too constricted, and a retreat was already underway.

Getting back to the surface seemed an endless struggle up never-ending pitches, fighting against bulging gear packs and one's own desire not to continue. Cavers surfaced spasmodicaly, happy to huddle aroung Stuart's fire. Nick, the last man out emerged at 2.00 am after 13 hours below. Some time was spent recuperating before the long trek back to the cars where we were greeted by the welcome sight of a large roaring fire. Stuart ran the survey data through his calculator and by the time dawn arrived we knew Ice Tube was Number 1.

### \* EDITOR'S NOTE:

As I am also the Convenor of the Cave Safety Commission I feel that I must comment. Firstly, I congratulate the Eberhards for being so frank in their description of the exploration. It provides an opportunity to draw to the attention of all cavers to the problems inherent in taking people of unknown competence underground.

It is rare that "catastrophic gear failure"causes caving accidents. In most cases where equipment does fail, it is because the item of equipment concerned was used in a manner for which it was not designed. The user's lack of competence is the real reason for the accident.

The 'incident' in Ice Tube is the classic case of an accident being avoided by sheer good luck. Tasmanians know how hard their caves can be and should assess the abilities of mainland cavers before taking them underground. Mainlanders should recognise their obligation to be honest about their abilities as their incompetence may well endanger the lives of the whole party.

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# **NOTICES and NEWS**

### BACK ISSUES OF THE ASF NEWSLETTER

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### CAVING INTERNATIONAL

Correspondence from Caving International states that issue #14 is on its way to subscribers but that there will not be a 1983 Cavers Calendar due to lack of financial resources. An urgent appeal is made for new subscribers and greater help from existing ones. ALL cavers in Australia should subscribe to this excellent magazine. The photographic reproductions alone make it a valuable asset. Subscription details are available from Ross Ellis, 11 Arkana St, Carlingford, NSW 2118. Individual copies are available from Caving Equipment, 230 Sussex St, Sydney.

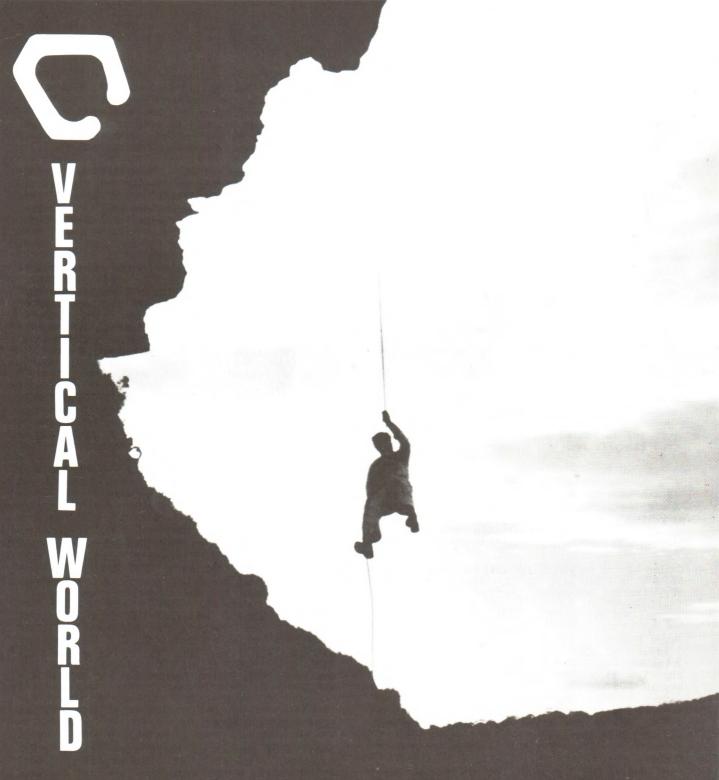
# LOST NOTES - QUAVER

Some clubs picked up their copy of the MUCG magazine, Quaver, at Speleosports, but unfortunately nobody wrote down who did and who didn't get a copy. Would those clubs that have not yet received their copy of Quaver please write to MUCG and they will mail one to you.

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DON'T BE A VICTIM OF INEXPERIENCE

# Safety and Techniques

# HAIATT KARABINER FAILURE

DAVE ELLIOT in "CAVES and CAVING" reports as follows

"Alan Tate reports a fairly serious failure occuring with a Hiatt 12mm D-shaped krab, where the pin securing the gate hinge had almost dropped out. In this case the krab was being used as the main load bearing link of a sit harness and it is extremely fortunate that it was spotted just before setting off down the pitch.

The first thing we might learn from this, is that a karabiner is insufficiently safe as the main harness attachment. The gated side of a krab is always comparitively weak and only a 9 or 10mm Maillon Rapide is safe where other than major axis loading might be anticipated.

This particular failure looks very much like a throw back to an identical problem of a couple of years ago, which in fact was fairly common knowledge at the time, but perhaps it won't do any harm to air the matter again.

Briefly the background of the incident is that these karabiners are made with a countersunk rivet as the hinge pin which, even when later ground flush, still retains enough of the rivet head to secure the pin in place. For one reason or another a small batch were made using non-countersunk rivets and due to an operator error the heads were also ground off these. In consequence the hinge pins fell out at the slightest provocation. This fault was found to be limited to a single batch of k rabs (about 30) and as far as could be determined at the time, these were all recalled from retailers and cavers were warned to check their existing krabs.

It occurs to me that the current failure might well be an individual "rogue" krab from the original batch, either not returned by a retailer or kept by a caver who hadn't heard about the problem.

So if you happen to have any Hiatt D's it would not do any harm to check them just in case...."

\* It may be of interest to Australian readers to know that at least one Hiatt D k rab with this problem has been found in Australia. (Ed.)

# 

# KEEPING THAT ROPE PROTECTOR IN THE RIGHT PLACE

# RICHARD WILLSON

Attaching a rope protector to a rope and making it stay where it should, can be a real problem, especially if you have novices using the rope. A new clip developed by David Rothery (MUCG) may help overcome that age old problem.

The clip consists of a short length of old garden hose about 7cm long with a slit along one side. at each end a "V" is cut to make it easier to get on and off the rope. A hole is punched in one end of the rope allows it to be tied to your rope protector.

When I tested this clip I found numerous advantages over tying the rope protector to the rope.

It is easier to attach rope protector to your rope, especially for novices; There is no chance of attachment being accidentally loosened; It is easier to position the rope protector in the right place; The clip will not damage rope (some people have experimented with spring clips with dire results).

Disadvantages

The clip can be moved by a novice and left in the wrong position

It is important when constructing your Rothery clip to ensure that you use an old piece of garden hose. New hose is too soft and will not grip your rope. I found a short section of our neighbour's hose excellent. I would recommend a Rothery Clip as an alternative to trying to tie rope protectors onto your rope.

# 

Shane Wilcox of Hills Speleo Club writes:

"Recently Hills recieved a letter, dated 16 Nov 82, from one of the outdoor equipment suppliers, Mountain Designs, Sydney. I presume that other clubs also recieved a similar letter. For those who didn't it read as follows:

'Please find enclosed a length of Beal 10.5 mm Dynastat caving rope, plus a Beal catalogue. This rope is fast gaining favour in the Australian caving fraternity. The most significant being the Muller '82 Expedition.

Presently we can offer it at \$1.40 per metre, less 10% for orders of 200 metres or multiples thereof, plus freight.

Yours faithfully, Kelvin Harding Manager'

I was instructed by my club to reply to the letter as I was a member of the Muller '82 Expedition. I have sent Mountain Designs my reply but also offer it for publication as an open letter.

My reply, dated 31 Nov 82, read as follows:

'With regards to your recent letter and sample about Beal ropes, your price is very good, but that is  $\underline{\rm all}$  that is good!

As a member of the "Muller '82 Expedition" I used the rope on many occasions. It stretches too much - far too much for a caving rope. Beal dynastat could not be used on heavy traffic pitches because its abrasion resistance is poor. It was useful for short pitches when Blue Water, Edelrid or Interalp ropes were not available.

The Beal ropes were the last ropes to be packed into gear drums for the return trip - the locals did like the discarded lengths.

The expedition is now selling Beal off even cheaper, who knows it might make a good canyoning rope.

Yours in Caving Shane Wilcox Publications Secretary"

# ICE TUBE: TACKLE DESCRIPTION

# Pl: Phreds Downfall (25 m)

Belay a 40m rope with a 5m trace to the bollard just before the pitch on the northern wall. Originally rigged directly down the waterfall, a drenching can be avoided by re-belaying with a short sling to the rock projection low-down in the rift, at the top of the shaft. One protector required on the lip. Abseil 7m pendulum across the arete and re-belay with a jammed knot in the custom-made slot. A protector is required for abseiling on the ultra-sharp lip and another one just below.

# P2: Degenerated Man (22 m)

Anchor a 27m rope to the small bedrock pillar with a 10m trace. A tie-back to Pl is essential as this anchor point partially disintegrated on the last trip. Traverse out over the pit and hang rope down the slot on the left-hand side. The result is an awkward take-off point (one protector necessary on lip) but at least a partially dry descent. Bolting may make this pitch easier and safer.

From the base of P2 a rather airy traverse (Placebo Effect) above the next waterfall leads to a climb down into a dry fossil passage extending to P3 and P4. This is the easier route although it is also possible to continue along the streamway to a wet 8m pitch which requires a 15m rope anchored in the roof with a long trace. Two protectors necessary.

From the bottom of this drop several short climbs lead to a larger waterfall pitch which remains unexplored but is presumably the same stream entering the large chamber at the base of P5.

Instead, a sloping ramp on the right-hand side leads through a jagged squeeze, a short grovel and then an interesting 5m climb down into the base of P4.

# P3: Short Pitch (7 m)

Belay with at least 3m trace or tape. Use of a 15m rope allows for a back-up to P4. One protector at the top.

# P4: Inlet Pitch (19 m)

Anchor a 20m rope with a 5m trace around projection low down in the pasage on the eastern side. A tie-back to P3 is recommended. One protector needed on the lip and another one half-way down at the overhang.

# P5: Ramp Pitch (29 m)

A truly pleasant abseil against the wall which drops down to the streamway again, in a large chamber. Belay in roof with a 5m trace. 30m rope is sufficient and no rope protecotrs are required.

# P6: Fabulous Spangley Pitch (47 m)

Two bolts on the right hand side are the only tie-off points (8mm bolts and hangers required). The bolts were placed in March

and June 1982, no responsibility will be accepted for their condition. A re-belay to a spike 4m down the shaft with a 6m trace eliminates the need for rope protectors. A 50m rope is just adequate.

# P7: Fabulous Spangley Pitch, Part Two (13 m)

This pitch is essentially a continuation of P6. Tie a 15m rope to the end of P6. One protector required on the ledge. Ideally this pitch should be rigged separate (and dry) from an alternative anchor point.

# Handline (3 m)

Approximately 5m of tape is used to rig this drop leading onto P8. This could probably be free climbed if necessary.

# P8: Killing Joke (44 m)

Tie-off to both bolts on the left-hand side (one bolt hanger required). A 47 m rope is adequate for this very wet pitch. One or two protectors needed at the top and another two or three one-third of the way down at the corner. A re-belay somewhere down the pit would reduce the protection problems.

# P9: Maelstrom (36 m)

There are three dubious anchors low down which require a long trace and tapes. This pitch is excessively wet and can be done with a 40m rope and only one protector on the lip.

# P10: Never Forever (13 m)

Belay with several long traces around rock flakes on left-hand ledge. A 20m rope is sufficient with one protector on the lip. A tie-back to P9 may be desirable with would necessitate an extra 10m of rope.

# THE DOLINE ON THE RIVER LANG

or Another 'GEE WHIZ' for Armchair Cavers

The National Library in Canberra has an excellent collection of maps, among which are some relatively recent US Army maps of Thailand on which significant cave and karst features may be discerned.

In the far north-west of Thailand, 19033'N, 98010'E, a large stream (Nam Lang) is shown disappearing into a "doline" more than 400 metres deep. The highest closed contour around the doline is at 900m, and this alone encloses an area exceeding 100 sq km, while the total drainage basin of the stream is about 500 sq km. Numerous small dolines about 200m deep dot the area, especially on a 1000m high plateau to the south which drops away precipitously for 600m on three sides. This is the wettest part of Thailand and it does not take long on the trusty calculator to compute a runoff through the cave of up to one cubic kilometre each year, or about 30 cumecs (over 1000 cusecs).

The area is about 30 km north—east of Mae Hong San, the nearest town, and perhaps 10km along a good track from the nearest road. Major foot tracks and even some villages are shown in the "doline" but not on the karst plateau.

The current local political situation is unknown, although Mae Hong Son is readily accessible by air and bus. Could be worth checking out one of these days!

# **GUANO**

# CAVING SAFETY

(The following artcle on cave safety originally appeared in SPAR 46, July 1975 and more recently in SUSS Bull 20(10) from which this was extracted. It has been slightly modified for local situations).

Every caver is surely aware that no aspect of caving deserves more attention than that of underground safety. This is true for a number of reasons - if caving accidents are allowed to mount, caving as a sport will decline in public favour, caving societies will dissolve, and then what would all we weirdos do for congenial company? Furthermore, careless caving is bad for the caves themselves - blood spilled in caves is unsightly and makes them slippery for cavers to negotiate. Finally, and perhaps most worthy of note, certain caves are so constructed as to make recovery of accident victims virtually impossible. If sufficient safety virtually impossible. If sufficient safety precautions are not taken, such caves will become packed solid with bodies and will thus be rendered impassible for explorers. It is therefore in the caver's own interests to pay It is heed to the dictums expounded in this article.

We will consider a few rules of personal safety:

l. Never go into a flooded cave. You will be unable to keep your carbide lamp burning under water and will surely become lost.

2. Never enter a cave during an earthquake. Blocks of stone may fall from the roof and in so doing may tear your clothing. This may cause you to catch cold when you leave the cave.

3. Always use a rope when you abseil. point cannot be stressed too strongly.

4. Stay away from caves that are known to be Бу inhabited cave bears, dragons, tigers, sabre-toothed pterodactyls and bunyips. Some scientists feel these animals may be dangerous.

5. Showing off in a cave is frowned upon. matter how skilled you may be, walking on your hands on the Tyrolean Traverse in Cauldron Pot is extremely unsafe. The rock here is rough and you may scrape your palms

most painfully.

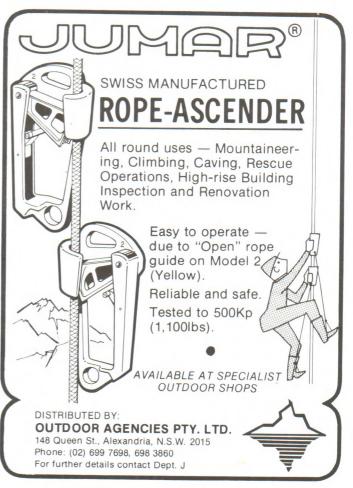
6. Be choosy about your caving companions. If you have just stolen your mate's girlfriend, or if your flatmate has taken to dropping pellets in your coffee and standing beside your bed at night with a meat cleaver in his hand, it is best not to take these persons in a cave with you. Though they may appear physically weak and puny, they could be possessed of diabolical cleverness. Play safe!

7. Do not go caving if you are suffering from gangrene, a broken neck, bullet wounds, hydrophobia, smallpox, fractured ribs or food poisoning. Many situations arise underground that deemand alertness and top physical form.

8. Under no circumstances should you ever try to drive through a cave in a car. If you run out of petrol there is no place to buy more.

Reprinted from Speleo Spiel No. 165, 1981.





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- Sleeping bags from J & H and Blue Ridge.



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# DOWN UNDER ALL OVER

ENDEAYOUR During the past year the club has continued to expand, with members as far afield as Aberdeen, Gosford and Campbelltown.

Activities and trips have not been as varied as in previous years, but since July 1981 have included trips to Bungonia, Tuglow, Cliefden and Wee Jaspar. Four field days were held, as well as a cave rescue and instruction weekend at Bungonia.

A field day held at the end of 1981, which included demonstrations and instruction on single rope techniques, prompted most of the full members to obtain their own equipment for this aspect of the sport. The club has recently re-equipped itself with new lights and various other items of caving gear.

### JEAN PLATT

MSS

The club has caved throughout New South Wales during the past year, although efforts have been focused on the Abercrombie district.

The Abercrombie Caves not only contain the largest arch in the southern hemisphere but also display what is perhaps the oldest cave in the country (some 3 million years since primary phreatic development). The arch and the caves were recently under threat of a takeover by private enterprise. During the first week of February 1983, a special meeting was held at the caves. Representatives of the Department of Sport, Leisure and Tourism discussed this situation with concerned individuals. Present were the caves staff, members of ACF; the President of the local Chamber of Commerce, the local policeman and members of the speleological fraternity. All these people expressed the need to retain the area under the present management system. The representatives from the Department assured the staff that the caves would not be leased to private enterprise. The tours in the area are of value since the qualified guides include

The tours in the area are of value since the qualified guides include items of history, as well as speleological information in their talks. Recently MSS in conjunction with HSC set up speleological displays in the Arch. Tourists are encouraged to take a close look at these displays of equipment, fossils and literature and ask questions about caves and cavers. This experiment has so far been successful, it is hoped that in the future the displays will become more spectacular and informative. This could contribute to creating a public awareness of the existence, and importance of speleology.

importance of speleology.

In the future MSS will be working hard at Abercrombie. There is a serious problem with dust in the arch, a problem amplified by the drought, local dust storms and the long stretch of dirt road between the caves and Irunkey

Creek. Appropriate action needs to be taken to control the increasing amount of dust. This needs to be done urgently as dust is discolouring the growing formations, and some of the gaint pink formations in the Arch. Concerts and video displays are being arranged for the future and it appears that the area is becoming regarded as one of high aesthetic, educational and recreational value.

The club has recently visited some caves on private property in the Abercrombie district. There are two main caves in this area, both of which have been mapped and documented. One is a purely phreatic cave with a perched water table some 30 meters from the valley floor. Most of the chambers contain lakes with calcite rafts and deep pools with no noticable currents. The second cave is a dip controlled system with some 60 metres of passage. At its lower level there are some good coral and helictite formations. The cave will be photographed, filmed and gated (by arrangement with the landowner) in the near future.

There are many other features in the area which need to be investigated and may prove to contain caves of considerable interest.

The drought has provided access to many caves with sumps or flooded levels, which were previously inaccessible. This provides a perfect opportunity to discover new caves and research the effects of man in causing erosion and changing water levels.

The club meets every third Monday night of the month at the Parramatta Masonic Club. Visitors are most welcome.

MUCG

Being an university club, examinations and late essays have all but taken their toll, but MUCG has been far from inactive. Down at Bungonia we have been engaged in two digs, one at the bottom of Shaduf Cave and one in the left hand branch of Acoustic Pot. Hopefully our efforts in Shaduf will provide an emergency escape route for those working in the B4-5 extension, and who knows we may break into unexplored regions down Acoustic .... touch dirt.

Closer to home and nearer the surface, the University has given the club one of the old cottages on campus for use as an equipment store and meeting room - but there are still many weekends of work before us.

days late - saw the inauguration of the MUCG Speleolympics. The greulling competition saw many records set in such events as the rockput, the brick hammer throw and the crow-bar javelin. Who knows, maybe these events will take their place along side the slop trough muck rake and the infinite crawl at the next Speleosports.

David Hamilton

# **DOWN UNDER ALL OVER**

PNGCEG

This report covers the six month period April to September 1982. This is a report of caving in PNG not just the activities of PNGCEG. Figures quoted are not authorative, but based mainly on telephone conversations with various cavers.

East New Britain

In August a group of Belgian cavers turned up in Port Moresby unannounced and declared that they were heading for Pomio. Nothing more was heard from them, except the Belgian Caving Federation asked th PNGCEG if we knew anything about the group! (On average Pomio receives 2500mm of rain in July and August alone, these are the wettest months. By comparison Goroka recieves 1900mm in a year and Port Moresby gets 1000mm in a year. Let's hope the Belgians were not heading for the river caves!)

Eastern Highlands

Michael Bourke has visited the Barananomba river cave near Yonki on a number of occassions with Henry Shannon from Australia, Frank Caines and Paul Sinclair from Aiyura.

Mt Kaijende Expedition

Over a two month period in June August a group of 30 people
participated in an expedition to the
very rugged Mt Kaijende karst in Enga
Province. The bulk of the cavers came
from the USA with others from Britain
and Switzerland and Judith Bateman,
Neil Montgomery and Philip Toomer from
Australia. The expedition was led by
Neil Montgomery, Donna Mroczkowski and
Neil Ryan. The first six weeks of the
expedition were spent in the forest
area on the mountain where the rugged
karst features are located. No caves
of significance were found.

Towards the end of the expedition activity was concentrated in a grassland area to the south-east of the mountain at a lower altitude. Here several caves were found. One of several kilometers in length and 300m plus in depth was still going. Plenty of leads were left unexplored. A return trip is planned to the area in

1984.

An unlucky accident resulted in one of the US cavers requiring helecopter evacuation as a result of a knee injury (he was lifted from the mountain at 1000 and was in Sydney by 1730:).

Muller '82

The fourth expedition to the Muller Range took place in June to August. Again Julia James of Sydney led the expedition whilst Neil Hickson in Mt Hagen acted as PNG organiser. The expedition had 57 cavers in the field at various times over the two month period. The cavers were mainly from Australia with others from Britain, New Zealand, Canada, PNG and Hong Kong. Initial exploration was in the Atea Gana, Hegaibau and the high altitude Legari areas. A further 2 or 3 km was explored in Atea Kananda, but results were in general disappointing.

Activity, was then concentrated on the Mamo area. Mamo Kananda (previously known as Hadia Yaneabogairi) came up to the expectations of the 1978 expedition. It was pushed to a length of about 52km and a depth of 520m. This is now the longest and deepest cave in Papua New Guinea. It is also the longest cave in the Southern Hemisphere. Unfortunately it was not deep enough to regain the depth record for PNG which has been stolen by Nettlebed in New Zealand. No return expeditions have been mooted as far as we know.

Activity in the North Solomons will described in the next issue.

R M Bourke

SRGWA

Since the last contribution to DUAO club member Colin Barnes has discovered the Nullabor's first aquatic creature in Nurina Cave (N46) during the course of the second channel Nine Nullabor trip, (details have been published in the Caver's Chronicle and will appear later in the ASF Newsletter). In July, members of WAIT OUTSIDE (an outdoor group from the WA Institute of Technology) staged their first expedition to the Nullabor region with planning assistance from WASG and SRGWA. During their visit to Mullamullang Cave (N37) they removed most of the remaining rubbish from Camp One leaving only two empty square carbide tins for later removal.

Norm Poulter

SUSS

Another year has dawned upon us and we look back on the previous one's activities. The last few months has seen the usual interstate trips being undertaken by members and a slight decline in "local" trips. Notably we had two groups in Tasmania during December and we had ten members attend the ASF conference in Adelaide. SUSS Would like to thank firstly the Tasmanians who extended their hospitality towards our members and secondly CEGSA for their efforts in organising the ASF conference. Looking back on the club's activities during 1982 we had another good year. Members have not only been evident at local venues such as Bungonia, Jenolan, Wombeyan, Yarrangobilly, and Cooleman but also in such noteable areas as New Guinea, Nullabor, Tasmania, Nepal and even Thailand. Socially we were well represented at the annual CUSS dinner and with the able assistance of MUCG we hosted the Speleosports '82. Also due to the efforts of our president SUSS was officially recognised by the Sports Union for the first time and we received a grant from the Student Activities Fund for registration fees at the conference. Well so much for 1982, but what about 1983? Our long term project will be a third book in the Jenolan Series and at present we plan to run our normal first term trips to "local" areas for new members.

# **DOWN UNDER ALL OVER**

TCC

During the post Ice Tube period (also called winter), caving seemed to drop from favour but other cave related activities became popular. For those. familiar with it, the track in the Florentine Valley from Nine Road to Growling Swallet has been the subject of an upgrading programme - logs have been cut out, a bridge rebuilt and the track itself reconstructed where where reconstructed Quite necessary. a major job considering we now walk into that area from the Eight Road which cuts the time

even more. Growling Swallet itself has once again been visited with some spectacular discoveries being made. The new series (as yet unnamed) has a number of parallel streamways linked by some streamways linked by some inspiring (in parts) high Total cave length now exceeds passage. 3 kilometres with every trip bringing to light a few more hundred metres of cave. The survey is beginning to resemble something from Star Wars and cave. will be most impressive when fully drawn up. (If and when we stop finding more.)

Trips are now on the verge of being minor epics as the once relatively easy two to three hour round trip has doubled in time. Excitement can be assured on every visit - a recent sortie got more than was bargained for when on the way out the ankle deep stream was found to be a 4 metre deep brown, swirling torrent. Play was

therefore abondoned for a few hours until the flood drained away.

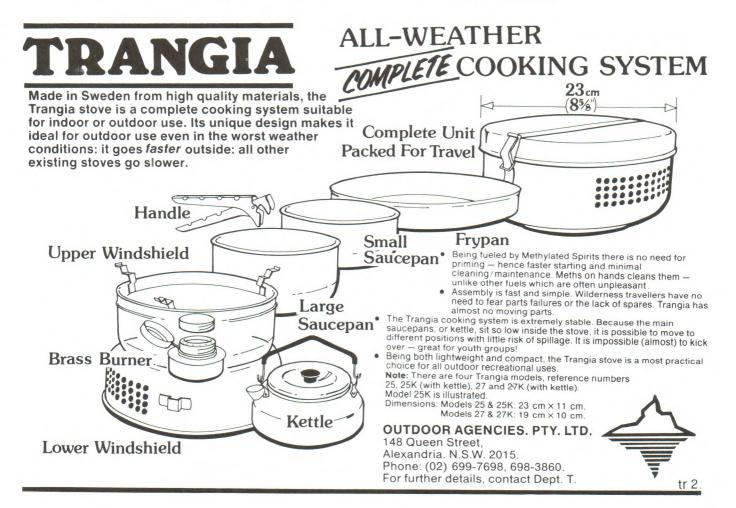
Surface surveying seems also to be in vogue at this time, with most caves and pots in the Growling Swallet area being tied in to each other and back to Growling. All that remains is to tie our traverse into the rest of the world! The adrenalin junkies have been at it again, getting more fixes in the Junee Resurgence. The diving has been progressing steadily (the only way to do it) with some interesting results from recent trips, but the outcome of all this bubble blowing will be revealed at a later date when more work has been carried out.

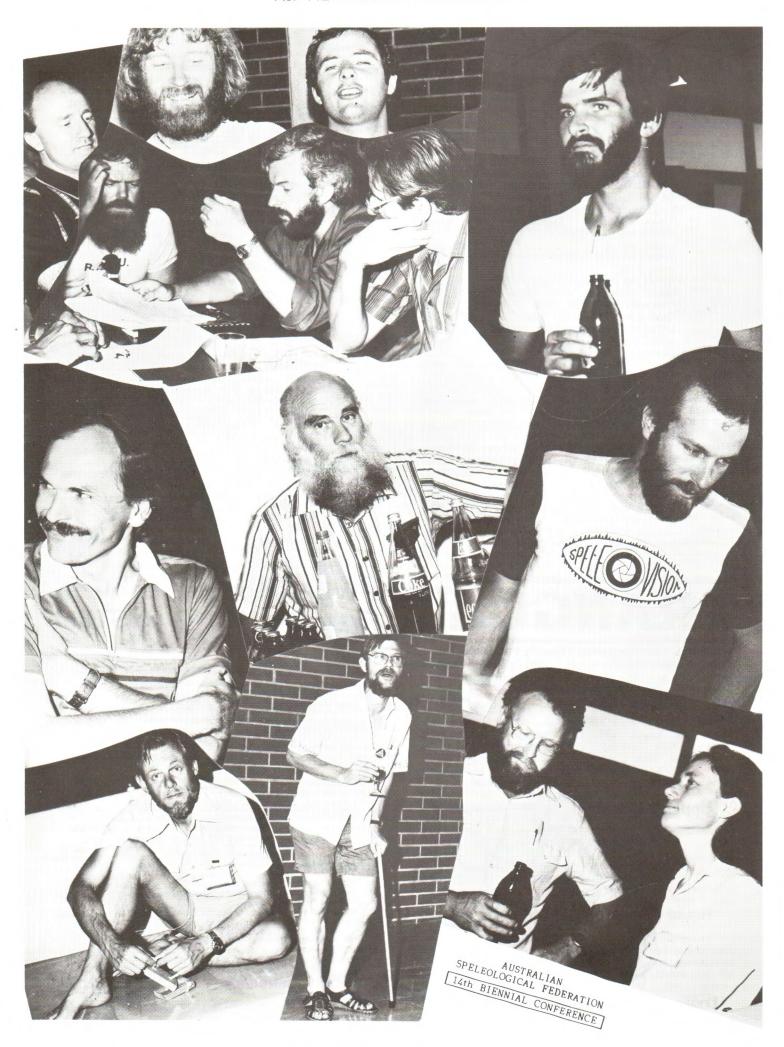
The bastion of a decade or more ago, Mt Anne, has received some long overdue attention recently with the NE Ridge providing sport in the form of vile scrub and the 115m entrace pitch of Kellors Cellar. This pot has now been surveyed to a reasonable standard and some photography has also been done. Exploration has also come to the fore

Exploration has also come to the fore with some interesting finds being made in the area. The depth potential is considerable but access is a problem, particularly with large amounts of caving gear. An unusual problem for Tasmania is the underground environment which has proved to be remarkably dry (even dusty) the only drips present being those otherwise known as cavers.

Three members of our club took part in the Muller 82 Expedition to PNG during the middle of the year and returned full of enthusiasm for expedition and caving in general.

STUART NICHOLAS





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# PADDYMADE SLEEPING BAG COMPARISON CHART

TABLE GEEL ING BAG COMI ANIOUN CHANT						SIZE IN	
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KIANDRA BIMBERI HIGH PLAINS HOTHAM MELALEUCA BOGONG SNOWLORD	1.25 kg 1.00 kg 1.80 kg 1.60 kg 1.55 kg 1.60 kg 2.00 kg	Sewn Thru Box Wall Box Wall Box Wall Box Wall Box Wall Box Wall Slant Wall	500 g 550 g 1100 g 700 g 800 g 900 g 1100 g	550 Loft Down 550 Loft Down Featherdown 550 Loft Down 550 Loft Down 550 Loft Down 550 Loft Down	5°C -5°C -5°C -15°C -15°C -25°C	Full Zip Side Zip Full Zip Full Zip Side Zip Full Zip Side Zip	30 x 17 30 x 17 34 x 23 34 x 23 34 x 23 34 x 23 37 x 27

All bags fit people to 190 cm (6ft 3in) tall; bags to fit people 205 cm (6ft 9in) are available in most models. \*Temperature Ratings are a soft measurement — they represent an average expected performance level for a standard person although individuals will differ by up to  $\pm$  10°C. Paddymade reserves the right to alter these specifications without notice.



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