# AUSTRALIAN CAVER

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## CONTENTS



**DEADLINES FOR FUTURE ISSUES:**

No. 122: end November 1989 No. 123: end February 1990

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

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

**Cover Photograph:** Porndorn Arch Lava Cave (H-6) Victoria by P Ackroyd,.Feb.1988

## DOWN UNDER ALL OVER

**SRGWA:** The Group's expedition to Kununurra has come and gone and despite stomach ailments effecting three of the party was judged to be an unqualified success. Several caves were visited and mapped in both the Jeremiah Hills and Ningbing Range, located on private leasehold land north of Kununurra. Most of the caves visited had more than one entrance but did not descend below the level of the surrounding plain. All caves contained wildlife to some extent and at least one resident bat although the predominant residents were spiders, ants and pseudo-scorpions. Ghost bats were seen roosting in both regions and one shelter cave was found to contain aboriginal paintings.

The Group's reflective discs were used for the first time to number the visited caves. These discs consist of a 50mm diameter yellow reflective disc with a non-reflective 20mm aluminium disc in the centre with the cave's number stamped on it. The discs are glued to the rock near the cave entrance with Silastic 732 RTV adhesive or where the rock is wet, Monier M34 Polycarbonate sealant.

As Christmas approaches, the Group is planning another trip to the Nullabor to continue and hopefully finish the cleanup of Weebubbie Cave. Assistance is being sought on this project and readers or this article are encouraged to participate. The trip will begin with members leaving Perth on the morning of December 26. Eastern states readers should contact Norm Poulter, PO Box 120 Nedlands 6009

Norm Poulter

## NOTICES AND NEWS

**NSW Speleological Council:** At a meeting held on Saturday 20 May 1989 the following officers were elected unopposed: President:-Derek Hobbs, Vice-President:-Adrian Ridgeley, Secretary/Treasurer:-Rob Mahood.

**NSW Speleosportz:** This annual event will be held at Macquarie University Sydney on 4th November 1989. For more Details contact Hills Speleological Club Ltd.

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## ASF inc. Committee Meeting January 1990:

This will be held at The Jindabyne Sport & Recreation Camp on 26-28/1/1990 (Friday, Saturday, and Sunday). Tentative accommodation has been booked for the Friday and Saturday nights in self contained lodges which each have cooking amenities, lounge area, bathroom and two bedrooms each sleeping 4 persons ie.8 per lodge. The cost for this accommodation will be about $20.00 per person for the two nights (room only). The cost will also include a bar-b-que on Saturday night. At this cost there will be no discounted rates. ***If you wish to avail yourselves of this arrangement then you must send $20.00 to Ian Mann 28 Stephen St. Lawson by 1-12-89*** (all cheques should be made payable to ASF).

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# TASMANIA'S WILDERNESS KARST:
## The Franklin, The Forests and The Future

by K. Kiernan

The Australian government has now forwarded to the Paris secretariat of the World Heritage Committee a nominaton for additions to the western Tasmania World Heritage Area (WTWHA) that include about 20 karst areas (Kiernan, 1987; Houshold and Davey 1987; Middleton, 1988a). In addition, the Denison-Spires area (in recent days informally known as the "Hole in the Doughnut") is to be proclaimed a national park under state legislation, but without its being nominated as World Heritage. This latter area also includes some important karst. While these developments represent a significant advance for the protection of Tasmania's karst, some very important concerns remain.

### Background

The latest developments can best be understood in the context of the decision to stop the Gordon-below-Franklin dam, a decision in which karst figured prominently - former Prime Minister Malcom Fraser has suggested that it was the archaeological significance of Kutikina Cave that tipped the balance in favour of conservation (Kiernan, 1984a; Williams, 1985). The legal proceedings during the dam debate demonstrated that the World Heritage Treaty offerred a constitutional mechanism that enabled the Commonwealth government to intervene in land-use at a state level that had never before been possible. This has since had implications not only for areas that have been listed but also elsewhere in Tasmania. The Tasmanian state government has been spurred to take initiatives in the environmental field in an effort to fend off Commonwealth intervention which has invariably been politically embarassing

The Southern Forests area consists of an elongate strip of land along the eastern boundary of the earlier WTWHA. It includes Australia's deepest and longest caves, and the only alpine karst in the country. In 1983 the Commonwealth demanded an Environmental Impact Statement (EIS) into the implications of its renewal of export licences for Tasmanian woodchips beyond 1990. A moratorium on logging certain areas was put in place. The EIS recognised karst as a significant management issue, stimulated in large measure by a project then underway within the Commission that was seeking to resolve competing claims for land allocation at Mole Creek in central northern Tasmania (Kiernan, 1984b). When logging was resumed after the EIS was completed there was protest in the forests involving the arrest of about 100 conservationists. In June 1986 the Commonwealth and Tasmanian governments signed a Memorandum of Understanding (MOU) that included provisions for limits to logging in the Southern Forests that would have safeguarded much of the Cracroft karst but developed a large area of the Weld/Mt Anne karst. The MOU also demanded that logging at Mole Creek should take account of the recomendations of the study that had by now been completed, and for the state to proceed with Forest Practices legislation in an effort to improve environmental management in the forests. Later, a Forest Practices Code was released that included special provisions for forestry operations in karst areas generally (Middleton, 1988b).

However, the MOU did not end either protest in the forests or conflict between the Commonwealth and Tasmanian governments. The Commonwealth ultimately halted logging in the Southern Forests and also in the Lemonthyme area which lies on the northern edge of the WTWHA (the Lemonthyme contains no karst). The Commonwealth established the *Commission of Enquiry into the Lemonthyme and Southern Forests* to determine whether sites of World Heritage calibre existed in these areas. The Commission was chaired by Justice Michael Helsham and included an economist, Mr.R.Wallace, and a forester turned national park planner, Mr.Peter Hitchcock.

Legal challenges by the Tasmanian government and forest products industry to the Inquiry and to the logging ban were consistently thrown out by the High Court, confirming the precedent established during the dams case. As with the Franklin campaign, the question of the Southern Forests was prominent in the federal election held in July 1988.

**Helsham, Holes and Harrassment.**

The principal contribution of the Helsham Enquiry probably lay in the extent to which it stimulated collation of scattered existing knowledge of the scientific and other values of the Tasmanian wilderness and also provoked parties to the proceedings to sponsor new research. Karst figured prominently in this process. For instance, the significance of the cave fauna in the area was addressed in at least one consultancy undertaken for the Commission itself, and was also mentioned in several submissions presented to the Enquiry. Another consultancy, this one undertaken for Australian Newsprint Mills Ltd, involved a two-week field trip in September 1987 to establish the likely archaeological significance of the area. By the conclusion of that trip we had confirmed the presence of Pleistocene occupation at Bone Cave in the upper Weld Valley and found one additional site (Kiernan, 1984; Goede and Bada, 1985). We also confirmed the presence of human remains of probable Pleistocene age in Nanwoon Cave in the upper Florentine Valley. This cave was first found by a party from the Hydro Electric Commission during its search for caves in an effort to counter the archaeological significance of Kutikina during the Franklin debate. The human remains from Nanwoon are now known to be of a gracile form comparable to those from Lake Mungo in NSW and quite dissimilar to any previously recorded from Tasmania (Jones et al., 1988). Finally, Richard Cosgrove, Rhys Jones and myself found a gallery of hand stencils in Judds Cavern in the Cracroft Valley that appear to be almost certainly of Pleistocene age - the southernmost ice-age art found in the world to date. It has since been established that the pigment used to make the stencils contains mammal (possibly human) blood, the first time that blood has ever been biochemically identified as a constituent of of the pigment used to produce rock art anywhere in the world (Jones et al., 1988). These findings did not augur very well for the anti-World Heritage case.

Karst was also addressed at length in the subsequent Enquiry hearings, with many pages of submissions and transcripts devoted to it - the present writer, for instance, spent nearly 7 hours in the witness box over three days, mostly talking karst, and there were other lengthy appearances by Rhys Jones, Adrian Davey and Ian Houshold and briefer contributions on karst by a number of other witnesses (Middleton, 1988c). At the time a Tasmanian state public servant, I later came under considerable pressure from a very high political and bureaucratic level in the Tasmanian government for not illegally refusing to answer the soepenna to appear that I had been served by the Commission. For legal reasons the full details of this cannot yet be told, though the incident serves as some indication of the desparation of the state administration as it lost its court cases and saw the Southern Forests slipping through its fingers.

However, for a while at least the Tasmanian government need not have worried, because the majority of the Commissioners found that only a small part of the area waranted World Heritage listing - including Exit Cave and also (for botanical rather than karst reasons) parts of the Upper Weld/Mt Anne and Mt. Bobs karsts, but specifically excluding Bone Cave and Judds Cavern. On the other hand a minority report by Commissoner Hitchcock, the only commissioner with any knowledge of natural area planning and management, proposed that most of the Enquiry area should be nominated for World Heritage listing, together with some additional areas such as the 'Hole in the Doughnut' that the World Heritage Bureau had itself once suggested should be included in the WTWHA. This split in the Commission meant that its deliberations had been in vain, and it ushered in a further period of political turmoil. The competence of the majority report was called into question, and most of the consultants that had been engaged by the Commission publicly dissociated themselves from its findings. Goodwill towards the Commission took a further slide when irregularites were discovered in the manner in which some witnesses were engaged on minor paid consultancies by the Commission to expand on their evidence - some being forced to resort to the Ombudsman in an effort to secure their fees which in the end neccessitated special ex gratia payments being conjured up by the federal government.

## Tasmania's new World Heritage Area

After having been deadlocked on several occasions federal cabinet finally resolved to protect about 80% of the Enquiry area, if neccessary by resort to unilateral nomination of the area for the World Heritage List. Ultimately, agreement was reached between the two governments to list 270 000 ha of the Lemonthyme and Southern Forests, and some adjacent areas on the Central Plateau, and for the Tasmanian government to protect the 'Hole in the Doughnut' under state legislation (Middleton, 1989). Although karst appears to have fared fairly well from the chosen WHA boundaries some other important natural values have not, most notably the tall forests that were the focus of the public campaign.

On 20 December 1988 the Commonwealth government forwarded the nomination to the World Heritage Bureau in Paris. It consolidates nomination of the new area with a re-nomination of the existing WTWHA. Under the rules set down by the World Heritage Bureau one of four criteria must be met for a natural area to be accepted as World Heritage, while cultural sites must meet one of six criteria. The original WTWHA qalified on the basis of all four criteria for natural heritage, and three of the six for cultural heritage. In the latest nomination karst values are cited in the arguments for all four natural heritage criteria, and for two of those for cultural heritage.

## The future

The new World Heritage listing does not ensure total protection for Tasmania's wilderness karst. Firstly, the decision offers the 'Hole in the Doughnut' only the very limited protection conferred by state legislation - and remember that no Tasmanian national park has ever survived unscathed for even a single human generation, let alone future generations. In this case the situation is worse, as the agreement between the two governments specifically leaves the area open for mining and hydro-electric dams. That means, for instance, that the Ballawinnie Cave art site discovered a couple of years ago and the enigmatic karst towers in the Maxwell River Valley (Middleton, 1988d; Harris et al., 1988) remain vulnerable to dams constructed at Freedoms Gate or elsewhere on the Denison, or on the Gordon River upstream of the Olga River confluence. The discovery of further archaeological sites in the Denison Valley in March 1989 emphasises that the 'Hole in the Doughnut' forms a central part of the rich and ancient archaeolgical province represented by the Franklin Valley at one extremity and the Weld and Cracroft valleys at another extremity.

But similar risks exist even in the new WHA. Because there appears to be no clear mechanism whereby WHAs can be rescinded various federal Liberal Party politicians have foreshadowed that if elected to office they intend to "review" restrictions imposed on activities in WHAs. It would appear that this process has already commenced, without the need for any change of government. An agreement known as the Cook-Groom Package is appended to the Heads of Agreement signed by the Commonwealth and Tasmanian governments on 28 November 1988. It indicates that the Commonwealth agrees with the continued issuance and maintenance of mineral exploration and mining titles in the WHA. Because the original WTWHA is renominated in the latest submission this appears to allow access by the mining industry into not only the Southern Forests, the Walls of Jerusalem National Park and the Central Plateau Conservation Area - which would be bad enough - but also into the Southwest National Park, the Franklin-Lower Gordon Wild Rivers National Park, and the Cradle Mountain-Lake St Clair National Park. Already the Commonwealth government has agreed to small scale gold mining in the little known Jane River karst area at the very heart of the Franklin River basin, something that would have been unthinkable during the heady days of the dams debate.

On top of this, while the broad boundaries of the new WHA have been agreed upon their location at a detailed level has not yet been completely finalised. Officials with no detailed local knowledge are involved in intergovernmental negotiations and making decisions as to, for instance, which contour boundaries should follow. It remains to be seen how well served by this process are such karsts as the Mt Weld (Fairyland) area. It also remains uncertain as to whether the new WHA additions will be given national park status or will retain their present tenure as State Forest and remain under the administration of the Forestry Commission.

The WHA boundaries around Exit Cave make much more sense than the original cave reserve which was declared in two separate sections with a mining lease between them. But the second largest limestone quarry in Tasmania is to be allowed to continue operations within the new WHA boundaries adjacent to the Exit Cave reserve. Apart from any long term threat to Exit Cave, operations at this quarry have already resulted in sedimentation in one cave that contains several skeletons of the thylacine or Tasmanian Tiger, while pollution entering a sinkhole has reached another cave (Kiernan, 1973a) and, perhaps for this reason, that particular cave is devoid of obligate cavernicoles despite their presence in other nearby stream caves (Clarke, 1987). In addition, some years ago the quarry company installed a pipe that diverts water to the quarry from Mystery Creek, the principal stream that flows through Exit Cave, despite having earlier given an undertaking that it would not do so (Kiernan, 1972).

It should also be remembered that the advent of World Heritage status some years ago has done little for the Lower Gordon River karst area. One of Tasmania's most important tourist attractions, the rainforested banks of the Lower Gordon have been seriously battered by the wakes produced by tourist vessels. Tens of kilometres of riverbank have now collapsed into the river, carrying with them the majestic Huon Pine and Myrtle trees whose reflections in the crystal waters of the Gordon made the place so justifiably famous. Almost all of this damage has occurred since the advent of the original WHA. The Tasmanian government has consistently favoured a continuation of the present format of tourism on the river over responsible management of this sensitive environment, while the Commonwealth Government either turned a blind eye or couldn't care less (Kiernan, in press). Only now when the Gordon is almost beyond salvage and tourism interests are themselves expressing concern are there signs of interest from Canberra.

No conservation battle is ever won - at best defeat is merely deferred, but only until complacency sets in. Only destruction of an area in dispute ever fully resolves a conservation issue. Most of us have been brought up with the reassuring notion that national parks are declared to protect places for all time. But human beings are involved, human perspectives change, and greed is a universal constant. Without constant effort no part of our heritage is likely to survive if it can be converted into hard cash or votes. While most of the conservation movement turned its attention to the forests after the Gordon-Franklin area was "saved" the banks of the Gordon were laid to waste. Today the 'Hole in the Doughnut', other areas of the Tasmanian wilderness, and some karst areas elsewhere in the state deserve redoubled efforts to secure their protection. But in persuing that goal a vigilant concern for those places already supposedly protected will be imperative if we are not to see more of Tasmania's World Heritage karsts "Gordonised", despite their new found status. Public expectations of what is appropriate in a WHA are likely to be more significant in protecting them than their status in any legal sense.

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**Postscript**

Since the above article was written a new state government has been elected in Tasmania which has pledged to fully protect the "Hole in the Doughnut". Five green independents elected on 13 May 1989 formed an alliance with the state Labor Party led by Mr Michael Field enabling it to form government with an effective parliamentary majority of one. The green candidates took a seat in each of the five Tasmanian electorates, topping the poll in two electorates and coming second in two others. Former Premier Robin Gray refused to resign until six weeks after the election, but the new government is now installed. The head of Tasmania's largest company, ENT Ltd, has been charged by police with attempting to bribe a newly elected Labor politician to defect to the Liberals. The accord signed between the independents and the ALP provides that the state government will add a number of areas to the World Heritage nomination, including the karst-rich "Hole in the Doughnut", and that as a matter of priority it will consider the addition of several others one of which includes the catchment of the Lower Gordon karst. In June 1989 the World Heritage Bureau requested that the Australian government add a number of other areas to the nomination, including the lower Weld and upper Styx valleys, both of which contain important karst. The independents have had a major impact on the new government's restructuring of the state bureaucracy, which has seen the emergence of a new Department of Parks, Wildlife and Heritage and a Department of Environment and Planning. However, while the green-Labor accord provides that no mining is to occur in national parks or World Heritage Areas, Premier Field has indicated to the operators of the Ida Bay limestoone quarry that it will be permitted to continue operations. It is not yet certain the extent to which this may or may not threaten nearby Exit Cave, but it certainly spells destruction for many other caves in the area planned for quarry expansion. However, precipitous closure of the Ida Bay quarry might well force increased quarrying in another equally or even more sensitive area, possibly at Mole Creek or above Khazad-Dum at Junee-Florentine. The situation demands cool, careful and rational consideration of the options and impacts, and a sound factual base upon which to found decisions, but there is a danger this will not occur for two principal reasons. Firstly, to meet the deadline for acceptance of the World Heritage nomination in Paris a decision will probably have to be made by September 15 either to exclude an area around the quarry from the nomination or include the quarry and allow the very dangerous precedent of mining in the World Heritage Area. Secondly, the Exit Cave area has been seized upon by Tasmania's exploitative agencies and interests in a last ditch bid to thwart the gains made by conservation interests.

# ASF RENOVATION & RENEWAL SUBMISSION

By R Allum

To enable property owner, manager or management of karst areas to control caving access I forward the following suggestions to be considered by the ASF.

1. The ASF introduce an ASF caving membership card to be issued to every financial caving member (see example page 8).

2. The ASF to recommend to any property owner, manager or management of karst areas that caving access & caving to be permitted only to:
   a) ASF caving members in possession of a current membership card.
   b) In the case of persons who are undergoing an indoctrination programme to become ASF caving members they may be allowed into certain caves provided they are accompanied by another responsible ASF caving member.
   c) Holders of special ASF permits to enable overseas cavers to partake in caving activity within Australia and for persons pertaining specialist skills (not normally cavers) to assist in speleological activity in particular Karst areas of Australia.
   d) The ASF respect the Landowner, manager and/or management to make any other arrangement for caving activity that they so desire: e.g.Non ASF persons be it other clubs, scout groups, tourists, friends, etc.

Note: If the request is applied for by a representative of a council member of ASF the onus for the above protocol will be with that council member.

3. The ASF accept any council member being body, club or society to:-
   a) Recommend any person (not necessarily a member of own body, club or society) as an ASF caving member after such person has satisfied the delegate of that body, club or society that he/she is a competent and responsible caver.
   b) Also issue special caving permits to competent and responsible overseas cavers and/or persons pertaining specialist skills not normally cavers) to assist in speleological activity. The duration of such a permit should not exceed 12 weeks. No fees are charged by ASF for such permits.
   c) Also, the right to suspend any ASF membership, however that person has a right of reply to the ASF executive to defend such membership. (Clause added only in the event of exceptional circumstance).

4. a) That all ASF caving members be individually responsible for their ASF caving membership fees. (Any Council Member can make their own provision to pay ASF fees on behalf of their members, if they so desire).
   b) When ASF membership fees become due a reminder note for such fees will be sent to every caving member. (This note could be a tear out page of the Australian Caver). Provisions should also be made so that the member can advise the ASF of any change of address or other particulars. This must be done promptly otherwise a late fee will apply.
   c) Receipt advice (in the way of an updated year sticker to attach to a membership card) will be sent to every member upon receipt of such fees.
   d) Any ASF caving member retains the right to ASF caving membership as an individual provided they remain financial with the ASF and unless otherwise suspended.
   e) A member or individual caving members who group together to form a body, club, or society, although individually ASF caving members the body, club, or society does not become a member of the ASF unless such form of membership is approved by the ASF.

**Advantages to the ASF:**

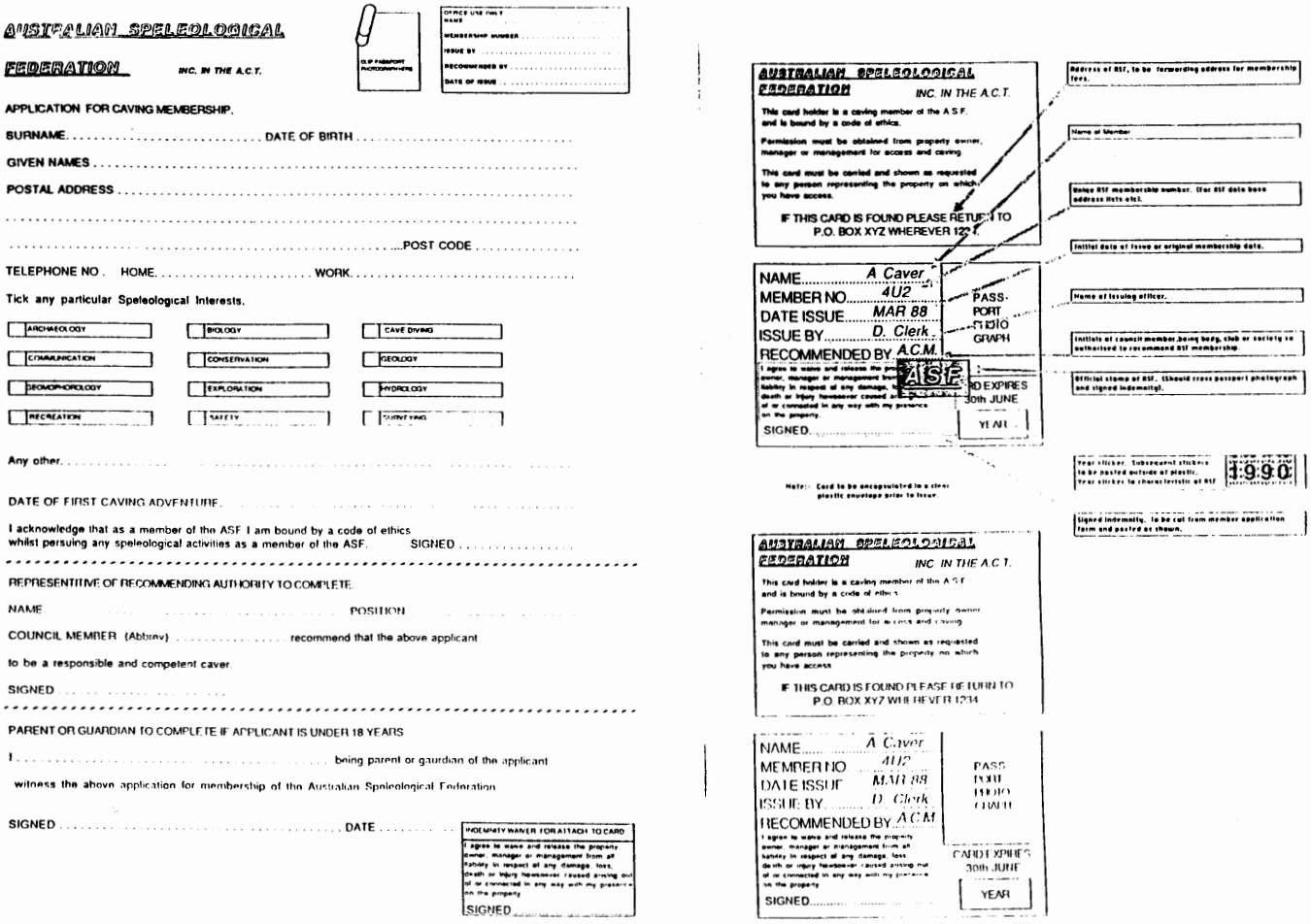
1. To provide a criteria to the landowner, manager or management of karst areas to help control caving access.
2. Individuals know their status in ASF:-
   No card - no membership.
   Card expires - membership lapses.
3. The card to provide incentive to those cavers who should be ASF members to become ASF members.
4. Advantageous to keep address lists updated.
5. Overall advantage - greater income from every cave user pays ASF fees.
6. Greater credibility for the ASF.
7. The card is easily carried in a wallet.

**Disadvantages to the ASF:**

1. Greater administration workload and cost.

However, with drafting an easily defined procedural guide, the workload could be contracted and cost offset by the greater income. (Possibly to an existing ASF club or society already equipped with ID card equipment and a PC with the data base for addresses).

Example of a membership card.



AUSTRALIAN SPELEOLOGICAL FEDERATION INC. IN THE A.C.T.

APPLICATION FOR CAVING MEMBERSHIP.

SURNAME..... DATE OF BIRTH .....

GIVEN NAMES .....

POSTAL ADDRESS .....

.....

.....POST CODE .....

TELEPHONE NO. HOME..... WORK.....

Tick any particular Speleological Interests.

ARCHAEOLOGY | BIOLOGY | CAVE DIVING
COMMUNICATION | CONSERVATION | GEOLOGY
GEOMORPHOLOGY | EXPLORATION | HYDROLOGY
RECREATION | SAFETY | SURVEYING

Any other.....

DATE OF FIRST CAVING ADVENTURE.....

I acknowledge that as a member of the ASF I am bound by a code of ethics whilst persuing any speleological activities as a member of the ASF. SIGNED .....

REPRESENTITIVE OF RECOMMENDING AUTHORITY TO COMPLETE.

NAME ..... POSITION .....

COUNCIL MEMBER (Abbrev) ..... recommend that the above applicant to be a responsible and competent caver.

SIGNED .....

PARENT OR GUARDIAN TO COMPLETE IF APPLICANT IS UNDER 18 YEARS

I ..... being parent or gaurdian of the applicant witness the above application for membership of the Australian Speleological Federation

SIGNED ..... DATE .....

INDEMNITY WAIVER FOR ATTACH TO CARD

I agree to waive and release the property owner, manager or management from all liability in respect of any damage, loss, death or injury howsoever caused arising out of or connected in any way with my presence on the property

SIGNED.....

AUSTRALIAN SPELEOLOGICAL FEDERATION INC. IN THE A.C.T.

This card holder is a caving member of the A.S.F. and is bound by a code of ethics.

Permission must be obtained from property owner, manager or management for access and caving.

This card must be carried and shown as requested to any person representing the property on which you have access.

IF THIS CARD IS FOUND PLEASE RETURN TO P.O. BOX XYZ WHEREVER 123

NAME A Caver
MEMBER NO 4U2
DATE ISSUE MAR 88
ISSUE BY D. Clerk
RECOMMENDED BY A.C.M.

PASS-PORT PHOTO GRAPH

I agree to waive and release the property owner, manager or management from all liability in respect of any damage, loss, death or injury howsoever caused arising out of or connected in any way with my presence on the property.

ASF

CARD EXPIRES 30th JUNE YEAR

SIGNED.....

Note:- Card to be encapsulated in a clear plastic envelope prior to issue.

Address of ASF, to be forwarding address for membership fees.

Name of Member

Unique ASF membership number. (For ASF data base address lists etc).

Initial date of issue or original membership date.

Name of issuing officer.

Initials of council member being body, club or society so authorised to recommend ASF membership.

Official stamp of ASF. (Should cross passport photograph and signed indemnity).

Year sticker. Subsequent stickers to be pasted outside of plastic. Year sticker to characteristic of ASF 1990

Signed indemnity, to be cut from member application form and pasted as shown.

AUSTRALIAN SPELEOLOGICAL FEDERATION INC. IN THE A.C.T.

This card holder is a caving member of the A.S.F. and is bound by a code of ethics.

Permission must be obtained from property owner, manager or management for access and caving.

This card must be carried and shown as requested to any person representing the property on which you have access

IF THIS CARD IS FOUND PLEASE RETURN TO P.O. BOX XYZ WHEREVER 1234

NAME A Caver
MEMBER NO 4U2
DATE ISSUE MAR 88
ISSUE BY D. Clerk
RECOMMENDED BY A.C.M.

PASS-PORT PHOTO GRAPH

I agree to waive and release the property owner, manager or management from all liability in respect of any damage, loss, death or injury howsoever caused arising out of or connected in any way with my presence on the property

CARD EXPIRES 30th JUNE YEAR

SIGNED.....

## An Extremely Low Maintenance Expedition Light by P Ackroyd

While the Oldham electric miner's caplamp is almost universally used by Australian cavers at their usual weekend caving haunts, the expedition light adopted by most cavers who visit remote areas is the Petzl remote generator carbide light with electric back-up - the Petzl 'Kaboom', so named because of the noise made when ignited.

The advantages of the "Kaboom" are:
(1) In common with all carbide lights, the duration of the light is limited only by the supply of carbide and water. The Petzl 'Kaboom' runs for about four hours per fill of water and eight hours per charge of carbide.
(2) It is relatively easy to run due to a large diameter jet and piezo-electric ignition.
(3) Because the jet is vertical, the 'Kaboom' is less likely to burn critical bits of rigging than some other carbide lamps.

The disadvantages are:
(1) Because the unit is screwed directly to the hard hat, the Petzl user has one hard hat for normal (electric) caving, and another, with jet and electric back-up attached, for expedition use.

(2) The Petzl remote generator requires some modifications, primarily to the water filler, to make it suitable for crawls and deep river work. The usual method is to braze in a tube to the simple screwtop water filler cap, then attach a long length of plastic hose, taped to the acetylene supply hose, up to the caver's helmet.
(3) Naked flames in constricted spaces usually mean someone or something gets burnt.
(4) All carbide generators require some maintenance in the cave, and plenty once outside. Jets need to be cleared, filters washed, old carbide disposed of and mud flushed from the water reservoir.
(5) On waterfall pitches carbide lights are less than ideal. The caver may well discover the delights of prusiking a waterfall pitch in the dark!
(6) Because even the best maintained carbide lights are still a little temperamental, the push caver can sometimes be in an extremely delicate situation only to find the position made much worse by being unexpectedly plunged into darkness. At least one death in a cave has been partly blamed on the propensity of a carbide light to self-extinguish at the worst possible moment (Knutson, 1987).
(7) The Petzl 'Kaboom' costs quite a bit of money - about the same as an Oldham miner's caplamp.
(8) Because airlines treat carbide as a restricted substance, supplies of carbide need to be secured in advance.

So, a caver with ideas of exploring caves in the more remote areas of the country, or the world, needs to pay for an additional hard hat and the equivalent (in cost) of another Oldham miner's light. Then, with some further work on the newly acquired generator, a light with good all-round illumination (but without the narrow beam able to pick out the features at the bottom of shafts or top of avens) is available.

Caving in Tasmania's Junee-Florentine areas on carbide during Easter 1983 encouraged review of all the above facts. Carbide light in large caves like *Growling Swallet* [JF-36] left one guessing at what was on the other side of the chamber, while in *Khazad-Dum* [JF-4] the thrill of the trip was marred by concern over keeping flames lit while in waterfalls. Coupled with this caving activity was the fact that I was renovating a terrace house at the time and learning of the magical goods available to the modern plumber.

By late 1983 the first 'Sewer Light' had been created. It consisted of Oldham parts from the caplamp down to the cable protector, after which it turned into a short length of PVC 40 mm sewer pipe with one glued end and one threaded end, and containing three 'D' cells. Voltage therefore was 4.5 V. This prototype served me well as a lightweight caplamp for Victoria's Western District, and in 1985 for *Anne-A-Kananda* [MA-X9] on the north-east ridge of Mt Anne, Tasmania.

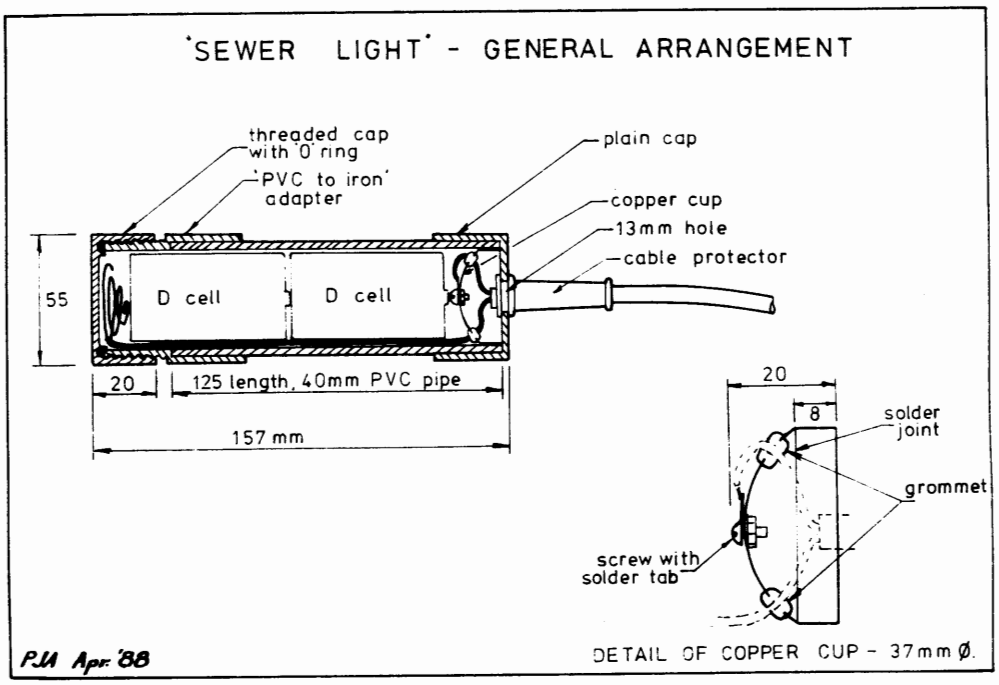
However the first really wet cave in which it was used revealed a problem. The battery compartment was almost, but not quite, waterproof.

Two refinements were incorporated into the Mark II when it came into existence in mid 1986. The screw cap had an 'O' ring (available as a standard item from plumbers' suppliers) and the globe and reflector were changed over to the pre-focussed type, allowing the use of a wider range of globes. This second refinement lead directly to the Mark III, illustrated next page. The remaining problem with the Mark II was that three 'D' cells were required for its operation, but 'D' cells come in blister packs of two, so there was always an extra 'D' cell floating about.

The supply of pre-focussed halogen globes in various voltages is now quite good. Eveready market their range of 'Energizer' halogen globes for the use with 2, 3, 4 or 5 'D' cells (HPR-52, 53, 36 and 51 respectively). Purchasing and installing an HPR-52 globe was easy. Cutting one battery length (60.5 mm) from Mark II and fitting a new end cap would have been fairly simple also, but having acquired another caplamp and cable set in May 1987, I made up an entire new light, just for fun.

One or other of these two lights has been used extensively in Tasmania, mostly in the caves of the Junee-Florentine area. The two cell unit has also been used as a diving light six metres underwater with no problems.

Upon seeing the light and recognising its component parts, Alex Kariko of VSA dubbed it the 'Sewer Light', a name that has stuck.




Characteristics

(1) Two cell unit. In the two cell configuration, two Duracell 'D' cells drive a 2.8V, 0.85 A, halogen main globe and a 2.3V, 0.3A, emergency globe. Due to the high current demand, Duracell batteries (or equivalent alkaline cells) are the type capable of suppling the required current. The best performance is given by fresh batteries which are used for about 4 hours at a stretch. Used in this way the light will require new batteries after about 12 hours of in-cave time. If used continuously, the batteries will need to be replaced after about 10 hours. Spare batteries are best carried in the cave inside a second piece of PVC pipe with an 'O' ring screw cap. Insert the batteries backwards in this and at the changeover simply tip the old batteries directly into the caving pack, then pour the new batteries into the light. They will then auotmatically be facing the correct direction without being touched by grotty mud-covered hands.

Light output of the two cell version is about the same as the Ni-Cad driven FX-2 light from the UK, but without the need to worry about how the thing can be charged in a remote location. The 'Sewer Light' is also a lighter unit than the FX-2 and is a shade more compact.

(2) Three cell unit. The three cell unit matches the output of the standard Oldham caplamp. With an HPR-53 Halogen main globe, the current drain is 0.85 A. A standard Oldham emergency globe serves the same function in this unit.

Using a 4 to 6 hour duty cycle, Duracell batteries will give full beam light for 15 hours and usable light for 5 hours more. If used continuously, the battery life is reduced to about 12 hours.

(3) Batteries. Duracell or equivalent are available world wide, although, if you prefer (as I do) to take them with you (thus ensuring they are as fresh as possible) there are no problems with air line officals over proscribed luggage - dry cell batteries are OK.

It has been suggested that rechargeable Ni-Cad batteries could be substituted for Duracells, and so they can. However the move would be retrograde because the recharging problem crops up again, and also a primary (ie.non-rechargeable) cell has about **twice** the life of a fully charged Ni-Cad. Ni-Cad batteries have one more problem - they die very, very quickly. There is virtually no warning. Primary cells deliver usable current (especially to a halogen globe which is more tolerant of low voltage) for some considerable time after the globe begins to 'yellow out'.

Hints on Manufacturing

The general arrangement shown in the illustration is only one of many possible variations on the same theme, but, for what it's worth, here are a few hints on how to manufacture it.

The length of a 'D' cell is 60.5 mmm. Therefore, if a 3 cell light is desired, simply add 60.5 mm to the dimensions of the PVC tube and go to it. The best

screw cap seems to be the RKS version. Humes also make one with an 'O' ring, but it is not as neat a fit. The PVC-to-iron adapter is a standard plastic plumbing component, as is the plain end cap. The rubber cable protector is the standard Oldham component, available separately if desired from the distributor for around $2.00.

The purpose of the copper cup is two fold. Firstly it creates space to allow the wires to be taken to the positive and negative terminals, and secondly it allows enough room for the Oldham cable to be brought into the battery container and locked off to prevent 'pull-out' problems. I use a very tight cable tie for this purpose. Once everything is checked for fit up and accuracy, the copper cup is pushed into the tube and the plain cap glued on using proprietary PVC cement. Once the glue has set, the cable protector is sealed using high strength silicone to create a truly waterproof seal. The batteries are then pushed down alongside the negative cable, the contact spring is put into place and the 'O' ring end cap screwed on to make a seal. The 'O' ring should have a thin smear of silicone grease on it for a good seal.

The copper cup itself is most easily made by cutting a 40 mm disc out of a sheet of copper then belting the hell out of it with a ball-pein hammer on a yielding surface. An 8 mm annulus is then soldered to it to make the cup so that it is exactly 37mm in diameter, the internal diameter of the PVC pipe. (Note that a strong plastic container with an outside diameter of around 35-37mm can be trimmed to fulfil this purpose.) The method used to strap the unit to the waist in either a vertical or horizontal configuration usually involves the use of a couple of stainless steel hose clamps.

The economics of the 'Sewer Light'
At first sight it may appear to be prohibitively expensive to run. Some quick computations show that it may in fact rival the Oldham lead acid battery for economy.

In 1988 dollars, a replacement lead acid battery (T-2) costs $120. A blister pack of 2 Duracell 'D' cells costs $3.96, say $4.00. Therefore, for a 3 cell 'Sewer Light' two weekends' caving (15 hours underground) would cost $6 with no further costs for chargers or hassles with remembering to charge overnight. A typical caver's battery lasts 4 years, costing therefore $30/year (in 1988 dollars). As the 'Sewer Light' costs $6 for two weekends' caving, the break-even point is about 10 weekends' caving per year. I would suggest that the majority of cavers do this number of trips a year or less, and for them a primary cell light could be an excellent, trouble free choice.

Reference
KNUTSON, Steve (Ed) 1987, NSS News 44 (11) Part II American Caving Accidents, Nov 1987:392.

## SPELEO SYNOPSIS MARCH-JULY 1989 by P Ackroyd

### AUSTRALIA

Speleo Spiel 245 (Jan-Feb 1989) This issue contains a list of Tasmania's caves deeper than 100 m (44 caves make the list, topped by *Ice Tube-Growling Swallet System* at -375 m) and longer than 500 m (41 caves score here, the longest being *Exit Cave* at 16,000 m (?)). Also in this issue is the first documentation of the karst in the Mt Cripps area (NW Tasmania), in which 20 caves have already been numbered and described.

Southern Caver 55 (March 1989) After a long gestation this publication from the alternative Tasmanian cavers proves to be worth the wait. The major articles document the discoveries during March 1988 in *Rift Cave* [JF-34] to take that cave to -180 m in depth, describe the 270 m Honey and Cream extension found in *Damper Cave* [PB-1] in December 1988 and contain a description of access tracks at Ida Bay.

The Western Caver 28 (1988) This annual newsletter from WASG has two important articles. The first is on the extinct Pleistocene vertebrate sub-fossil remains found in *Foundation Cave* [AU-28] in Western Australia's south west corner. The other is the long awaited report from Rauleigh Webb on flow measurements taken in several Nullarbor caves in the early 1980s. The surface velocities measured were quite small, falling into two distinct groups of around 0.6 metres/minute and 0.1 metres/minute. Paradoxically the flow direction in *Weebubbie Cave* [N-2] was to the north, where that of the other major lake caves in the Nullarbor was southerly, as expected.

Australasian Cave and Karst Management Association Newsletter 3 (June 1989) The main topic covered is, of course, the highly successful 8th Cave and Karst Management Conference held in Waitomo, NZ, during April 1989. Other items of interest are the imminent transfer of Keith Oliver from Jenolan (NSW) to Cutta Cutta Caves (NT) as Ranger-in-Charge. A draft management plan for this region is presently being prepared by members of the Association, E Holland, E Hamilton-Smith, A Spate and K Mott. The cave management section of the ten year Leeuwin-Naturaliste National Park Management Plan (Western Australia) is reproduced in full in this issue. The management authority (Conservation and Land Management Department) is adopting a permit system for all cave users.

**EUROPE**

Descent 85 (Dec 1988 - Jan 1989) This issue contains a well presented story, with photos, of an 18 month dig that paid off. *Llanelly Quarry Pot* (South Wales) has yielded 1.3 km of fine stream passage. Also in this issue is "First Aid for Cavers Part I" - a very good introductory piece, a description of more extensions in *Peak Cavern* (Derbyshire) and *Kirk Bank Cave* (Yorkshire) , and an article on slave units for electronic flashes.

Cave Science 15(2) (Aug 1988) The caves of Berry Head, South Devon, and their correlation with past sea levels; the caves of Chiapas, South Mexico; the incidence of Aragonite in *Daren Cilau* (South Wales).

Descent 87 (Apr-May 1989) Opening on a downbeat, Descent reports the death of a caver in *Gaping Gill* on 26th February 1989. Apparently wearing little more than cotton overalls, he died trying to pass a difficult knot on a pitch running with snow melt. Other items of interest include a list of significant caves in the USSR (deepest -1508 m, longest 165 km), more extensions in *Daren Cilau* (South Wales) taking the cave to within 60 m of Agen Allwedd and First Aid for Cavers Part III - Fractures and Bleeding.

Caves and Caving 43 (Spring 1989) The lead item in this issue is a history of a recent discovery in South Wales - the 1.4 km long *Llanelly Quarry Pot*. Trip reports include an expedition to Mexico's Zongilica region in February 1988, the Queen Mary College expedition to Belize (Central America) in early 1988, which fully explored the deepest cave in Belize, *Actun Zotziha* (-152 m), and a nine member expedition to Austria's Dachstein area, during which *Orkan Hohle* was pushed to -754 metres. Field guides to *Piaggia Bella*, a cave system on the French-Italian border in the Marguareis Massif, and the caves of South Nordland, Norway, are followed by two reports from China. One of these was a reconnaissance in Tien Shan (Xinjiang Region, NW China) and SW Guizhou Region in South China.

Caves and Caving 44 (Summer 1989) This issue opens with a rundown on the history of exploration in *Holloch* (Switzerland) Europe's longest cave at 137 km. This is followed up by an expedition report from the Mulu '88 Expedition (Sarawak) during which the significant 10 km *Blackrock Cave* was discovered. Many expedition reports from Northern Spain (Matienzo '88, the Oxford University 1988 trip to the Picos de Europa, a recce trip to Torre Blanca in the central Picos, and diving below the Picos de Cornion) are in this issue. Steve Round gives a brief but full report on the death of a caver in *Gaping Gill* during February 1989; Hugh St Lawrence talks of the massive damage being done to caves and tracks to caves in Yorkshire; Al Warild's book "Vertical" is given a good review and the international section indicates that *Bulmer Cavern* (South Island) is again the longest system in New Zealand at 27.4 km.

Cave Science 15(3) (Dec 1988) This issue is all about Norway's caves. It covers the geology, geomorphology, hydrology, sedimentology and age of Norway's caves and karst. There is also a history of cave exploration in Norway, and, squeezed in at the back, an article on early cave photographs 1840-1860 taken in South Wales (UK).

Il Grottesco 48 (1987) (In Italian - summary provided by G Grusovin, VSA) The title of this publication is a play on words. It derives its name from "la grotta" meaning "the grotto". "Il Grottesco" translates as "the grotesque"! Il Grottesco is published by the Milanese Speleologists Association. The articles cover the following: the history of the club (90 years); lengthy descriptions and maps of caves; details of temperature and humidity in numerous caves; SRT gear; scaling poles; the expeditions to Austria ('87), Ecuador ('86) and Spain ('85). A couple of light articles include a dialogue one might encounter at a dig or whilst looking for leads and an amusing piece on inter speleo club politics and the individual.

Guida alla speleologia nel Reggiano (Feb 1988) (In Italian - summary provided by G Grusovin, VSA) In this publication several authors have contributed articles on the speleology of the Emilia-Romagna province of Italy. The topics include history of research in the area; the formation of dolines and underground passages; a study of minerals found in the area; aspects of cave ecology; fauna and flora; safeguarding the cave environment from polluted water and several others. The publication has colour photographs, diagrams, maps of the cave region as well as some of the caves. It contains a useful glossary of Italian caving terms including "scallop" and "weathering". One of their mottoes is "Take photos only. Leave footprints only. Kill time only."

USA

NSS News 47(1) (Jan 1989) The feature article for this month's issue is the *DC Jester Cave System*, a series of caves in gypsum located in the southwest corner of Oklahoma. The exploration history, geology, biology and paleontology of the cave are all covered. The longest cave is *Jester Cave* itself at just over 10 km. Also in this issue is a report by Jeanne Gurnee on the mid 1988 visit to Canada and the US by three Russian speleologists - *glasnost* through caving!

NSS News 46(12) Part II American Caving Accidents 1987. Four people died while caving in America in 1987. Two were killed trying to ascend a shaft with a waterfall in flood, one drowned trying to free dive a sump with a snorkel and the fourth died doing a hand over hand descent of a 30 metre shaft, using only 9 metres of rope! Many of the serious injuries in 1987 resulted from cavers falling, or dislodging rocks - perhaps the "cave softly" motto has lost its punch? In the SCUBA section of the report, these are eight deaths - all resulting from open water divers attempting cave diving, almost all without a guideline.

Compass and Tape 6(3) (Winter 1988/89) A simple method of accurately measuring the depths of long shafts is described, using the 1977 survey of the 160 m and 215 m deep *Provatina* (Greece) shafts as examples.

Speleonics 12 (Apr 1989) In this issue Ron Allum describes how his cave radio (inductive type) was used to reassure would-be rescuers, and to co-ordinate the digging in the *Pannikin Plains Cave* incident (Nullarbor, Australia) in December 1988. Other articles include items on cave locating methods using ground conductivity, capacities of primary cells and a summary of a cave rescue telephone kit.

NSS News 47(2) (Feb 1989) This entire issue is given over to articles on cave cleaning and cave restoration. Many US cavers are giving up their weekends to help cave managers reverse some of the mistakes of the past. Of interest are the various techniques for removing graffiti, in particular a $CO_2$ powered hydroblast to aid the removal of spray paint.

NSS News 47(3) (Mar 1989) A small team of American cavers spent 12 days exploring and surveying the caves of the *Chiquibil System* on the border of Belize and Guatemala, Central America. A similar expedition to British Columbia, Canada, is also described during which 12 cavers explored many small blind shafts and holes in the Bastille karst field. The most significant find was *Tier Duct* at 431 metres long. An article describes the fight to prevent construction of a Superconducting Super Collider on a Tennessee karst area, which contains biologically significant caves.

NSS News 47(4) (Apr 1989) The main article consists of a report on the combined American-Rumanian expedition to the caves of Transylvania (NW Rumania) including the world class *Piatra Altarului*. Also in this issue is the index for Volume 46.

NSS News 47(5) (May 1989) The whole of this issue is taken up with the history of the discovery, exploration and mapping of *Neffs Canyon Cave* (Utah), the USA's fifth deepest cave at -355 metres.

Nylon Highway 28 (July 1989) Many articles in this issue suggest ways to improve the standard ropewalker system used by most US cavers. A detailed article on just what concentration of 'Downy' fabric softener causes nylon ropes to lost strength is followed by a very analytical article on various bobbin type descenders (the author describes 13, all from his own collection!). An article entitled "The Rope Hopper - an American Frog" describes a "new" versatile system involving frog/ropewalker conversion. [The system described has been used in Australia since at least 1984.] An article from Speleonics 11 has been reprinted (with additions) which covers technical aspects of battery powered, heavy duty hammer drills for bolting in caves. The issue winds up with a few items on safety, including double independent rope technique and what to look for in gear.

# CAVE LEEUWIN
# 18th Biennial Conference of the Australian Speleological Federation Inc

**To be held at Margaret River from 30 December 1990 to 5 January 1991 inclusive.**

Margaret River was once a somewhat sleepy rural town about four hours drive south of Perth. With increased tourism and the cultivation of large areas of wine grapes in recent years Margaret River has grown into a respectable, trendy tourist town complete with up-market shops, boutiques, eating houses *(no McDonalds yet, thank goodness)* and accommodation. In the recent past the Town Council built an imposing Cultural Centre which was utilised by organizers of the Bicentennial *CONCAVE* program to publicly launch that worthy cave conservation program, the results of which will be able to be gauged during the course of the forthcoming conference. It was foreshadowed shortly after the *CONCAVE* launch that the Cultural Centre would make an excellent venue for an ASF Conference, especially with the close proximity of all standards of accommodation, a caravan park is within easy walking distance of the centre. Margaret River is more-or-less equidistant from the northern and southern extremities of the Leeuwin-Naturaliste Ridge and is therefore in the very heart of the cavernous region.

The Leeuwin-Naturaliste Ridge and its somewhat fragmented National Park of the same name has become extremely popular with interstate and overseas travellers as well as citizens of Western Australia who come to enjoy all forms of outdoor activities such as surfing,canoeing,fishing,bushwalking & unfortunately,caving. Casual caving and the associated sport of abseiling has increased dramatically over the last few years to the point where the recognised speleological societies of WASG and SRGWA are distinctly minority users. This problem has been recognised and will hopefully be addressed in the near future with the formation of a cave management committee as part of the recently proclaimed management plan of the Leeuwin-Naturaliste Ridge National Park. Apart from the caves, some of which are extremely well decorated, participants of the conference will be able to wander through magnificent Karri forests, albeit mostly re-growth, or bask in the sunshine along vast distances of un-polluted beachline where you are not constantly rubbing shoulders with your neighbours.

Following the success of pre-publishing papers for the Tropicon Conference, the organizers of Cave Leeuwin are attempting to follow suit and so this notice is a call for papers. Papers that are either typed double space or on computer disc will receive preference. A deadline of October 30,1990 has been set for receipt of papers. A Photographic competition that will **NOT** be judged by professional photographers will be run in conjunction with Cave Leeuwin. The purpose of the competition is to enlighten and entertain its audience as well as serve as a platform demonstrating photographic skills. Categories and rules to follow later.

Pre and Post-conference field trips to the Nullabor will hopefully be run in addition to other Post-conference field trips.

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