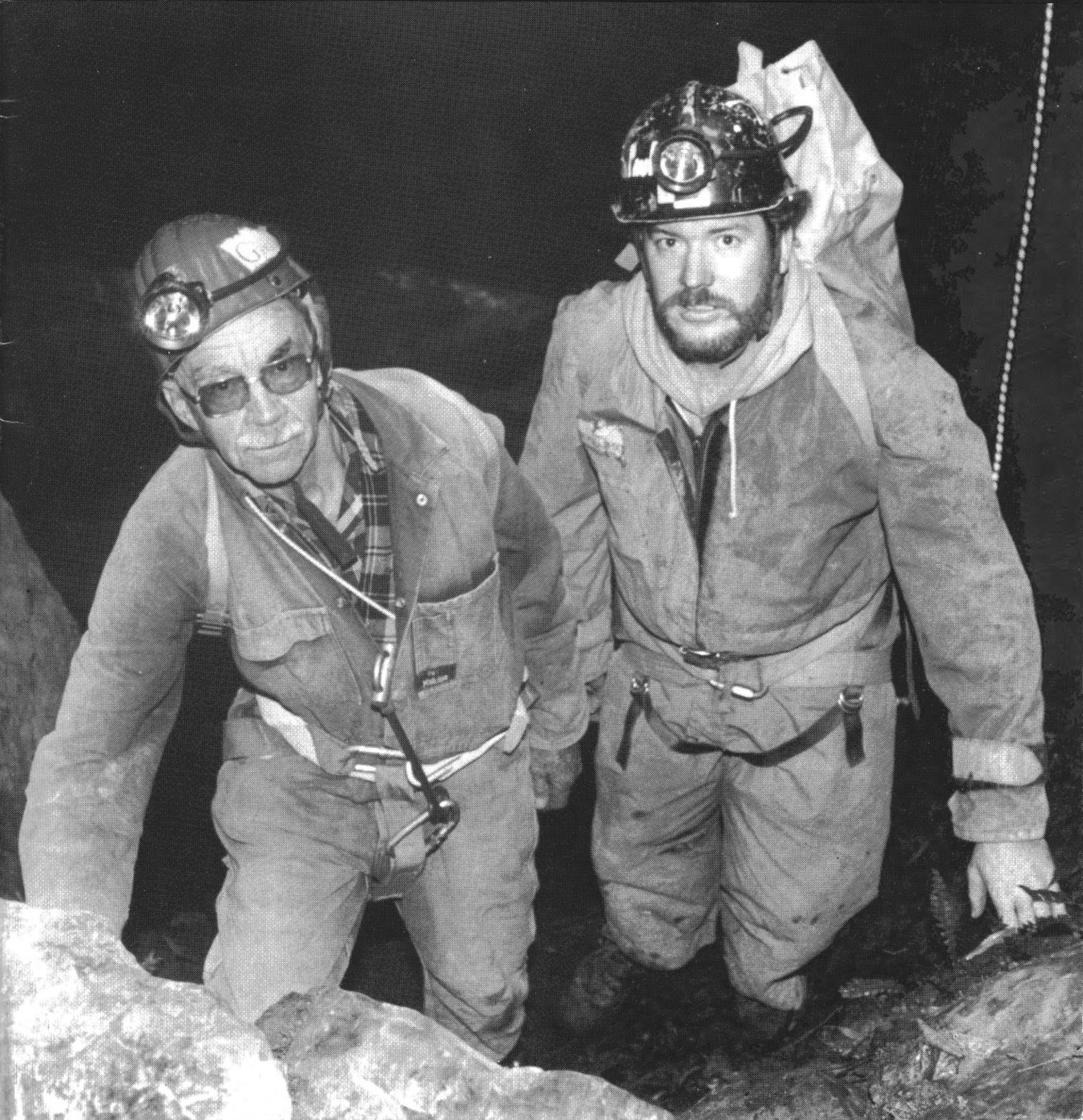


AUSTRALIAN CAVER

No. 136 1994

Journal of the Australian Speleological Federation Inc



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Yet again the Australian Speleological Federation finds itself at the centre of a legal battle concerning mining and the preservation of a cave. The dispute concerning Sellicks Hill Quarry Cave, like those of Yessabah, Mount Etna and the soon to 'blow up' Cape Range issue, although costly, is inevitable when we are faced with mining companies and governments which regard caves as suitable for "exploitation" as road gravel or cement.

The ASF must take the political advantage from such legal actions and use it to increase not only its public profile but to argue for the protection of karst in the political arena. The ASF must become involved with the Peak Environmental Organisation Council, meetings with the Federal Minister for the Environment and push for national legislation, as the National Speleological Society in the United States has done with its Memorandum of Understanding with the Federal Government.

The ASF, like the National Speleological Society, is the only organisation in a position to push for such legislation, as not only does it own and maintain the national Karst Data Base, but it also has within its membership, the expertise to formulate legislation and comprehensive management systems. Although we work within the diversity of Australia's karst environments we must seek a united approach rather than dealing with issues as they arise.

This is easily achieved if the ASF membership actively promotes the skills that they have, supports the ASF's Commissions and helps develop policy which can be realistically attained. Only by working together will we be able to improve the cocktail of management strategies and laws that pertain to our karst areas. If we don't, then we are failing to carry out the objectives we espouse as members of the ASF.

Clare Buswell

WHAT'S ON:

Second Australian Seminar on Spelean History: Sydney University. Sunday 10th July 1994. Contact Elery Hamilton-Smith if you wish to present a paper. P.O. Box 36 Carlton, Vic 3053. Or Ross Ellis if you wish to attend the Seminar, 11 Arkana St. Telopea. NSW 2117

Earth, Fire, Water and Air. Vulcon. The 20th Biennial ASF Conference. Hamilton Vic. 1st Jan - 6th Jan 1995. Contact: Susan White (03) 3284154 hm or Tony Watson (03) 5605780 hm.

This issue of Australian Caver was put together on Theresa's Mac. Many, many thanks.
Published by the Australian Speleological Federation Inc.

Edited by Clare Buswell (Editor: Issues No 100, and 128-136.)
Proof Reader: Heiko Maurer.

Printed by Empire Times Press by Andrew McHugh. Students' Association of Flinders University, South Australia.

The views expressed in this journal are not necessarily those of the Editor or the Australian Speleological Federation Inc.

Back copies of Australian Caver are available from Macquarie University Caving Group.
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LETTERS TO THE EDITOR

Lechugilla

Dear Editor,

On a recent visit to Chillagoe I read a 1993, copy of the Australian Caver which seriously mis-interpreted the result of my accident in Lechugilla Cave, New Mexico USA. *Australian Caver No 134.*

The article states that (the Accident) "did a lot of harm to caving in the US and soured caver relations with national parks staff who apparently encouraged the Press for publicity reasons".

Firstly, no great harm was done to caving by my rescue. The American public is very fickle and the moment the rescue was over, the memory of it faded quickly. Since the time of my rescue, there has been a memoranda of understanding between the National Speleological Society and the National Park Service as well as the Bureau of Land Management and several private agencies. The NSS has more members than ever before - it doesn't seem like there was much harm done to caving in the US.

Secondly, the National Park Service did not encourage the Press. The information that the rescue was going on got out to a reporter, and because it was a slow news week (the Gulf War was over) and Lechuguilla had been the subject of a Cover article in National Geographic only one month before: the press grabbed the story as a good one to follow. The Park Service did their best to control the Press and direct them. They worked hard to show the volunteer effort of the cavers and their comradeship.

Lastly, the all out effort to complete the rescue was applauded by the Park Service, and Cavers enjoy great respect. In fact, the relationship with Park Service and other Federal Agencies has never been better. The Park Service know that when a cave like Lechuguilla is explored, there are bound to be accidents. There have been others, it is how these accidents are handled that counts.

What should be stressed about my rescue is not the problems, but the co-operation between the Forest Service, the Park Service, Independent Cavers and the public: all to achieve a common goal.

Emily Davis Mobley.
Schoharie, New York. 12157.

Artificial Caves.

Dear Editor,

In Australian Caver (No 134. 1993), there was a letter to the editor from a member of Sydney's Cave Clan. This is of interest to me as I am involved with an international working group on Artificial Caves. In their annual publication called *Souterrams* there is information about the world wide situation concerning these human made

structures. Currently the words used to describe these locations are being classified in all languages so that a common lexicon can be established. The most suitable words in Australia seem to be tunnels, drains, cavities and mines.

Artificial cavers are an accepted part of the caving scene in many overseas countries. So I have contacted the writer of the above mentioned letter to ask his opinion on the existing division between natural and artificial cavers in Australia.

However, I do not want to act in a way that might not represent the attitude of most ASF members. What is your attitude to these people who explore such areas? We have an Australian Karst Index, should we have information on artificial caves similarly categorised? If any reading matter or information is available it could be incorporated in such an index.

Please convey your opinions or knowledge to the Australian Caver or directly to me.

Heather Caswell.

Australian Representative for the International Union of Speleology - Working Group on Artificial Caves. Member of VSA.

16 Jallent St.
Croyden. Vic.

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WHO OWNS THE CAVES?

Elery Hamilton-Smith

When we think about land and its associated resources, we often assume that ownership is expressed merely through the legal system of land title. However, in these days of euphemistic jargon, we all know that management specialists talk about 'owning' an idea, and that expresses a much wider concept - the extent to which being able to define and articulate a concept gives us power over the understanding and consequent expression of that concept. If we think about it for a moment, this wider meaning also applies to the land. Consideration of it opens up a new perspective upon the debates about caves and their care. Let me use Buchan as an example.

Regrettably, the Koorie inhabitants of the area were quickly displaced by the new white settlers who arrived from 1838 onwards, and we have no evidence of their relationship to caves at that time, even though earlier peoples had resided in Clogg's Cave. There is also little documentation of the settler's relationship to the caves until some 50 years later.

But by the 1880s, some sort of communal ownership of caves seems to have been established. Some residents were proud to show visitors to the caves and local festivities were held in them. For instance, on Easter Monday 1891,

'... a picnic to Wilson's Caves took place, and almost every local inhabitant put in an appearance. The caves were lit up and a number of songs rendered in the underground regions. Refreshments galore were provided and a thoroughly appreciated outing was the result.' (Tambo and Orbost Times, 2 May 1891)

The very name of the cave, which continues to this day, records that Wilson was the initial claimant of the land on which the cave is located, and hence an owner, even though he was a very short-term resident of the area. At the same time, it was one of those caves commonly shown to visitors by other residents, and as we have seen, used for community purposes.

However, the State progressively became involved in ownership by setting aside reserves, ostensibly to protect the caves, although making no provision for actual protection. The problem of this is eloquently expressed by Thomas Slocombe in a letter to the Secretary for Lands (17 April 1901):

... I have been looking after the Basin Caves for the last 14 years. Supplying ladders, stages, ropes and often lights and showing people through free of cost. The reason was I did not like to see people coming here, especially from Melbourne, and breaking off the Staratites (sic) to show their friends in town. . . Buchan Caves have been practically destroyed through there being no caretaker. But I was determined they should not serve these the same. I had a gait (sic) on the mouth of the cave but on being told I had no authority to do so I have taken it away. . . hoping you will

appoint someone to look after them at once.'

It was 11 months before the government of the day acted to formally appoint Slocombe, and so in his acceptance, he (30 March 1902) had to report that others had visited the cave in the meantime and 'took away a lot of staratites. Had there been a gate that would have been impossible.'

So, although the state had claimed ownership in a formal sense, they lacked any effective means of expressing that ownership. Their claim however, served to diminish the local sense of communal ownership. Slocombe was exceptional amongst those appointed to care for the caves, in that he installed a new gate and maintained control over entry. However, he then moved to Ballarat, and although his brother George took over for a period as caretaker, responsibility later passed to the staff at the Buchan reserve, of which more below. For a period, the Shire of Tambo was appointed as caretaker of the other reserves, but they did no more than to fix grazing fees and arrange for their collection.

Then in 1906, Frank Moon returned to the area after working on the mining fields at Mt. Lyell, Broken Hill and Kalgoorlie. While awaiting the opportunity to return to mining, he turned his interest to the caves, and in quick succession, explored the already well-known caves, what is now Moon Cave, then Kitson's Cave and finally discovered Fairy Cave. Even before Fairy Cave, he had developed his own sense of ownership of the caves and was actively involved in offering tours to visitors. But in finding what he described as 'Jenolan's rival', he found a commitment which lasted throughout his life.

At this point, the state asserted itself, put an end to Moon's more or less impromptu tourism and decreed that Fairy Cave should be closed until it could be adequately developed as a tourist cave. Frederick Wilson was appointed as manager, and his sense of care and stewardship (probably unique in that period) provided the appropriate engineering development and, perhaps even more importantly, instilled a sense of respect for the caves without relying upon the traditional ownership concept. However, Moon's sense of ownership remained alive and very well, and his unbridled enthusiasm for 'his' caves served to make the Caves Reserve a popular and highly regarded resort.

It is interesting to reflect upon the fact that Wilson with his keen sense of genuine stewardship did not put a stamp of ownership upon the caves for which he cared - and at least partly because of this, has been neglected by history and his work greatly under-rated. Conversely, Moon (and others of his kind such as J.C. Wiburd of Jenolan) saw to it that 'their' caves and their own care of those caves were known to all.

But like much ownership, this had a down side. Despite his

WHO OWNS THE CAVES?

exploration elsewhere, Moon remained committed to the caves of the Reserve which had such a personal meaning for him. Although tours were also conducted at Murrindal for some years, they were seen as peripheral to the main act, while other reserves in the region were totally neglected. His successors inherited this view of the task, and so state ownership of the other caves, including Thomas Slocombe's great enthusiasm, remained as a paper token only, with no on-ground care at all. In fact, most of the later managers had not even visited the other caves.

But in the 1950's, a new trend asserted itself - the arrival of organised recreational caving. As we all know, cavers have their own sense of ownership. Any caver working on a 'dig' becomes incensed if anyone else takes over, particularly if they achieve a break-through into a new cave; and, of course, landowners in the sense of land title who prevent ready access are seen as doing the wrong thing ! Then, as caving has developed, it has also diversified, and amongst the special interests which emerged are those who would claim their sense of ownership in terms of continuing access and those who saw their responsibility as one of protecting 'their' cave environment and hence limiting access.

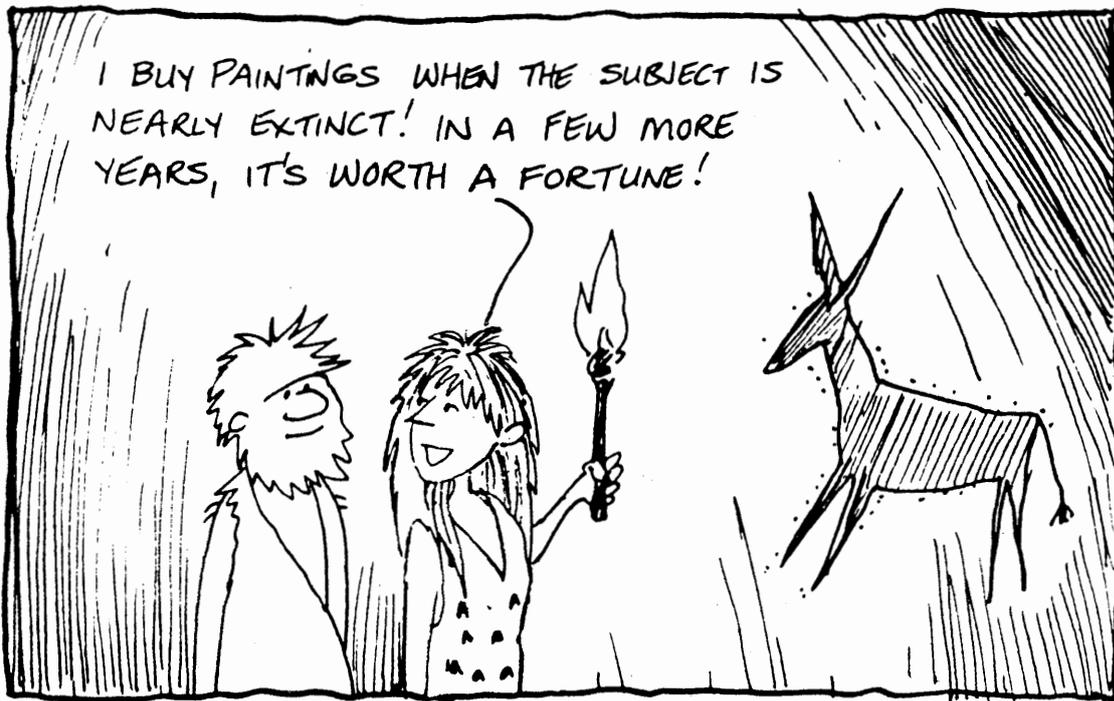
The next chapter emerged at Buchan with the new Department of Conservation, Forests and Lands in 1986. For the first time at Buchan, the state interests were being expressed through a big and complex bureaucracy which inevitably held multiple views of its role. On one hand, it brought a sense of stewardship rather than ownership, together with an awareness of the inter-relatedness of the environment, so staff took a wide-ranging interest in all caves of the region, both in the other reserves and on

private property. This has occasionally been misinterpreted by those who see relationship to the land only in terms of ownership. On the other, placing a bureaucratic stamp upon the new Department's estate meant re-asserting ownership through regulation, signage and other forms of control. Further, like other things that are owned, others in the Department also started to look at the question of return on 'their' assets. With the continuing change in the political and economic environment since then, we all make our own judgments about where government should find the correct balance between stewardship and ownership - and probably many of us are disappointed.

More or less at the same time, a new sense of the responsibility of formal ownership through title has started to emerge as Australians become more likely to seek recourse through the courts. For many landowners, generally for the first time, title ownership is turning towards increasing exclusion of others. The freedom to go and explore and take ownership where one will, which Frank Moon, and even the cavers of the 1950s enjoyed, is becoming a thing of the past.

Today, without even considering the over-arching consequences of the Mabo decision and the consequent debate, there are a multitude of claimants to cave ownership. Some, including both cavers and management professionals, struggle to build the concept of stewardship - but they are today in an ownership arena. Cavers might do well to try and stand back from the immediate disputes and issues as these arise, and think about the implications of trying to assert ownership or trying to build stewardship.

Where do you stand ?



ARE YOU EXPOSING YOURSELF TO HISTOPLASMOSIS ?

Written by Garry K. Smith

Around the world, hundreds of thousands of people each year are affected by a fungal infection called Histoplasmosis. In many areas of South America, Asia, Europe Africa and East Central United States the disease has been found in the droppings of domestic birds, such as fowls as well as starlings and other birds which often nest around houses. To humans this microscopic fungus is potentially fatal if the infection is not treated.

At this stage you are probably saying to yourself, "what has this to do with caving?"

Evidence exists that this fungus *Histoplasma capulatum* grows in guano, (bat droppings) and that it may be spread by bats flying from one roost cave to another. The fungus can survive in the intestinal contents of bats as well as transmitted to other locations by wind. To date the fungus has been detected in some caves inhabited by the Bent Wing Bat (*Miniopterus schreibersii blepotis*), however there is no conclusive evidence that it is confined to guano of this bat species.

Habitat of the Fungus.

Histoplasma capulatum is an organism which grows in soil containing a high nitrogen content, generally associated with guano of birds and bats.

The fungus reproduces by releasing spore 2 to 5 micro in size, to the cave air. Ideal conditions for this to occur is in caves with high humidity i.e., 67% to 87% more, temperatures of around 20 to 29 degrees C and the presence of dry guano. Many overseas reports have recored high concentrations of the fungus in guano around poultry sheds, in open environments the occurrence of the fungus is generally restricted to between latitudes 45 degrees N and 45 degrees S. Outside of tropical zone, concentrations of the fungus is restricted to appropriate environmental conditons which can occur in "closed" environments such as caves. This is due to the stable conditions which exist inside caves, where as the surrounding countryside may be too dry or cold for sustained proliferation.

Effect on the Human Body

Histoplasmosis is a fungal infection which can affect the whole body and is caused by inhalation of an aerosol of soil, dust or guano which contains the fungal spores. when the air bourn spore is breathed in by cavers, it may infect the lungs. The degree of infection in humans varies widely, depending on the individual's immune status and degree of exposure to the fungal spores. In most cases, the spores are introduced in such quantities as to produce a mild form of the disease, and thus builds up the body's immunity to the fungus. This form of infection is referred to as Asymptomatic, and the infected person experiences no noticeable symptoms.

The second form of infection is Acute Pulmonary

Histoplasmosis. Symptoms may occur two to three weeks after infection and include a general feeling of being unwell, as if suffering a mild influenza with a raised temperature, malaise or tiredness and pleuritic chest pain. In most cases, the person with a mild infection quickly recovers with no treatment.

The more severe third form of infection is called Chronic Pulmonary Histoplasmosis. The condition of persons with light exposure and/or low immunity to the fungus, may quickly deteriorate to include fever and night sweating, shortness of breath, dry coughing and severe pain around the lungs. If untreated, the lungs continue to be slowly destroyed and death can occur months or years later from bacterial pneumonia or heart failure.

The most severe form of infection is called Acute Disseminated Histoplasmosis. Overseas statistics show that in a small percentage of cases, the disease may disseminate and infect the lymph glands, liver, spleen and other vital organs, resulting in fever and weight loss. Chronic respiratory infections resemble chronic pulmonary tuberculosis. The disease progresses over a period of months to years, possibly with periods of remission. This form is more common in males over 40 and often results in death. Symptoms at the chronic stage may vary, depending on the organs involved. Unexplained fever, anaemia, heart inflammation, meningitis, pnueumonia and mucosal ulceration of the mouth, bowel or stomach may be seen. The infection is not transmitted from person to person and there is no immunization presently available.

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ARE YOU EXPOSING YOURSELF TO HISTOPLASMOSIS ?

Occurrences in Australia

Prior to 1972 in Australia, the disease had only been identified on several occasions. In none of these cases was the infectious environment conclusively linked with bats. However between 1972 and 1976 a large percentage of cavers who visited Church Cave at Wee Jasper contracted histoplasmosis.

This sparked a spare time study by Applied Science lecturers and students at the Riverina College of Advanced Education, Wagga Wagga, to isolate the source of the fungus. On many occasions the researchers, wearing respirators designed for poisonous pesticide sprays, entered the cave to collect samples of cave air and guano from the deep layered deposits. Despite wearing respirators, three out of the eight researchers contracted lung infections. The investigation continued, however it wasn't until 1983 that the fungus was grown in laboratory cultures from samples of guano, soil, respirator filters and phlegm taken from the last of the histoplasmosis sufferers.

In November 1993, a group of 12 cavers undertook exploration of the Glenrock Caves located 120 Km north-east of Muswellbrook. Sixteen days after entering the caves, one of the cavers was admitted to the John Hunter Hospital (Newcastle, N.S.W) and diagnosed as suffering from histoplasmosis. Conclusive diagnosis is pending final fungal culture results, however this appears to be just a formality. The exact origin of the infection has not been positively identified, however there is a strong possibility that the fungal spore originated in the Glenrock cave called "Bats and Bandicoots" (GR-43). This cave contained large quantities of bat guano and has a climate suitable for the fungus' propagation. During exploration, the cave temperature was uncomfortably hot and the guano was noticed to be dry and powdery.

There were six cavers who entered GR-43 in November 93. Only one came down with the infection. The person involved suffered a lot of pain and discomfort from the infection, which appears to have permanently damaged a large section of his lungs. He spent 12 days in hospital and has incurred large medical bills, endured considerable inconvenience during medical tests and lost lots of work time. This makes Histoplasmosis an infection not to be dismissed lightly with the old saying "it can't happen to me".

Hills Speleological Club Ltd. have published a comprehensive guide to the Caves of Glenrock. Between 1983 and 1987, they collected data and mapped the 108 caves in the area. This involved hundreds, possibly thousands of hours underground. I believe there were no reported cases of histoplasmosis, even though the cave in question has been mapped and explored on several occasions.

Since these are not the only breeding caves for the Bent Wing Bats, and no concrete evidence exists that they are the only species of bat to carry the disease, there is still the possibility of further outbreaks occurring in the future. Fortunately to date, the occurrence of this disease in Australia is rare, considering the numbers of people who enter caves containing bats each year. Rippon (1974) states, "not all guano appears to serve equally well as a substrate", which might explain why the fungus to date, has not been isolated in the guano of other Australian bats.

Diagnosis.

There are several methods to diagnose the disease.

The first method involves laboratory examination of body tissue or fluids, often sputum or scrapings of lesions.

The second involves Histopathologic examination of several tissues such as bone marrow, liver spleen and lung, stained with special fungal stain.

Thirdly, tissue culture isolation of the fungus from sputum, blood, bone marrow, biopsy tissue, lesion scrapings or other body tissue and fluids.

Fourthly, Serologic tests may be used.

Fifthly, A Histoplasmosis skin test is primarily an epidemiologic tool to define endemic areas. Its diagnostic value is limited, as it does not distinguish between past and present infection, and non-specific reactions can result in false positives, (in 1972 around 100 speleologists were tested and approximately 30% returned a positive result).

Finally, although not a conclusive diagnostic tool, a chest X-ray of severe cases will show many abnormal shadows in the lungs. Previous severe infection may be noted on a chest X-ray film as small, scattered, radio-dense nodules in the lungs, mediastinal lymph nodes and spleen.

Treatment

Most cases recover without any specific treatment. However even mild symptoms should be treated seriously as chronic infections may develop and result in damage to internal organs or in extreme cases, death.

Benign localised lung infection should be treated, if necessary, with bedrest and symptomatic care. In severe cases of histoplasmosis, the antibiotic of choice is intravenously administered Amphotericin B.

Conclusion

If you have already visited a cave which contains dry dusty bat Guano, you have probably exposed yourself to the fungal spores. The more dust stirred up increases the chance of greater exposure and infection. Severity of infection may vary, depending on the degree of exposure and your state of

ARE YOU EXPOSING YOURSELF TO HISTOPLASMOSIS ?

immunity. Bear in mind that the disease may recur in later life once infected. Cavers should not become paranoid about Histoplasmosis, moreover they should be aware of the possibility of infection and be able to recognize the signs to assist in early diagnosis. Caves with wet or damp guano have greatly diminished chances of causing infection. If you must enter a cave with high humidity and dry guano, a good fitting fine dust mask may reduce (but not eliminate) the chances of infection, provided special care is taken to remove and dispose of contaminated clothes and wash hair before removing the mask. If you suffer any Histoplasmosis symptoms after visiting a bat cave, see your doctor without delay. Make special reference to the possibility of Histoplasmosis and that it has common symptoms of tuberculosis(TB). Prompt action could save you life.

The best prevention is to avoid known sites of exposure.

REFERENCES.

Benenson, A.S., 1980. Control of Communicable Diseases in Man. 13th Edition. pages 173-175.

Donham. K.J., 1983. Encyclopaedia of Occupational Health and Safety. Third (Revised) edition. International Labour Organisation. Geneva. Pages 1046-1047 and 1422.

Kern. M.E., 1985 Medical Mycology. Histoplasma Capsulatum, Serologic tests to diagnose, cultures of, microscopic appearance of, tissue and yeast phase. Pages: 83, 193, 196, and 217.

Lewis. W.C., 1969. "Report on Histoplasmosis in Aguas Buenas Caves".

In OOLITE Vol. 4. No. 2. November. 1972.

Pearson. T., 1985 "Histoplasmosis" In "The Calcite Chronicle", February 1985. Original name for publication of the Newcastle & Hunter Valley Speleo. Society.

Rippon. J.W., 1974 "Medical Mycology, The Pathogenic Fungi and the Pathogenic Actinomycetes".

In Saunders. W.B., etal. Histoplasmosis. Pages: 321-347.

Sackie Dr. Holy Bat Shit, Batman! 1989 FUSSE Vol 1 No 2. . Journal of the Flinders University Speleological Society. Adelaide.

Underhill. D., 1987 "Australia's Dangerous Creatures" chapter titled "Beware The Air In Bat Caves" Pages 323 and 324..

Whitten W. K., 1992. "Reflections on Cave Chest Clinics and Histoplasma Capsulatum: a case study. Journal of Occupational Health and Safety. Australia - New Zealand. Vol 8. No 8. Pages 535 - 541.

Histoplasmosis at Church Cave Wee Jasper. The Sydney Morning Herald of 19th and 21st October. 1972.

Histoplasmosis From Bat Infested cave. The Sydney Sun. 18th October. 1972.

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All ASF clubs and Associates are now able to supply copies of the Karst Index to their members for a total price of around 15.00 including P&P (less than 1/2 the old price!), if ordered in bulk.

The Karst Index is of course the cave list describing virtually all registered caves in Australia (over 6000), together with map reference and cave name lists and more, a total of 500 pages.

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THE VOLCANIC CAVES OF WESTERN VICTORIA

Ken Grimes

Introduction

The next ASF Conference, 'VULCON' is to be held at Hamilton, Western Victoria, and its main theme is to be volcanic caves. This review is intended as an overview of the lava caves of that region.

The Newer Volcanic Province of western Victoria is one of the worlds larger volcanic plains. It is a flat to rolling basaltic lava plain dotted with volcanic hills that extends from Melbourne almost to the South Australian Border, and the isolated volcanoes at Mount Gambier are a western outlier of the Province (see Figure 1). Lava tunnels, lava caves, and related features are scattered across the province, but the majority of them are in the Hamilton area where they are associated with two of the youngest eruptions in the region. Ollier (1967) has written an overview of the volcanic province and its features.

The Newer Volcanics range in age from Pliocene (about 4.6 million years) up to very recent times, and further (small) eruptions could occur in the geological future. The youngest volcano is Mount Gambier, which has been dated at about 4500 years old. Mounts Napier and Eccles are also relatively

young. Mount Napier erupted about 8000 years ago, and Mount Eccles in several stages between 20,000 and 7000 years ago. The flows associated with these younger eruptions show better caves and surface features than those of the older volcanics. None-the-less, several of the caves found further east are in flows several million years old.

Lava caves formed in the flows by the process of draining of still molten material from beneath a solidified crust and also by the crusting over of surface lava channels that had fluctuating levels. The longer lava flows in the region would all have been fed by cylindrical lava tunnels that continued to carry hot lava for tens of kilometres through the insulated core of a partly solidified flow. In a few places, as at Byaduk, these feeder tunnels have been partly drained and are now accessible through a set of large collapse dolines (Figure 3). These tunnels have impressive domed cross sections up to 10 m high and 18 m wide. Smaller lava caves can form in other ways: as small bifurcating feeder tubes within subsidiary flow lobes; by the crusting over of surface channels; or by the irregular draining of cavities beneath the crust of a broad lava flow. That last process is accompanied by sagging of the surface

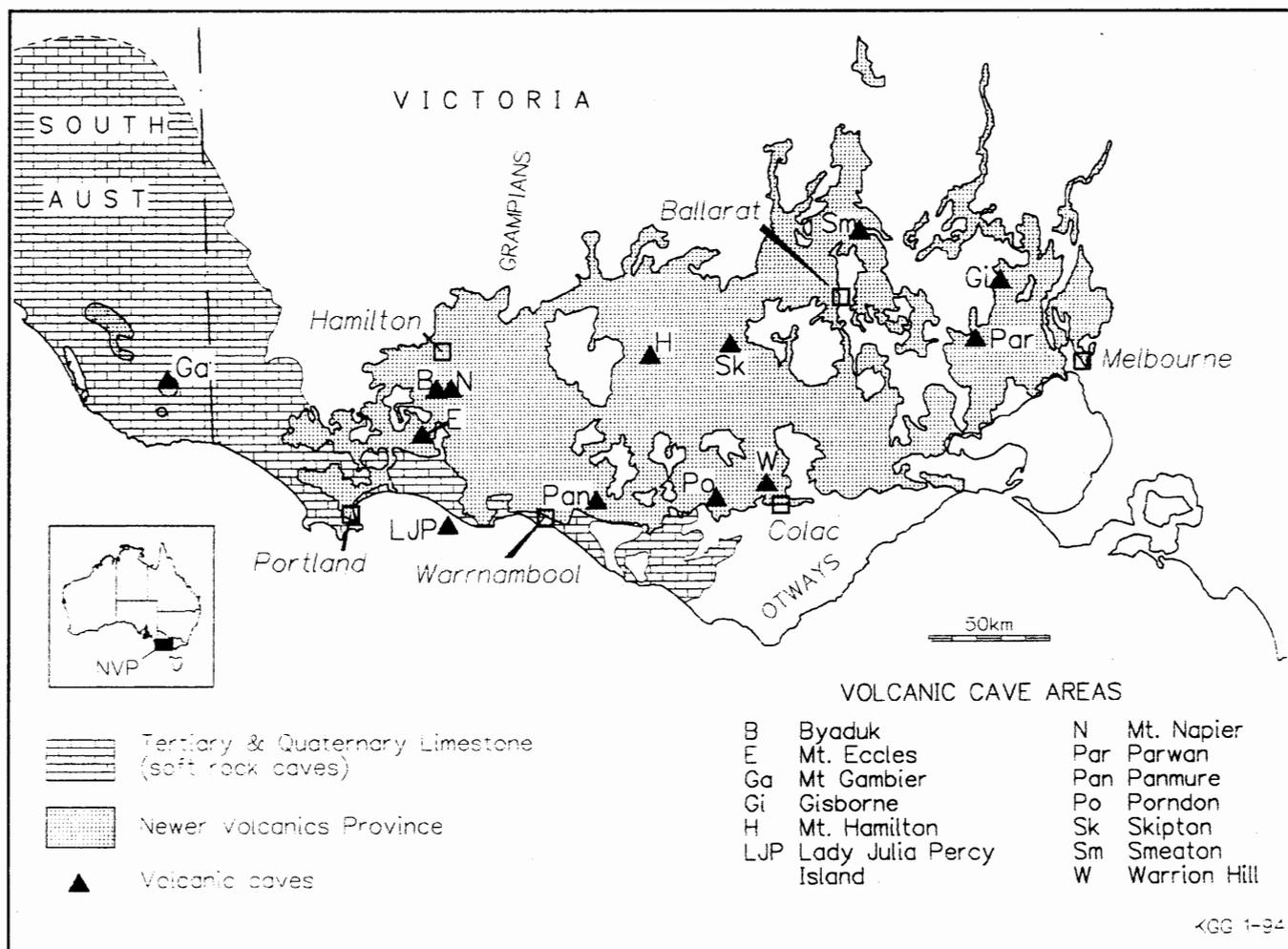


Figure One: Caves of the Newer Volcanic Province, Victoria and South Australia.

THE VOLCANIC CAVES OF WESTERN VICTORIA

crust to form numerous irregular hollows and mounds to produce a terrain known as 'stony rises'. A few caves have branching, multi-level forms of complex origin.

The lava caves contain a distinctive suite of 'decorations' (Figure 2). Small lava stalactites form where molten lava has dripped from the roof, or run down the walls of the cave. If the floor was already solid (unusual) these drips can build up lava stalagmites. The level of lava within the caves tended to fluctuate during the course of the eruption, and so we find thin linings plastered onto the walls and roofs, and 'tide-marks' are indicated by benches on the sides of the tunnels. The linings can break free, peel back and curve over to form draperies and even small chambers, or the lining can crack and exude 'hands' of lava dribbles. The floor can be smooth or have a 'ropy' surface of 'pahoehoe' lava with wrinkles and other patterns that indicate the flow direction. Small lava mounds, or tumuli, may be heaved up by pressure from below. In some caves the floor has buckled and cracked to form a jumble of heaved up plates. In other areas the floor is a knobby or hackly, welded rubble ('Aa' lava), which eats both overalls and their contents.

Basalt caves tend to have a greater range of mineral deposits

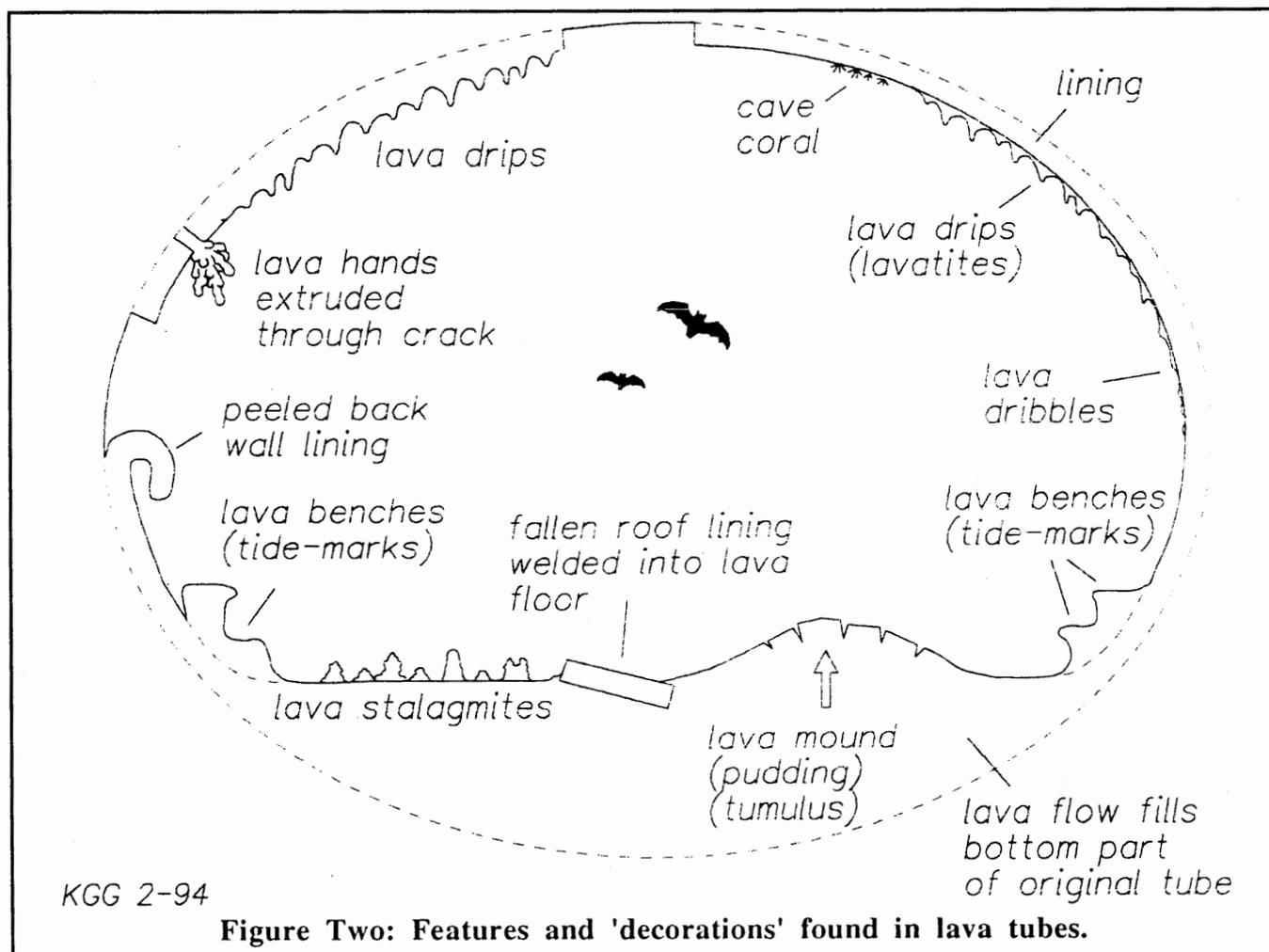
than limestone caves because of the greater variety of rocks and the presence of volcanic fumes which could react with them (Webb, 1986). Unusual mineral deposits can also result from guano reacting with the basalt and its soils.

Many of the lava caves and tunnels have collapsed entrances in the roof that have formed pit-fall traps for animals, and so contain interesting bone deposits. Bat populations appear to have dwindled in recent years, compared to the numbers in early reports. The Mount Eccles area also has some interesting aboriginal structures - fish traps and stone 'huts' near Lake Condah, and the native vegetation in the National Park supports large numbers of Koalas.

Cave Areas Within the Province

Figure 1 shows the distribution of lava caves within the Newer Volcanics.

The Byaduk Caves are near the start of a long, tunnel-fed lava flow that runs down the Harman Valley to the west of Mount Napier (Ollier & Brown, 1964). Collapse of parts of the main feeder tunnel has exposed the largest and most spectacular tunnels, arches and collapse dolines in the region (Figure 3). There are also some smaller but more



THE VOLCANIC CAVES OF WESTERN VICTORIA

complicated caves, and a multilevel system was recently discovered (Grimes, 1992). This has a shallow surface maze, and two lower levels connected by lava cascades and chutes where the lava drained downward to the lowest level. Further down the valley the surface of the flow has excellent examples of surface pressure ridges and clusters of 'tumuli' - rounded steep-sided domes of lava up to 10m high and 20m across that formed when the crust was pushed up by pressure from below (Ollier, 1964b).

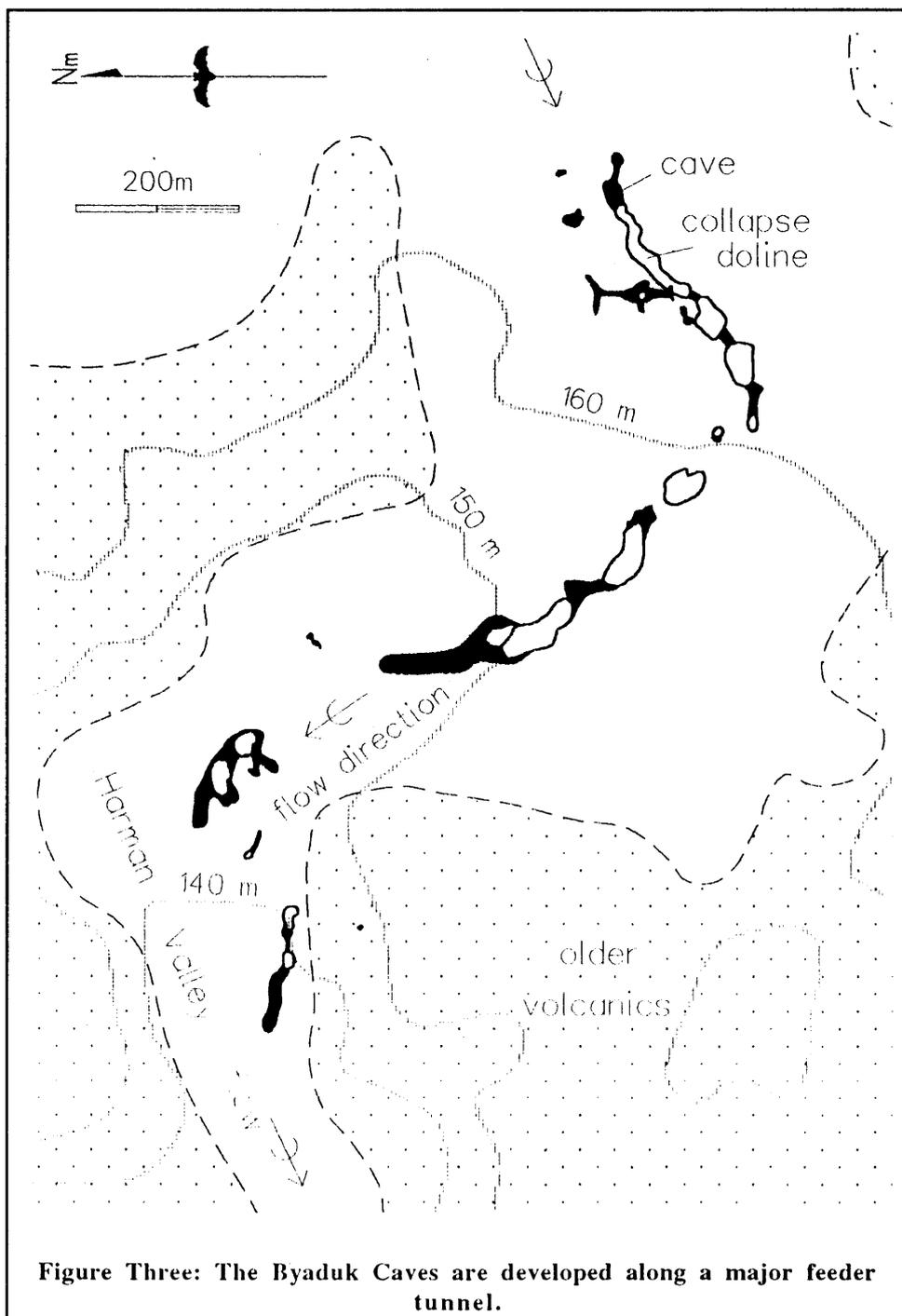
At Mount Eccles the main volcano has a deep steep-walled crater which contains Lake Surprise. The crater wall has

been breached at its north-western end by a large lava canal that flows west and then branches into two main channels running to the west and to the south. A line of smaller spatter and cinder cones and craters extends to the southeast from the main crater. One of these contains 'The Shaft', a still open throat 3m across that bells out into a volcanic chamber that is 23m deep and 24m across (Ollier, 1964a; see Figure 4). Another small but well-defined lava canal runs southwards from a small spatter cone near The Shaft and ends at the Gothic Arch, which is a roofed over section of the canal.

Beyond this central area, basalt flows form a lava field about 16 km long and 8 km across. From the western end of this lava field a long flow, the Tyrendarra Flow, runs 30 km southwards to the present coast and continues offshore for a further 15 km indicating that it formed at a time of lower sea level. This must also have had a major feeder tunnel, but no drained sections have been discovered to date.

Most of the bigger caves at Mount Eccles are in or adjacent to the lava canals, but there are a number of small caves scattered throughout the area, and the known distribution may simply reflect the more intensive exploration along the main canals. The 'stony rises' on the surfaces of the lava flows do not lend themselves to easy exploration, or navigation! The caves associated with the canals are generally formed in the levee banks on each side and would have fed small lateral lava sheets when the canal overflowed. Some are simple linear feeder tunnels, but many have branching distributary forms. They show a good range of lava 'decorations'. Additional information on the caves and surface features at Mount Eccles is given in Joyce (1976, 1987) and Ollier (1964a).

Mount Gambier is a set of large scoria cones and craters and a maar lake, which contains several small weathering caves in the ash deposits, but no true lava caves



THE VOLCANIC CAVES OF WESTERN VICTORIA

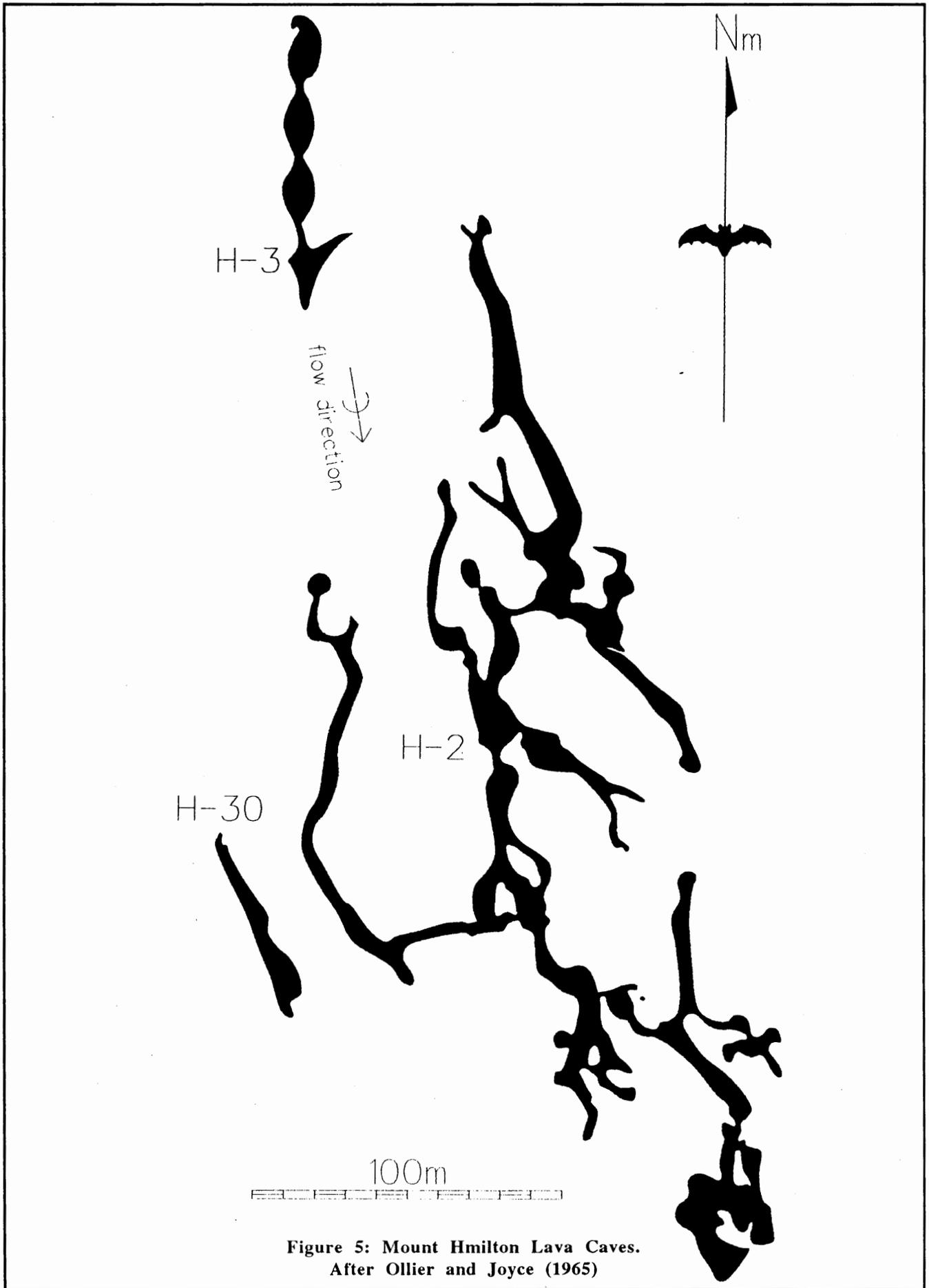


Figure 5: Mount Hmilton Lava Caves.
After Ollier and Joyce (1965)

THE VOLCANIC CAVES OF WESTERN VICTORIA

(Home 1993 - see L-256, L-257, L-306).

The Gisborne Bone Cave was first described and mapped by Selwyn (1859) and remapped by Smith (1980). It is a small but complex network of small passages at two levels, most of which were originally nearly filled with sediments (and bones). It has a small outflow stream, presumably fed by seepage from the hill above. The cave is in weathered tuff beneath basalt, and not a primary lava cave. Its origin is uncertain - Gill (1964) suggested that it may have been 'dug out by fossorial animals'! From the descriptions, this might be a 'piping cave' formed by the seepage water carrying away the fine clay minerals to leave small tunnels. If so it is a different type of pseudokarst and unrelated to the volcanism.

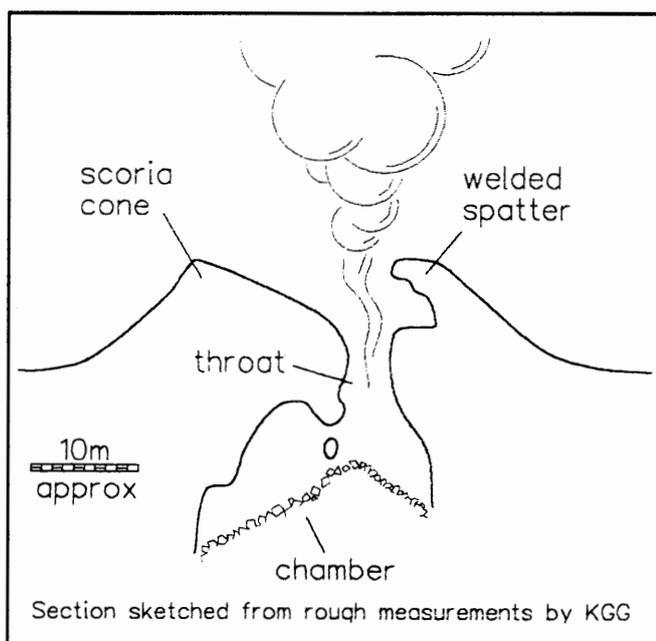


Figure Four: The Shaft at Mount Eccles

Mount Hamilton has one large, complex, multilevel, lava cave developed on one side, and several smaller caves occur nearby (Figure 5). The large cave has about 1200 m of passage and is the longest and most complex in the province. It is a set of branching and anastomosing tunnels up to 5m high and 6m wide with smaller constrictions at intervals. Ollier (1963a) suggested that the complex form was due to the breaching and draining of a single thick flow that was partly solidified.

Lady Julia Percy Island has two caves in basalt (Dewhurst, 1937). Their genesis is uncertain, but they may be primary lava caves now modified by the sea. The illustrated cross section of one cave has a form that is typical of lava tunnels.

At Mount Napier a few small caves occur in the scoria of the summit crater, and several small lava tunnels and an

arch are known on the slopes of the mountain (Gill & Elmore, 1974). There are also some interesting subsidiary explosive craters. A long lava flow runs down the Harman Valley to the west of Mount Napier, and contains the extensive Byaduk Caves (see above).

Parwan has a single tunnel with several broad low arched chambers, considerably modified by collapse (Rees & Gill, 1959). The floor is of red soil, and several interesting minerals have recently been collected, including one, 'Parwanite', which appears to be a new type (Webb, 1986).

At Panmure a single bifurcating lava cave has been intersected by a quarry (Gill, 1944; Ollier & Joyce, 1969). This one still has many bats - possibly because it is seldom visited.

Mount Porndon has some interesting surface volcanic features and two lava tunnels (Skeats & James, 1937; Ollier & Joyce, 1968). Porndon Arch Cave is a simple tunnel with a well developed lava bench (see map by Smith, 1979), but the Rubbish Cave appears to be more interesting as Ollier & Joyce (1968) report that the floor and roof have a similar curvature and the floor rises to join and match the roof at the end of the cave, suggesting that the present floor might be a roof lining that has sagged down to the floor! This cave was reported to originally have been longer but the entrance section collapsed at some time in the 1930s.

Skipton: The single cave at Mount Widderin has been described by Ollier (1963). It consists of two connected broad chambers and several smaller chambers at the end, all much modified by collapse. The cave had a large bat colony in the last century but these had already left by 1895. The guano deposits contained an interesting insect population (Hamilton-Smith, 1968) and a number of unusual mineral deposits (Webb, 1986) - it is the type area for several phosphate minerals as well as for an insect. Unfortunately it has suffered from heavy visitation, so both insects and minerals have probably now been trampled into oblivion.

At Smeaton, Armchair Pot is a single small shaft about 9m deep with walls coated by melted rock (Smith, 1979a, 1980b). A low rock wall, the 'armchair', partly surrounds the entrance. From its description, the shaft is possibly a small 'rootless' vent or 'hornito' developed by the escape of gas and molten material through a break in the crust of a lava flow; the 'armchair', was probably built up from semi-solidified spatter blown out of the shaft.

At Warrion Hill five small lava caves have been recorded in 'stony rises' country by Frank (1971). The longest is about 50m of low wide tunnel.

REFERENCES

DEWHURST, I.E., 1937: Topography and Physiography.

Cont'd p.14

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- in WOOD-JONES, F. & others: Lady Julia Percy Island - Reports of the McCoy Society for field Investigation & Research. Proc. Roy. Soc. Vic. 49(2), 333-335.
- FRANK, R., 1971: South-west Victoria. Nargun 3(9), 21-22.
- GILL, E.D., 1944: Basalt caves at Panmure, Western Victoria. Victorian Naturalist 60, p 167; and 61, p 42.
- GILL, E. D., 1964: Age and origin of the Gisborne Cave. Proc. Roy. Soc. Vic. 77, 532-533.
- GILL, E.D. & ELMORE, L.K.M., 1974: Importance of the Mount Napier volcanic complex near Hamilton, Victoria, Australia. Victorian Naturalist 91, 167-174.
- GRIMES, K.G., 1992: Byaduk and Mt. Eccles lava caves, Easter 1992. Nargun 25(5), 44-45.
- HAMILTON-SMITH, E., 1968: The insect faunas of Mt. Widderin Cave Skipton, Victoria. Victorian Naturalist 85, 294-296.
- HORNE, P., 1993: Lower South East Cave Reference Book. Adelaide, privately published. 600pp.
- JOYCE, E.B., 1976: Lava channels and associated caves in Victoria, Australia. Proc. Int. Symposium on Vulcanospeleology and its Extraterrestrial Applications. Seattle, U.S.A. pp 51-57.
- JOYCE, E.B., 1987: Layered Lava, lava channels and the origin of lava caves. Proc. 13th Aust. Speleo. Fedn Conf., Melbourne, 1980, 40-48.
- OLLIER, C.D., 1963a: The Mount Hamilton lava caves. Victorian Naturalist, 79, 331-336.
- OLLIER, C.D., 1963b: The Skipton lava caves. Victorian Naturalist, 80, 181-183.
- OLLIER, C.D., 1964a: Caves and related features at Mount Eccles. Victorian Naturalist 81, 64-71.
- OLLIER, C.D., 1964b: Tumuli and lava blisters of Victoria, Australia. Nature, 202(4939), 1284-1286.
- OLLIER, C.D., 1967: Landforms of the newer volcanic province of Victoria. in JENNINGS, J.N. & MABBUTT, J.A. [Eds] Landform studies from Australia and New Guinea. ANU Press, p 315 - 339.
- OLLIER, C.D., & BROWN, M.C., 1964: The Byaduk lava caves. Victorian Naturalist 80, 279-290.
- OLLIER, C.D. & JOYCE, E.B., 1968: Further descriptions of Victorian lava caves. Victorian Naturalist 85, 70-75
- REES, D.J., & GILL, E.D., 1959: The Parwan caves, Bacchus Marsh district, Victoria. Victorian Naturalist 75, 159-160.
- SELWYN, A.R.C., 1859: Notes on the geology of Victoria. Proc. Geol. Society of London. 16, 148-149.
- SKEATS, E.W. & JAMES, V.G., 1937: Basaltic barriers and other surface features of the newer basalts of western Victoria. Proc. Royal Society of Victoria, 49(2), p 245-291.
- SMITH, D., 1979a: New volcanic vent located, Nargun 11 (10), 139-140.
- SMITH, D., 1979b: Porndon Arch. Nargun 12(7/8), p 90 & 100-102
- SMITH, D., 1980a: Maps and cave descriptions. Nargun 13(4), 49-53.
- SMITH, D., 1980b: Maps and cave descriptions. Nargun 13(6), 72-76.
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WHAT HAPPENED AT THE ASF COUNCIL MEETING

Chris Dunne

This annual Council meeting was an "off year meeting", that is, between ASF Conferences. The meeting was held on the weekend of the 29th and 30th January at the National Capital Village Motel at Watson on the northern outskirts of Canberra. It was well attended with between 60 and 70 people sitting in on the meeting. Particular thanks go to Cathy Brown and the Canberra Speleo Society for organising the venue, accommodation and the barbeque on the Saturday night. The meeting was held in two sessions on the Saturday afternoon and most of Sunday.

For the ASF Council meeting, 22 of our current 25 Corporate Member Clubs were represented (some by proxy), plus nine of our Associates, including ACKMA, the Australasian Cave and Karst Management Association. During the course of the meeting ADDICT (All Dedicated Divers Interested in Caving Techniques) from South Australia were accepted as Associates.

A range of insurance proposals was presented by insurance broker Colin Dawson. These have been specifically tailored to the kind of risks peculiar to outdoor activities such as caving. Various policies would cover indemnity of the Executive through to personal accident cover for ASF Members. If accident insurance were compulsory, premiums could be half those of a purely voluntary scheme.

Further details were also given of the proposed ASF National Caving Leadership Scheme which is part of the NORLD "National Outdoor Recreation Leadership Development" process. Any such scheme is still two or three years off and our caving component is further advanced than that of any of the other outdoor activity groupings. CSS reiterated a number of concerns that they had raised during the last year. There is some anxiety that the push for such a scheme is coming from bureaucrats and that competence and accreditation are being confused.

About half of the Reports had been published in the Australian Caver 135 prior to the meeting. Many further Reports were tabled at the meeting. These included the Annual Report by the Executive and reports by most of the ASF's Commissions. There were no written reports by our three committees.

Despite past resolutions to do otherwise, dealing with the Reports still took up a good part of the meeting. It would be preferred if all reports could be published in "Australian Caver" in advance of the meeting.

Conservation issues seem to be in hand for all states except South Australia. Reports for Queensland (Peter Berrill) and Western Australia (Rauleigh Webb) were published in Australian Caver, and one for Tasmania, by Arthur Clarke, was tabled at the meeting. The big issue at present is Sellicks Hill Quarry Cave in S.A. which is shaping up to be a big conservation battle.

On the Tasmanian front, rehabilitation of Benders Quarry at Ida Bay is proceeding. ASF is now sponsoring the Exit Cave Project, a continuation of the work, commenced early last year of surveying Little Grunt which lies beneath Benders Quarry and is part of the Exit Cave system.

The Joe Jennings tribute is to be in the form of a book on Australian Speleology. Joe was one of the founders of the ASF and Australian speleology. There have been negotiations with Melbourne University Press, with the book being aimed at the enquiring public rather than at scientists. Editorial and senior author teams have been named. An earlier idea for an ASF foundation is also being investigated.

The election for half of the Executive, i.e., four of the eight Non-President Executive positions was held early in the Sunday session. Elected were Peter Dykes, Peter Kraehenbuehl, Karen Magraith and Veronica Schumann. This is a second term for Karen. Stepping down were former Vice President Clare Buswell and former General Secretary Chris Dunne. Chris Dunne had served eight years as ASF Secretary.

Under the new Constitution, the Executive may re-allocate any or all positions (except President) amongst themselves each year. Peter Dykes is to be membership secretary, Karen remains as secretary to the Executive, Peter and Veronica join Peter Berrill and Pat Larkin as Vice Presidents; Brendan Ferrari remains as Treasurer and Keir Vaughan-Taylor is to be General Secretary. The Executive also appointed a further three non-voting Vice Presidents: Chris Riley from Launceston, Rauleigh Webb from Perth and Clare Buswell from Adelaide.

A number of draft documents were considered. A Draft Media Policy was tabled by Rauleigh Webb. After some brief discussion this was put aside for the time being. More successful was the Draft Minimal Impact Caving Code also prepared by Rauleigh and published in Australian Caver No 135. This was adopted on a trial basis for 1994. A proposal to review ASF's Membership Policy resulted in the appointment of Jim Campbell of CSS to convene a Membership Policy Review Committee. Also aimed at new members, an ASF Promotional Leaflet has been prepared by ASF Editor Clare Buswell. Subject to final review by the Executive, this should be available for use by clubs during this year.

Fees for 1994 will have a base rate of \$8.00 if paid by June, or \$14.50 thereafter. Associate Fees remain unchanged at \$35.00

The next ASF meeting will be held in January 1995 as part of the "Vulcon" Conference in Hamilton in south western Victoria and will be hosted by the VSA.

TASMANIAN CAVE AND KARST ISSUES

Arthur Clarke

(Co-convenor Conservation Commission)

The single most disturbing threat to a Tasmania karst area is the proposed tourist development at Lake Lea and, as a result of a fiasco in the Environmental Appeals tribunal, it is now Round 1 to the Developers; Conservationists - nil!

Lake Lea Tourist Development, near Cradle Mountain, north-central Tasmania

Lake Lea lies in the Vale of Belvoir, a glacial fill-covered limestone area with sub-alpine grassland, north west of Cradle Mountain. Further details of this unique lake (possibly a drowned uvala) which drains both north and south, were given to the 36th and 37th ASF Council Meetings and more elaboration included in a recent issue of Australian Caver and TCKRG Journal No. 6. The development was being opposed by recreational fishing people, cavers, karst and glacial geomorphologists and environmental groups including the Tasmania Conservation Trust.

The "new" Liberal Govt. of Tasmania supports the development (more tourist dollars!!) and has effectively helped "rush" the scheme forward. A road has already been bulldozed into the development site at Lake Lea, traversing through light bush and timber, skirting the Vale of Belvoir. After initial concern, the Dept. of Environment gave tacit

approval for the project, provided the developers were capable of meeting the stringent guidelines relating to pollution control from the proposed sewage works and effluent disposal beside the Vale River.

The Conservation Trust was running the case on behalf of caving and environmental groups, requesting advice and information from karst specialists such as Kevin Kiernan and Ian Household. However, at the recent tribunal hearing, the Conservation Trust called in Mike Lichon as their karst expert. The case in opposition to the development was lost and the transcript unfortunately shows that it was eminently evident that the Trust's expert was not sufficiently "informed" on the Environmental Protection Act, emission standards on sewage, faunal tolerances, karst impacts or karst terminology.

Although the "green" light has been given by State Govt., the proposal has been forwarded to local shire and regional councils and it may take 6-12 months to get municipal approval. As it is unclear whether the Conservation Trust is going to lodge an appeal through the Dept. of Environment and Land Management, ASF, cavers and all others opposing the project should direct their attention to lobbying local shire councils or the regional Deloraine Council.

Benders "EXIT CAVE" Quarry, Lune River, Southern Tasmania

Perhaps nearing the end of an era!! (Get ready with the champagne!) Shortly after Christmas 1993, limestone crushing operations re-commenced at Benders Quarry. A large stockpile of agricultural limestone was soon produced, purportedly for Bender's private use! (There were reports that the crusher was to be removed by the end of January 1994 or else Bender would lose rights to a Federal Govt payout). In mid-January this year, Ray Bender finally relinquished his limestone mining lease after being offered the appropriate "carrot" by the Federal Govt. - reportedly around \$2.5 million. The land (World Heritage Area) reverts back to control by Parks and Wildlife instead of Mines; the quarry land is still tenured as "Conservation Area" and not National Park. It is unclear whether the crushing plant has been sold or given away. A few parts of the secondary crusher have been dismantled.

Former Tas. Dept. of Parks, Wildlife and Heritage has now lost its "Heritage" title and its "government department" status as well. "Parks and Wildlife" is now a Division of the new Tasmanian Dept. of Environment and Land Management.

Benders Quarry Rehabilitation

Benders Quarry has been transformed into a patchwork quilt of garden plots which represent a number of separated runoff or drainage sites on backwall faces or quarry benches. Machinery was hired from Bender, used to clear the benches

Karst for Sale

Forty acre plantation of
17 year old radiata pine,
(previously blackwood) and
3 acres of cleared land on one title.

Spectacular views of the
Great Western Tiers.

\$65,000 neg.

Underneath this property lies
MC 162 Kutna Hora, MC 163 Terror
Kotta Pot and MCX Misgida Cave
with potential for more discoveries.

Kutna Hora has the potential
to connect with MC46 Cow Cave
in the Honeycomb system.
It is also noted for its "Bone Bank".

Inquiries to Victor Tichy (owner)
P.O. Box 366 Mole Ck. Tas. 7304.
Phone: (003) 68115.

TASMANIAN CAVE AND KARST ISSUES

and then form the numerous retaining walls, drainage diverters and bundwalls around the separate plots. The raised barriers are composed of limestone rock, logs, straw bales and bark. Following the use of machinery to excavate, transport and dump masses of topsoil onto quarry benches, along with other mulching materials, an intensive programme of late autumn seeding and laying of slash (seed and flower heads) was instigated. In addition to a utility load of gum nut kernels (*Eucalyptus obliqua*, *E. regnans* and *E. globulus*), over 100kg of additional seed was used, including more Eucs and Acacia (Prickly Wattle), as well as slash or flowerheads of *Gahnia* (cutting grass) and *Cassinia* (Dogwood or Coughbush) and ti-tree species such as *Melaleuca* and *Leptospermum*. This seed planting was followed up with further mulching using pea straw or oaten straw plus the slash derived from clearing under powerlines. In Spring 1993, some 15,000 seedlings of *E. obliqua* and Acacia were hand planted around the quarry benches and on accessible slopes or faces. Nitrogen fertilisers such as "Osmocote" were used on the clay dumps where there is no drainage into caves.

Photo monitoring and vegetation quadrants are being used to determine the success or progress of the rehabilitation. Following removal of all buildings, machinery and plant, including the crusher and conveyor systems, a further period of mechanical work will be required, followed by more laying of topsoil, mulching and seeding. To date, over \$350,000 has been spent, with the major cost component being hire of earthmoving equipment (from Bender). The estimated cost of the rehabilitation is expected to exceed \$500,000.

The rehabilitation is being monitored in Exit Cave. Apart from seasonal checks on cave fauna, particularly aquatic species, a number of electronic instruments are being used to monitor water quality with information stored in data

loggers. A fixed monitor has been placed in Eastern Passage with a fixed control site in Western Passage. The cave instruments monitor stream turbidity, conductivity, pH (acidity), Eh (dissolved oxygen), water temperature and stream stage (depth or water level related to flow). Measurements are taken every 30 minutes for a month and when instruments are serviced, data loggers checked and batteries replaced monthly, water samples are taken. Subsequent analyses record the major ions: Ca, Mg, Na and K cations plus anions such as sulphate, chloride and bicarbonate as well as nutrients such as nitrates or reactive phosphorus due to any leakage of ammonium based nitrogen fertilisers used in quarry rehabilitation.

ASF EXIT CAVE SURVEY PROJECT

In January this year (1994) some 34 personnel were involved in 25 survey teams either in Exit Cave or with GPS on the surface: 30 people spent a total of 600 hours underground over 14 days. Following on, Glenn Young (a student surveyor from the University of Tasmania), Russell Bridge from SSS (Sydney) led the Total Station Theodolite survey teams along the main drag from the Rockfall to Grand Fissure. There are a total of 47 theodolite/EDM stations from Exit entrance to Grand Fissure; 13 of these in the Rockfall which took 3 days to survey, traversing 100 metres west and 1m north! Russell should be highly commended by ASF for surveying despite great personal sacrifice: a trip back to Sydney to save his house from bushfires and then returning to Ida Bay to dislocate and fracture a finger. Suunto and tape survey in Eastern Passage extends passage length from 400m to 2.3km. (6 survey trips by Ian Cooper); Western Passage length was also doubled. At this rate of progress, the survey may be completed in 2-3 years++! There are GPS fixes now for Exit, Little Grunt & Mini Martin. The ASF wishes to thank the University of Tasmania for loan of survey equipment, and especially Richard Coleman for his support.



The ASF Exit Cave Project
is just one of many projects
that the ASF members carry out.

Why not help it out next summer?

You will need to be a competent surveyor
and like the cold.
(The temperature
is around seven degrees.)

For further information

Contact: Arthur Clarke
(002) 282099

SELICKS HILL QUARRY CAVE

Clare Buswell

The Company.

The Sellicks Hill quarry is on private land owned by Southern Quarries Pty Ltd, and is in the electorate of the Premier of South Australia, Dean Brown. Southern Quarries is jointly owned by Direct Mix Holdings and Murrayview Irrigation. The ultimate holding company is Screenings Pty Ltd. The company and its parent are private companies. Southern Quarries employs 16 people directly and mines for road aggregate at Sellicks Hill. The southern end of the quarry, which seems to be less cavernous, has a heavier overburden and therefore a higher extraction cost than the northern end. Sellicks Hill Quarry Cave is in the northern section of the quarry. Currently, the going price for road aggregate is around \$8 per tonne.

The quarry operators have pre-existing mining rights under the South Australian Mines Act and are therefore exempt from various sections of it. Further, the Quarry, (because it is a mine), is also exempt from various sections of the Planning Act. To our knowledge the only Acts that affect the quarry operations area are Health and Safety related.

The Cave.

Sellicks Hill Quarry Cave (5A20) is in Cambrian dolomite and limestone, older than that of the Naracoorte caves which have just been nominated for World Heritage Listing. The cave contains some very rare (for Australia) aragonite crystal speleothems and wind blown silt which may contain significant fossil material to complement that found in Naracoorte. The extent of the speleothems in the cave is also rare for South Australia and the close proximity of the cave to the city of Adelaide (approximately 40km) means that the cave could be suitably developed as a tourist destination.

In the Adelaide Hills karst region there are 16 known caves, four of which are sea caves and two pseudokarst. Of the remaining ten caves the longest cave in the region at 1 km, is Sellicks Hill Quarry Cave. The second longest, Reynella Quarry cave, is 120 metres long and it has been extensively damaged by mining. (Grimes. 1994. 5)

History of Exploration.

In September 1991, the Cave Exploration Group of South Australia (CEGSA) was approached by a consultant mining specialist. Acting on behalf of Southern Quarries Pty Ltd, he asked CEGSA to explore and report back on a small cave entrance that was broken into as a new deep bench was being cut at their Sellicks Hill quarry. During the course of the next two months it was found that this entrance was only the start of a series of extremely well decorated chambers of much larger dimensions. There were a total of nine trips into the cave, totalling 40 hours with the last being in early November 1991. During these two months they surveyed approximately 1km of passage, with numerous leads still unexplored, took photos and a video of the parts of the cave that they had explored. The last of these trips was on 26th Oct 91.

CEGSA wrote up their exploration of 5A20, sent it complete with photos and map information to Southern Quarries and spent time talking with the Company's consulting geologist, Professor David Stapledon, over the location of the cave in relation to the quarry floor. CEGSA indicated that the roof of the northern end of the Big Room, was estimated to be eight - five metres from the surface and lay directly under the haulage road of the quarry. (See Figure Two.)

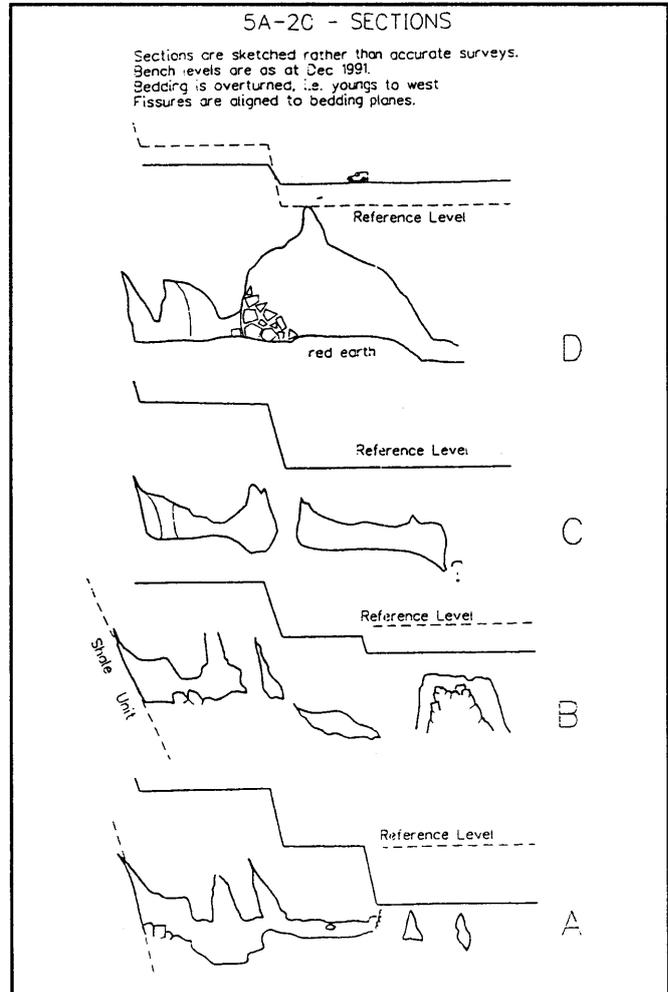


Figure Two: Map Sections of 5A20
Source: Grimes K. Sellicks Hill Quarry Cave
Independent Review.

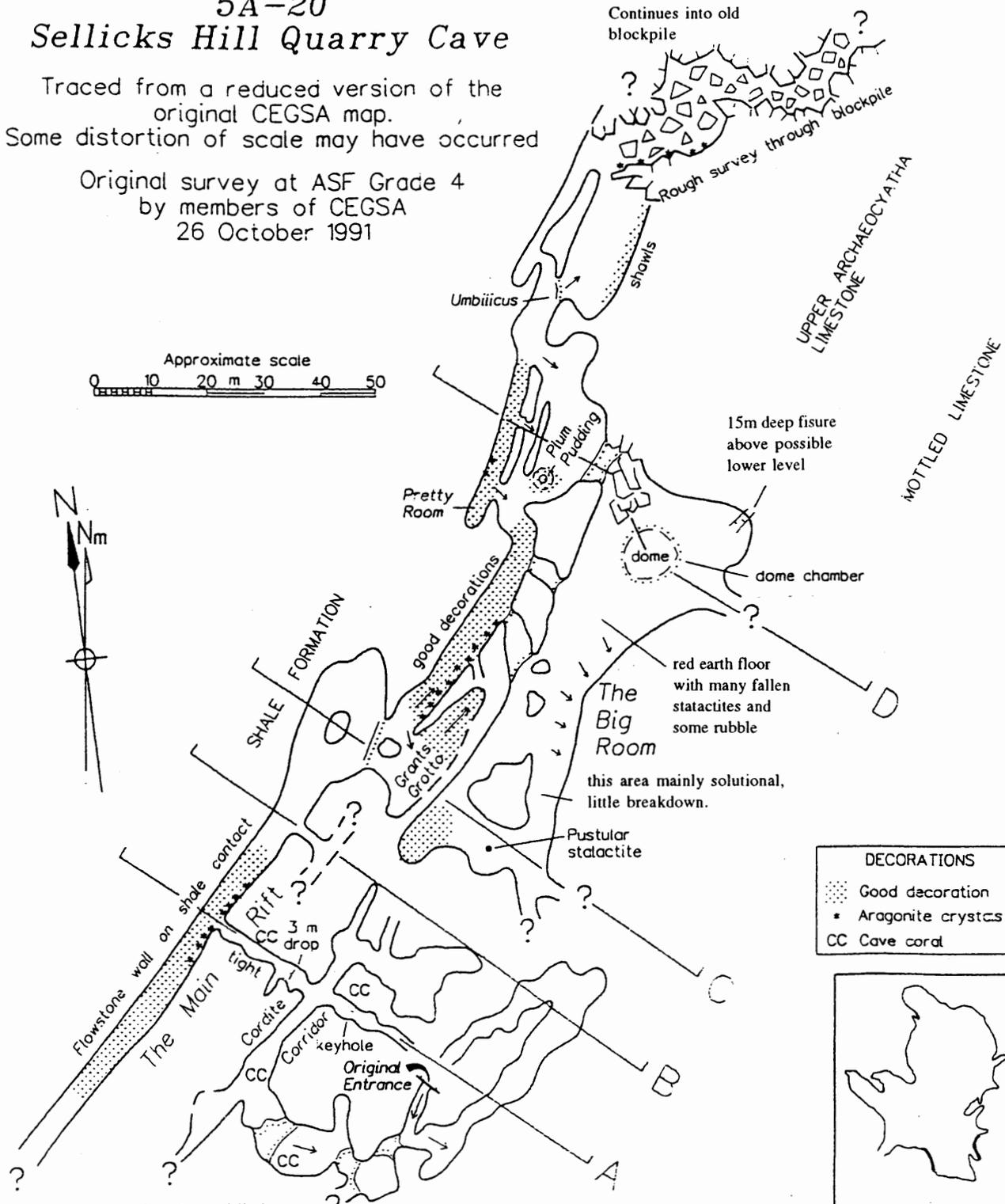
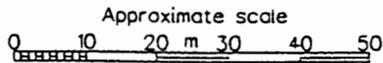
The company then closed off any further access to the cave, stating that it was concerned with the problem of liability to itself if a caver was injured during exploration. At the same time, the company also requested that the cavers sign a Non-Disclosure Agreement to not inform any persons of the existence of the cave, to which the cavers added a clause that would void the agreement if Conservation Values of the cave were damaged. The company placed a number of large rocks around the vicinity of the Big Room so as to prevent their dump trucks from driving over it.

The company commenced negotiations, via their legal

5A-20 Sellicks Hill Quarry Cave

Traced from a reduced version of the original CEGSA map.
Some distortion of scale may have occurred

Original survey at ASF Grade 4
by members of CEGSA
26 October 1991



DECORATIONS	
	Good decoration
	Aragonite crystals
	Cave cord



TANTANOOLA TOURIST CAVE, at same scale.

Small passages continue beyond limits of survey. Airflow suggests significant cave volume beyond.

© Cave Exploration Group of South Australia and K.G.Grimes 3-2-94

Figure one: Status of the Cave at the Time of Exploration, October 1991.

Source: Grimes K. Sellicks Hill Quarry Cave Independent Review. Report to the South Australian Department of Environment and Natural Resources 4 Feb 1994.

Sellicks Hill Quarry Cave. 5A20.

Chronology of events

DATE	ACTION
Sept 1991	Initial exploration of the cave by members of CEGSA. Non-disclosure Agreement required by Southern Quarries.
Nov 1991	Last entry into the cave.
1992	Ongoing negotiations and contract drafting with Quarry legal representatives.
1993 10 DEC	Attempt to implode the Big Room by Southern Quarries.
11 DEC	State Election.
13 DEC	The caving fraternity holds a press Conference, resulting in the Premier stating that "he would get to the bottom of this".
15 DEC	Mr David Wotton appointed as Minister for Environment, Natural Resources and Development.
16 DEC	Willunga Shire Council, in which the Quarry operates, meets and votes in favour of the cave after hearing evidence from all parties.
6 JAN	Mac McDonald, Grant Gartrell and Alan Jevons from CEGSA and the South Australian Speleological Council meet with Mr Wotton and try to explain what has happened.
25 JAN	Review of the Facts called by Dept' of the Environment and Natural Resources (DENR)/Dept' Mines and Energy (DME). Application to List A520 on the State Heritage Register made by the South Australian Speleological Council.
26 JAN	Public Holiday. Terms of Reference released for the Review.
27-28 JAN	Review held. Ken Grimes and Adrian Moore are the Assessors. Pat Larkin (ASF) and Armstrong Osbourne argue our case at the inquiry.
29 JAN	ASF Council Meeting, Canberra.
10 FEB	Questions raised in Parliament by Caroline Pickles, Opposition Spokesperson for the Environment. Mike Elliott, leader of the Democrats and their spokesperson for the environment announces a motion to investigate the issue of Sellicks Hill Quarry Cave by the Joint Parliamentary Standing Committee on Environment, Resources and Development.
17 FEB	Southern Quarries' solicitors claim that Southern Quarries have been defamed by Grant Gartrell.
27 FEB	Draft legislation drawn up by the ASF and the Environmental Defenders Office, Sydney - concerning the Mining of Carbonate Rocks, sent to the Minister for DENR.
11 MARCH	Government announces that "...[the] impressive features..[are]..not exceptional.... [and].... limiting quarry operations is not justified" .
14 MARCH	The Grimes and Moore reports are released to the public.
17 MARCH	State Heritage Authority Meeting. Provisional listing and Stop Order placed over the cave.
18 MARCH	The Minister, Mr Wotton, over-rides State Heritage Authority decision of the previous day.
21 MARCH	ASF engages the legal firm, Norman Waterhouse, to act on our behalf.
23 MARCH	Supreme Court action brought against the Minister by the ASF. Brian Hayes Q.C. acts on behalf of the ASF.
30/31 MAY	Listed for Trial in the Supreme Court of South Australia.

SELICKS HILL QUARRY CAVE

representatives with the cavers in formulating a contract to employ the cavers as consultants. Most of '92 and '93 was spent by the cavers negotiating the contract, issues of access, insurance and liability, to allow resumption of exploration. We have since learned that the company lodged mining plans to alter their operations to return to quarrying in the north, that is the cave area. (Review into the Facts. 1994).

On the 10th of December 1993, the company attempted to implode the "Big Room". The company stated that the reason they had chosen to blast was due to a requirement to maintain the safety of the quarry. CEGSA found this reason untenable as the quarry owners had not only known about the existence of the "Big Room" for two years, but had taken action to not drive over it for the same period of time.

Events since the blast of the 10th December.

The attempted implosion of the "Big Room" occurred one day before the State election and it was not until the middle of the following week that the new (Liberal) Brown Government announced the composition of the new Ministry. It took another six weeks for the Government to act on the issue. On the 25th of January 1994 the Dept. of Environment and Natural Resources (DENR), informed CEGSA that on the 27th and 28th of January a "Review into the Facts" would occur in Adelaide. The Review would be open only to those parties involved in the case. They were: CEGSA, Southern Quarries and their consultants, and the Dept. of Mines and Energy. Two independent assessors, Mr Ken Grimes, a geomorphologist, and Mr Adrian Moore, a rock engineer, were called in to review the material presented and let the Minister know what should be done.

The results of the Review were finally made known six weeks after it was set up and ironically on the third anniversary of the attempted implosion of the Big Room. In summary the Grimes and Moore Reports state that:

the cave is considered to have had considerable significance. It was the largest and most complex cave in the region, with geomorphological and mineralogical features of scientific interest, definite recreational significance and good potential for development as a show cave. Significant damage has occurred 35% of the southern end has been quarried away, and the dome at the northern end of the Big Room has been collapsed, but the better decorated areas are probably still intact and the cave probably has retained much of its prior significance. (Grimes. 1994. 1) (see Figure Three)

Both reports argued that the only way to establish how much damage has occurred is to carry out an inspection of the cave. They recommended that such an inspection could be undertaken by a small shaft or decline, or remotely, by video camera down bore holes. (Moore. 1994. 2. Grimes 1994. 21).

Further:

To prevent further blast damage to cave formations, and until the present condition of the cave system can be adequately assessed, a moratorium on mining within 15m of its present outline is recommended. (Moore. 1994. 4)

Between the Review into the Facts and the government's announcement on the 11th of March, as to the future of Sellicks Hill Quarry Cave, the government also sought reports from other parties. The caving fraternity was not part of this process and was shocked to find that the results of the independent review were largely ignored.

The joint statement issued by the Minister of Mines and Energy and the Minister for the Environment and Natural Resources stated that:

....the compensation payable to the mining company if the Government were to require the mine to close immediately was \$40 million.... if the government quarantined the immediate cave vicinity [then compensation ranged] from \$8 - \$14 million.

the tourist income potential of the caves, estimated to be up to several hundred thousand dollars annually - depending on visitor numbers, compared with the value of quarrying activities of around \$5m per year. As well as the cost of opening the caves for tourist development, estimated to be at least \$0.5m on current values.

the extent of damage caused to the caves both prior to, and after the implosion... could have... made them unsafe... [and finally] the likelihood of finding fossils of large animals was not considered to be high, and micro fossils in the caves claybeds could be examined while mining operations continue. (Baker and Wotton. Sellicks Hill Quarry. 1994)

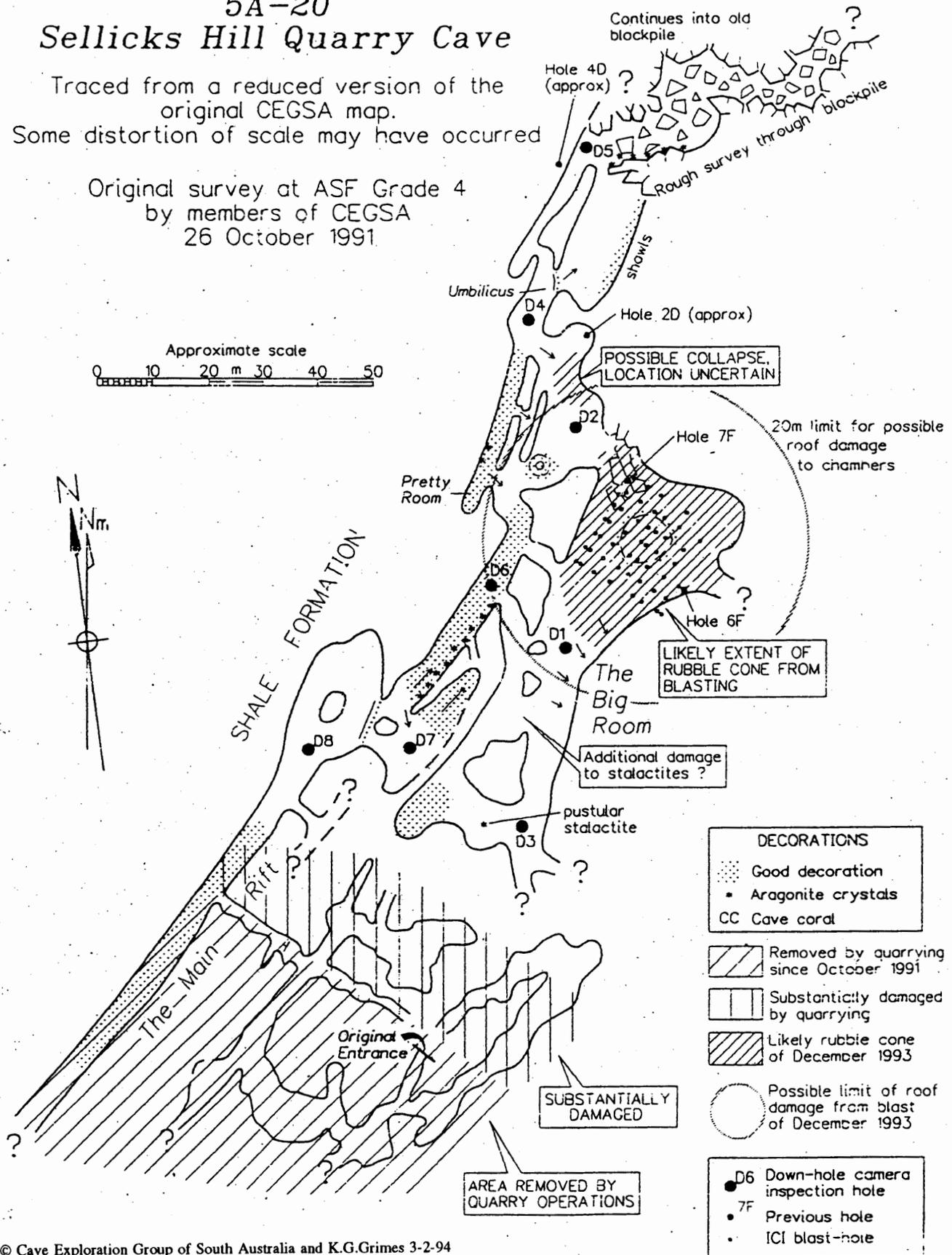
A week after this announcement the State Heritage Authority met to discuss the South Australian Speleological Council's application to list Sellicks Hill Quarry Cave on the State's Heritage List. The authority unanimously decided to place a Stop Order over the site and provisionally list the cave. The following day, Friday 18th of March, the Minister over-rode the decision and removed the listing and the Stop order.

A tele-conference was held on Sunday 20th of March between Grant Gartrell, Alan Jevons, Mac MacDonald, Patrick Larkin and the NSW Environmental Defenders Office. The ASF Executive consulted several options were discussed and the decision to take Supreme Court action was chosen as the major priority. On Tuesday 22nd March the ASF (being the parent body of the South Australian Speleological Council), lodged injunctions in the Supreme Court of South Australia against the Minister for the Environment and Natural

5A-20 Sellicks Hill Quarry Cave

Traced from a reduced version of the original CEGSA map.
Some distortion of scale may have occurred

Original survey at ASF Grade 4
by members of CEGSA
26 October 1991



© Cave Exploration Group of South Australia and K.G.Grimes 3-2-94

Figure Three.

Likely status of the Cave after the blast of 10 December 1993 with suggested down hole camera sites.

Source: Grimes. K., Sellicks Hill Quarry Cave Independent Review.

Report to the South Australian Department of Environment and Natural Resources 4 Feb 1994.

SELICKS HILL QUARRY CAVE

Resources, Mr David Wotton, the State Heritage Authority, and Southern Quarries Pty. Ltd, for a judicial review.

The judge ordered an injunction, effectively returning the situation to the status quo. Therefore the Cave is on the provisional listing and the Quarry operators can be fined if it can be proven that any future quarrying they may undertake, damages the cave.

The two main questions we have asked the court to rule on are, firstly whether the State Heritage Authority can act upon the Minister's direction without following its requirements under the Act to hear the applicant and make a full assessment. The second being a question of whether the Minister who overturned the provisional listing "in the public interest" has allowed the public (i.e., ASF) to consider the facts presented in his determination. Currently all orders made by the court have been "no cost orders", thereby all parties pay their own legal expenses.

The case went to trial on the 30th and 31st of May in the Supreme Court of South Australia and currently Justice Bollen is considering his verdict. However, it does appear likely that there will be an appeal to the Full bench of the Supreme Court, (that is in front of three judges), whatever decision he makes.

Where to from Here.

If we win, say the first issue, the State Heritage Authority will then follow the process of calling for submissions and other evidence to assess the heritage values of the cave. The Authority has the power to order the Quarry to give access to the site under assessment. The ASF believes, as did the independent assessors, that the only way to ascertain the impact of the blast and the significance of the cave is to obtain access back into it and carry out an independent scientific investigation.

It is also hoped that by taking such legal action we can obtain some answers for the reasons why this government acted in the way it did. That is, why was/is the government in such a hurry to get rid of this cave when it could have, not only won easy Green support, but allowed access back into the cave to solve some of the questions concerning its heritage and scientific values without having to have one of its Ministers in court and its decision held up for further public ridicule.

To support the cost of the court case and the possibility of appealing to the Full Bench we are urgently seeking funds. Please send your donations to:

**Mark Sefton
36 Norman St.
St Marys 5042
Ph (08) 277 9086**

References:

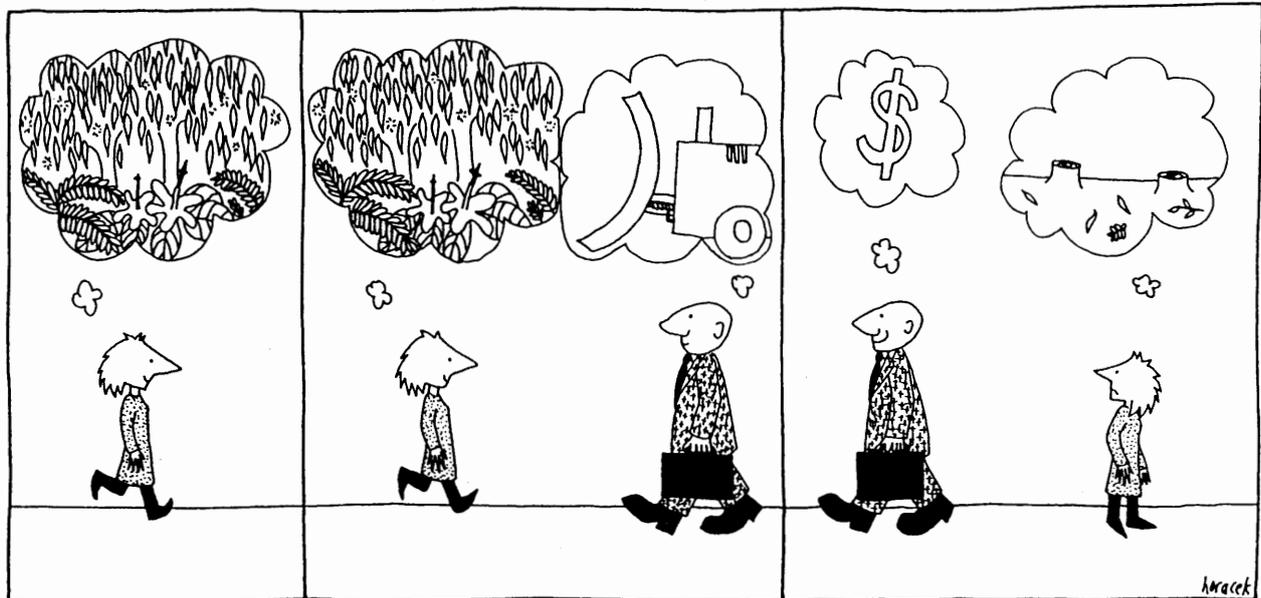
I would like to thank Alan Jevons, Grant Gartrell, and Heiko Maurer for comments on earlier drafts of this article.

Baker. D. & Wotton D., Sellicks Hill Quarry Cave. Joint Press Statement. 11 March 1994.

Grimes. K. G., Sellicks Hill Quarry Cave Independent Review. Report to the South Australian Department of Environment and Natural Resources. 4 Feb 1994.

Moore. A. J., Independent Review of the Sellicks Hill Quarry/Caves. Report to the South Australian Department of Environment and Natural Resources. 14 Feb 1994.

Transcripts of the Review into the Facts on the Blasting of Sellicks Hill Quarry Cave. South Australian Department of Environment and Natural Resources. 27 - 28 January 1994.



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INSURANCE: WHY, WHAT AND HOW

Colin Dawson

Editors note: This article is an adaption of the paper that Colin Dawson presented to the ASF Council Meeting at Canberra in January. It is reprinted in the interests of clarifying issues which may be of concern to members in their seeking to make decisions on whether or not to commit the ASF to taking out insurance cover.

In any sport or recreation, money is usually very short and it is important that what money is available for insurance, be applied as wisely as possible. In many cases, the cost of insurance may be so substantial, that the cost cannot be met through normal club or associations subscriptions. These costs should then be met by individuals, who must of course, be shown that there is a need for insurance and that the cost is reasonable.

In ASF, the problems of liability, access to caves, and caving being perceived as a high risk activity has been of considerable concern for some time. What I am going to do is to outline the insurance products which should be considered by the Federation, it's State bodies, Clubs and Members.

Workers Compensation.

It goes without saying that if the Federation or any of its affiliates employ any person under a contract of service, the appropriate Workers Compensation policy must be taken out, or the organisation must register with the State Workers Compensation Authority, if insurance is not allowed. Failure to do this, will expose the organisation to uninsured claims and fines for non-compliance of State and Federal legislation.

Public Liability, Professional Indemnity and

Directors and Officers Liability.

Public Liability is the legal liability of an organisation or its officials and members for personal injury to the public or damage to their property. It can also include actions brought by members against the organisation, officials or its members where there are negligent acts causing the member personal injury or damage to property.

Professional Indemnity is the legal liability of the organisation or its officials or members for personal injury or damage to property arising from a breach of professional duty owed. The main area of claim in this case may be an allegation of lack or inadequate training or incorrect training causing personal injury or death.

Directors and Officers Liability is the legal and civil



In extreme cases of misconduct you may become liable under criminal law

Some Reasons Why Insurance is Purchased.

Legal Responsibility,

For example, Compulsory Third party or Workers Compensation.

Requirement of other parties.

Some other key party who has been requested to give permission to use premises, property or facilities, requires that certain insurances be maintained. For example, an owner or leasee of land requires Public Liability cover to be arranged before allowing access to the property.

Prudence. The risk is so great that the exposure to financial loss can be catastrophic to the organisation or it's members. For example a multi million dollar negligence action by a third party.

Requirement of organisational officers.

The legal responsibilities of officers of organisations have become more and more onerous. Many organisations are finding it difficult to recruit quality

committee persons because of those responsibilities. Public Liability, Professional Indemnity and Directors Officers Liability policies are becoming a common requirement of committee persons before they agree to serve on committees.

Social and Moral Conscience.

An obligation is felt for a fellow member or a member's family, when serious injury or death occurs whilst undertaking club activity.

For example, Personal Accident Cover replaces collections, raffles etc which helps a member who is badly injured and has no personal insurance or assists the family of a deceased member.

Insurance that would be nice to have.

These policies are not critical but if the cost is reasonable and the club has the funds it would be nice to have the cover just in case something happens. For example the insurance of equipment, gear etc.

INSURANCE: WHY, WHAT AND HOW

responsibility of the officers of the organisations as a result of the failure to discharge their duties in a proper manner or their breach of duty under Companies or Associations legislation.

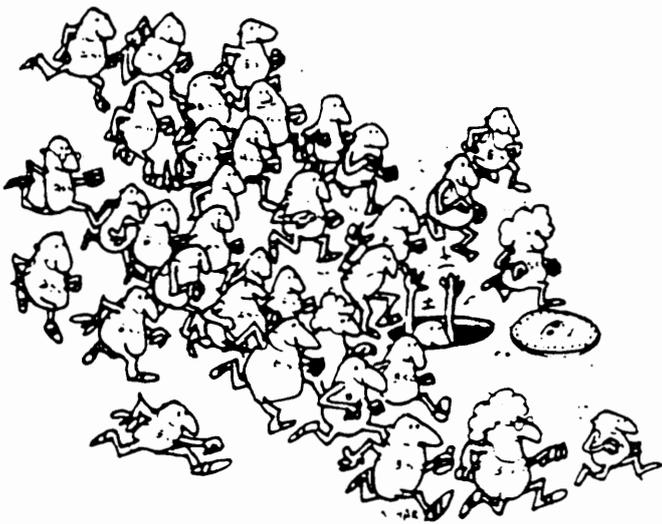
Many people believe that the fact that a club or organisation is an Incorporated body, totally limits the liability of the organisation, its committees, officers, officials and members. This is not necessarily so, amendments to the Associations Incorporations Act have made the obligations of officers similar to the legal obligations of Companies.

Prudence

Who can be sued for negligent acts?

The simple answer is that the solicitor acting for a plaintiff can include in a writ any party who the solicitor believes has or may have a case to answer. It is then up to the legal process to either eliminate certain defendants before trial or the judge to eliminate certain defendants from the judgement and damages at the trial. In any event, all of the plaintiffs will have to, at least, defend themselves against the allegation of negligence. The cost of such defence as with the damages awarded, are for the account of the named plaintiffs.

Incorporation of a body does not necessarily protect individual members and officers if they are named individually in the writ.



All sport have inherent risks

If there is no properly arranged insurance protection in place, a legal action aimed at the whole organisation can finish it financially. If the action includes officials and members, the organisation may not have the resources to defend them, and pay their damages and therefore those persons will have to meet the cost personally.

Requirement of other parties.

Whilst uniform legislative requirement of insurance may not be a reality at this very moment, outdoor sports and recreation are being affected by other persons requiring insurance to be arranged, before granting access to their property or premises. In many cases, innocent parties are drawn into legal actions simply because they own or lease the land on which an injury occurs. Most often this is landowners or leaseholders, the Federal Government or their departments, State Governments

A CASE STUDY

A motor sport club sub-leased land on which it established a racing circuit and conducted race meetings. The race meetings were staged by the club, who applied for and were granted race dates by the State Racing Control Body.

The club appointed officials to supervise the race meeting. The land was sub-leased from a pastoralist, who in turn held a perpetual lease from a State Government Department.

The racing at the circuit was conducted under the rules of three bodies:

The State Controlling Body governing the conduct of racing for the car type.

The Federal Controlling Body for the car type, with whom the State Body was affiliated.

The State Controlling Body for this type of motor sport.

An accident occurred in which a driver was injured, his solicitors issued a writ alleging negligence against:

A flag marshal at the corner where the driver crashed.

The chief steward of the meeting.

The Club.

The State and Federal Controlling bodies.

The pastoralist.

The State Government.

The club had no Public Liability cover, its assets were liquidated and paid into court. The club officials were removed from the writ after paying some legal expenses and then showing that they could pay no more.

The State and Federal Control Bodies and the pastoralist paid substantial defence costs but no damages award was made.

INSURANCE: WHY WHAT AND HOW

or their Departments, Semi Government Authorities, Councils, Pastoralists, Mining and Oil Companies and the like.

In the case of the Federation, all of the activities of the organisation, its affiliates and members take place on or under someone else's property. You rely almost entirely on the good will of the organisation or persons, who have caves on their property to grant access.

Many landowners are concerned that they may be drawn into legal actions and are denying access. Some are told by their Insurance Companies that their own Public Liability insurance does not cover claims made against them as a result of activities taking place on the property, other than their own business, thus exposing them to huge uninsured liabilities.

Most Government, Semi Government Organisations and

Councils will allow access if the organisation has Public Liability cover naming them as a joint insured party, unless there is an actual or perceived danger situation.

In some cases, the organisation may be asked to sign an Indemnity or Hold Harmless agreement. This should be resisted as such agreements are unlimited in their liability and scope. They also need to be specially declared to the organisation's Insurers, even then, cover under the policy may not cover all liability. Most land owners require public liability cover for \$5,000,000.

THE ASF'S CURRENT INSURANCE SITUATION

In late 1992 Alan Jevons (ASF) circulated a survey to all ASF clubs. Twenty two Corporate members and sixteen Associates responded. The data shows:

That 80% of ASF members carry out their activities on Crown land with the majority of this land being under the control of a government department. i.e. national parks. Twenty percent of caving takes place on private land. There are 811 trips per year, (16 trips per weekend) with an average number of seven people per trip. So, on any one weekend, 110 ASF members go caving. This totals to 5,700 people per year. Of the sixteen Associate organisations that responded, 14 stated that their main activity was caving.

Indemnities

The fifteen clubs who have indemnity forms vary as to what they indemnify: i.e., the club from its members and the club and its members to a land owner: or indemnify the club only from its members: or only indemnifying the club from those members who are under 18 years: or indemnify the club and its members only to land owners. There are only two clubs who correctly indemnify themselves on all counts, (they happen to be the Scout groups), 40% of clubs make no attempt to indemnify themselves from any litigation at all.

Some 65% of clubs who responded to the survey elect to have its members and in particular the club officers own personal assets, carry the responsibility of a deceased or incapacitated cavers family taking litigation action. This same 65% also elect to carry the responsibility for damages that may occur to Land owners property, e.g., crop destruction, fence repairs, fire damage, Cave destruction?

In respect of the duty of care, eight clubs which have physical access control over caves, and have no written agreements with the land owner, bare all duties and responsibilities for

who ever enters the cave/s asw if they were the land owner.

Training and insurance.

Twenty five clubs conduct some sort of training event. (Training event implies rope work only training). Thirteen clubs mainly trained their members on a trip. There are 60 training events per year involving 154 training officers, safety officers/facilitators from the club ranks.

Currently those 154 club members (safety officers/trainers) may be unaware of the extra responsibilities they carry as facilitators of training courses/events.

Insurance and the Leadership Accreditation Scheme

The ASF Inc will need professional indemnity insurance for the facilitator of any national caving training standard and also for those who are trained to be trainers. (i.e., Caving Instructors).

The ASF and its member clubs will need to consider insurance for the leader of a caving party, as that person will be seen to be the qualified and trained person in the group, and will be subject to litigation action by the family of any caver injured while they are in charge of the Caving Leader.

The ASF also needs to consider its position in respect of "joint Duty of Care" where it can be seen that the ASF, through its naming in legislation, or by being a voting member of a Board or Advisory Council, or by having an arrangement with a land owner or leaseholder, is jointly and severally responsible for whoever enters a cave governed by that legislation, Board or Council or land owner or lease holder.

ASF INSURANCE - WHAT IS BEING NEGOTIATED

Alan Jevons

Introduction.

The ASF Council at the January 94 meeting carried a motion that effected a Postal Ballot to be conducted allowing all Corporate member organisations an opportunity to cast their votes regarding insurance for the Federation.

A presentation was made at the Council meeting by Alan Jevons (ASF) and the ASF Insurance consultant, Mr Colin Dawson. In summary the presentation covered:
1992 Insurance Survey Results, Tendering Process.
Identification of areas of Exposure and Risks to ASF Executive members, clubs, their officers and members.

Proposed Policies and Quotes.

The outline below is intended as an indication of the type of cover negotiated by the ASF. The proposed policy is not an "off the shelf" product and has been specifically negotiated by our consultant to meet our needs. All policies have exclusions and conditions, thereby the following is a broad summary of what is being negotiated.

Our Needs.

Protection for ASF Officers and Officials.
Protection for Member Officers and Officials and Protection for individual cavers.
Protection for Landowners.
Protection to carry out Research, Exploration, Training and Recreation in the Activity of caving.
Tenancy, i.e., rental of meeting hall.
In Australia, with optional expedition extension.

Exposure and Risks.

Incorporation Act responsibilities.
National Corporations Law responsibilities.
Damage to Landowner property.
Damage to third party property.
Libel and or slander.
Courts Costs.
Financial or Business loss to a third party.
Death, Bodily Injury.
Professional negligence.

Cover.

The policy will be in the name of the Australian Speleological Federation, State Bodies and Councils, organisation and Clubs, their members, officers and visitors taking part in organised events, landowners, leaseholders and the Crown.

Directors and Officers Liability Insurance. (\$2 million.)

As the title implies, it covers, committee members and officers in conducting their duties.

Public Liability and Professional indemnity (\$10 million cover).

Covers all the needs and risks mentioned above, including the giving of advice or instructions by experienced training personnel. This also covers the usage of any Guidelines,

Rules, Codes, and Training schemes written by the ASF, by members and third parties, other than product endorsements or recommendations.

Some of the advantages.

Our insurance consultant will lodge our insurance policy with all state governments.

Clubs who are bound by State laws, to have insurance as part of their Incorporation, will be covered under the ASF policy.

Cover for states where the government requires insurance to allow caving on crown land. Cover for the farmer or leaseholder in case a third party brings action against them for an action caused by an ASF caver.

Comfort to all committee members and officers carrying out their responsibilities.

Comfort to all ASF cavers in case a family member of a fellow caver, who was injured or died in a caving accident, brings legal action.

Cover for University Clubs in those areas outside the National University Insurance Scheme.

The Cost

The Federation will need to recoup the cost of the insurance premium from its membership and has estimated this to be \$5-8 per capita, when proportioned over the number of members paid in annual treasury statistics. The more people who pay the cheaper it is for everybody. The Policy also comes with a \$1000.00 excess for every claim and this amount will also need to be allocated in the ASF budget.

Corporate Member Clubs of the Federation through their membership will adequately cover the Insurance premium and excess with the above per capita figure. In the spirit of equity, the Club committee members need to ensure that all their members have contributed no matter what classes of membership you may have within your club.

Associates of the ASF will be approached separately by letter inviting them to become part of the ASF scheme, for an Annual club premium.

The first year of the policy will allow the Federation to gather statistics and come renewal time in 1995, will be in a position to better study our requirements and adjust funding accordingly.

The Federation also obtained details on Club Equipment Insurance and Personal Accident Insurance. These will be detailed in further correspondence to clubs and their members, as these products will be specifically arranged for each club and members who chose to take advantage of the Federation's bulk buying power.

SPELEO SYNOPSIS

June 1993 - January 1994

Peter Ackroyd

AUSTRALIA

Helictite 30(2) (1992) This issue contains a summary of the scientific results of the 1992 expedition to the Vanishing Falls karst area, Tasmania. Emphasis is on the biological aspects, but there is a reasonable description of the 2 km long Salisbury River Cave. A very small map of the cave accompanies the article.

SCS News (Sep 1993)

This news sheet is a kind of cut down version of the (Tasmanian) Southern Caving Society's official journal Southern Caver. Now much reduced in membership from its halcyon days, the club nevertheless has managed to produce some new discoveries with the 161 m deep Halfway Hole [IB-136] entrance into Exit Cave at Ida Bay being perhaps the most significant. Other work revolves around the Junee-Florentine area with a major extension into big and well decorated cave in JF-341, a link forged between Burning Down the House [JF-402] and JF-228 and the discovery of the 90 m deep Troll Hole [JF-233] and Sump Pot [JF-234].

Spar 109 (Aug 1992) Corran Webster examines caves through the medium of fractal geometry. This worthwhile article also gives the best summary of fractal geometry you are likely to get.

Speleo Spiel 259 (May 1990) After apparently languishing in a cardboard box for some time this second part of the 1989/90 expedition to the remote Precipitous Bluff area has finally emerged from Tasmania. This issue continues the trip diary from where Part One (issue 258) left off, and includes a restricted list of caves (PB-1 to PB-38 only) and the plan map of PB-5, Bauhaus System.

SUSS Bulletin 33(1) This issue contains a treatise on the caves of Serpentine Bluff, Jenolan, NSW. It includes historical notes and maps.

Cave Science 20(1) (Jul 1993) This British journal has a detailed article on the speleogenesis and development of the Wombeyan karst, NSW.

NEW ZEALAND

NZ Speleo Bulletin 9 (164) (Dec 1992) This journal starts with a reprint of an Australian article on the 1987 discovery of Falcon Pot (Mt Arthur, South Island) and then steps up the pace with a report on the rescue of an injured novice from Blind Man's Bluff Cave (Waitomo) in July 1990. A historical article is followed by what is arguably the best first hand description of hypothermia you're ever likely to read. Chris Pugsley was there to watch his friend go into, then thankfully come out of, hypothermia one cold day in 1992. A short article on Broken Antler Cave (Mt Arthur), notable for its very large chamber, completes the issue.

NZ Speleo Bulletin 9 (165) (Mar 1993) This issue is mainly devoted to the exploration history of Fox River Cave, a 2.7 km long stream cave in the Nelson area (South island). A couple of brief articles on two near miss incidents involving ill-prepared "cavers" is followed by a summary to date of the exploration of the Rangitaawa sump (Waitomo), now over 400 m long and 15 m (max) deep.

NZ Speleo Bulletin 9 (166) (June 1993) The Ellis Basin caves of Exhaleair and Falcon Pot (Mt Arthur, South Island) are featured in this issue, with a detailed history of exploration of the 437 m deep Exhaleair being the lead item.

EUROPE

Descent 112 (Jun/Jul 1993) This issue contains reports on several rescue practices run throughout the UK. All appear to have gone off successfully with much valuable experience gained. In Ireland a cave was opened by a farmer excavating for a new building. The cave turned out to be a pothole with a lake chamber at the bottom which had originally been covered over by his great grandfather. The cave was photographed and surveyed by cavers before the farmer covered it over again. Len Cook's historical articles continue: this time he relates his successful experiences in producing 8 mm cave films during the 1960s. There is also a summary of the 1992 cave accidents in the UK. Three people died, two of them drowned in similar circumstances on separate, "professionally" led trips into Porth yr Ogof's entry pool. The third was a cave diving death. Total number of incidents was 47 of which a dozen, including the fatalities, could be termed serious.

In the "Viewpoint" section, Martyn Farr discusses the problems brought about by too many cavers converging on Agen Allwed and Daren Cilau in South Wales. Visitor pressure has caused the locals to become upset so that now the authorities are thinking of charging cavers for the use of the public land. There was also a complaint about the use of explosives in the caves, until it was discovered that the documented times of the claimed use of explosives coincided with the overflight times of the supersonic Concorde jet!

International Caver 6 (Jan 1993) Good photos and descriptions of expeditions from all over the world fill this magazine. This particular issue tempts the reader with tales of caves in Venezuela, Brazil, Turkey, Madagascar and, nearer home, Irian Jaya.

Caves and Caving 60 (Summer 1993) This issue contains news of yet more extensions in Carno Adit (South Wales) with over 500 metres found in the eastern part of the cave and 300 metres found in the western part. All of it sounds tight and muddy. There is a well written trip report which describes a largish expedition to Norway, just south of the Arctic Circle. There is also a series of expedition reports covering Spain.

SPELEO SYNOPSIS

Descent 113 (Aug/Sep 1993) The major story in this issue describes the recent, massive extensions in Daren Cilau (South Wales). Several hundred metres of 6 m wide by 10 m high passage lead south-east from the northern end of Antler Passage, bringing Daren Cilau to within 150 metres of Ogof Craig a Ffynnon. Other articles cover an overview of the use of computers in cave surveying, cave diving in Brazil, caving in NE India, the exploration of Coniston Copper Mine and a new rope which changes colour when it reaches its "use by" date.

Caves and Caving 61 (Autumn 1993) Cave artists are featured in this issue - the covers and centre spread are devoted to artistic works attempting to demonstrate the nature of caves and caving. There is a report of the Gay Outdoor Club of UK, which joined a Russian caving group to explore caves on the Fisht Mountains, Caucasus. Other articles cover a visit to the third largest chamber in the world, in Oman, a listing of the caves of Venezuela, many of them in quartzite, and plenty of news from overseas journals, much of it from Australia.

Descent 114 (Oct/Nov 1993) This issue of Descent contains the report on the discovery and exploration of Ban-y-Gor Cave, Gloucestershire. The significance of this tight rifted cave is that its 620 m length represents the "other half" of Otter Hole, long ago dissected by the Wye River. Also in this issue Len Cook continues his memoirs with his recollections of a 1950 trip to the caves of Ireland and two British cavers give their impressions of the 1993 American Cavers' Convention. There is a short report of a combined Russian and Gay British Outdoor Club trip to the Caucasus and a comprehensive comparative review of two British cave survey computer programs, "Survey" and "Cavemap".

Grottan 3.92, 4.92 and 1.93 (Oct 1992 - Mar 1993)
(in Swedish, English summaries provided).

3.92

A visit to Hawaii's lava caves and a summary of cave diving activities in Lummelunda Cave, Gotland Island.

4.92

Report on rescue conference held in UK in 1992.

1.93

A report on an Anglo/Swedish expedition to South Nordland, a discussion on speleogenesis in Sweden relating to climate, and a list of Swedish cavers (about 450 total).

Cave Science 20(1) (July 1993) This issue contains articles on the geological history of Wombeyan karst, radon measurements in North Wales, the use of phytoliths to deduce palaeoenvironment in a cave in Ireland, the history of the Bristol Speleological Research Society (1912-1914) and a cave in Permian gypsum in Cumbria, UK.

Slovensky Kras XXX (1992) This is the annual journal of the Slovakian Karst Association. It consists of

212 pages and contains many monochrome photos and line diagrams. It has abstracts in English or French or German. Some highlights include the effect on Slovak karst of the Quaternary period, negative human impact on caves and karst, Tertiary sediments in Stratensk_ Cave, the use of caves as refuges during the Second World War, discoveries of recreational cavers in Slovakia in 1970-1990 and a list of Slovakia's deepest and longest caves.

Stalactite 1 & 2 (1992) The official journal of the Swiss Speleological Society is in both German and French. This issue covers exploration of several newish caves in Switzerland, but the central piece is a history of the exciting cave diving being carried out in the Doux de Coly. There is also a report on an expedition to the caves of the United Arab Emirates and another one to China.

Stalactite 1 (1993) The main article in this issue is the description of the exploration of Gouffre de la Cascade in Switzerland. There is also coverage of an 89 m deep cave dive carried out by the Italians and a summary of the activities of the various Swiss caving clubs over the past year.

Descent 115 (Dec 93/Jan 94) This issue of Descent reveals that one of Britain's most popular caves, Swildon's Hole is being adversely affected by reduction in water table due to a pump well, and to pollution from the overlying township of Priddy. There is also a summary of the 1993 British Cave Research Association conference at Bristol, the news of a 263 m deep dive in South Africa carried out by American, Shek Exley, talk about when to leave bat roost sites alone, and a report on the long sought diving connection between Daren Cilau and Pwll-y-Cwm in South Wales.

USA

NSS Bulletin 54(1) (Jun 1992) This issue of the scientific journal of NSS contains articles on anthropology (moon carvings in rock overhangs), speleothem chemistry (subaqueous flowstone and nitrocalcite), cave conservation (through secrecy) and two discussion papers on saltpetre formation in American caves.

NSS News 51(5) (May 1993) An article on the Lechuguilla Cave Protection Act (1993) is followed by trip reports from a 1988 USA/China expedition to South China and the discovery, in 1991, of a major extension in Papoose Cave, Idaho.

The Speleograph 29(2) (Feb 1993) This issue of the Oregon Grotto's newsletter has an article on the caves of Ukraine.

Speleonics 19 (May 1993) This US magazine deals with electrical things used by cavers and talks about

SPELEO SYNOPSIS

converting CB radios to very low frequency cave radios, and details how to wire an electric blanket into your caving suit, driven from the caplamp battery, to keep warm on those long cold trips.

NSS News 51(6) (Jun 1993) The major article in this issue covers the sea caves of the Santa Barbara Channel, California. The article is well illustrated with many maps and photos. Other news is that the boundaries of Carlsbad Caverns National Park (New Mexico) are proposed to be extended to link up with a National Park in Texas.

NSS News 51(7) (Jul 1992) A detailed article on one of Wisconsin's show caves, Cave of the Mounds, is featured in this issue. Formed in dolomitic limestone, it was a cave without an entrance until it was quarried into in 1939. Also in this issue is a preliminary report on Chocolate High, a major new extension in Carlsbad Caverns (New Mexico). A thoughtful Bill Storage examines safety and the open mind in the "Safety and Techniques" column, while Mike Van Note explains the problems facing cavers in Alaska, where logging is proceeding at a far greater pace than is sustainable in a fragile karst area. This issue also contains the index to Volume 50 of NSS News.

Nylon Highway 36 (Jun 1993) Nylon Highway is not generally at the top of most serious cavers' reading lists these days but this particular issue goes part way towards recapturing some of its former usefulness. The major article examines the tragic death of a part-time caver who had too little experience and too few bars on his rack clipped to the rope, and consequently plummeted down the 800 metres of El Capitan cliff in an out of control abseil. The other illuminating article is a translation of a French article published in 1944, in which forerunners of the Gibbs type ascender and a cross between a rack and a whale-tail descender are described. Given that SRT didn't really catch on in English-speaking countries till the late 1960s, it sure took us a long time to catch up. Other articles look at tuning frog-type SRT rigs, Russian cable ascending systems (descent on rope, ascent on cable with special cam type ascenders) and a new, cut down Gibbs style ascender.

NSS News 51(8) (Aug 1993) A short introductory article on Global Positioning Systems (GPS) precedes a horrifying tale of 50 years of gross pollution by sewage and heavy metals of Hidden River Cave in Kentucky.

The Speleograph 29(5) (May 1993) The Speleograph is published by the Oregon Grotto. This particular issue has a quite detailed paper discussing lava caves and lava fields formed by what is termed "inflated lava" - thin lava flows which are uplifted by several metres by pressure fed lava flowing in under the solidified or plastic crust. Rheological and geomorphological evidence is cited to support this idea.

NSS News 51(9) (Sep 1993) This issue is entirely devoted to the reporting of the recent NSS annual convention held in Oregon.

NSS Bulletin 54(2) (Dec 1992) Contents: invertebrate cave fauna of Jamaica; distribution of bats in Southern Alabama; recovery of microfossils from carbonate speleothems; mineralogy of clay sediments in three caves in Florida; abstracts of the proceedings of the Society, 1992; index to Volume 54.

NSS News 51(10) (Oct 1993) This issue has an edited account by a Russian caver telling us of the history of exploration of Snezhnaya Cave in Georgia - at 1370 metres the deepest cave in the former USSR. It makes a fascinating read, not least because of its understated internal political insights. Also in this issue is a humorous article about carbide lamps which rings so true for any user of carbide.

Georgia Underground 30(3) (Dec 1993) This is the journal of the Dogwood City Grotto in Georgia and is a well presented quarterly. This issue contains a description of Thunder Hole (Alabama). Some local trip reports and a report on a conservation project are followed by a listing of mapped caves in Dades County, Florida, and a report of a trip to The Pink Caves, New Mexico. In a technical report, expedition lights are examined and the author recommends a light using halogen globes driven by lithium batteries for the well heeled, or alkaline batteries for the ordinary caver. Many specific recommendations on globe choice are included.

NSS News 52(1) (Jan 1994) This issue marks the beginning of a new layout for the News. It is taken up with the description of the Timpanogos Cave inventory and survey project held over two years (1991-93). Carried out in conjunction with the National Parks Service, this documentation led to the formulation of a management plan for this 1.7 km long cave in Utah.

Compass and Tape 36 (Summer/Fall 1993) There are some good pointers in this rather thin "double" issue. Bob Hoke tells us how to conduct a successful cave survey project, using his experiences running the Paxtons Cave survey in Virginia as an example. A couple of short articles give us some tricks of the trade and a revealing article gives the results of the NSS survey competition - only one team of the five came in with a closure that could be described as good!



CAVING ON THE INTERNET

Chris Bradley

The Internet is a way to send electronic mail to other people throughout the world. It is where you can discuss topics of interest, obtain answers to questions, find out almost anything. Access to the internet is becoming more common every day. Even if you don't work in a university or a government department, you can access the internet.

One good reason to access the internet, is to join some caving discussion groups. To join a discussion group, you have to get yourself onto the discussion group's mailing list.

In the Internet, a list may or may not be moderated. A moderated list is one where each message is checked by someone to make sure each message is appropriate to the list. An unmoderated list accepts and distributes all e-mail messages from anyone registered to the list. Unmoderated lists generally use programs such as LISTSERV. LISTSERV is a program that manages discussion groups, controlling functions such as subscribing etc.

There are two caving lists that I know of on the Internet and most probably there are many more.

The Cavers Mailing List is a moderated list, it is an open forum to share information about caving. Almost daily, the

moderator sends out a digest including equipment reviews, caving accident reports, new discoveries and exchanges of cave related information. Anyone on the list can make submissions, which may vary in length from a few to a thousand words. The Cavers Mailing List is particularly helpful if one is travelling overseas or to another caving area and wishes to arrange a caving trip. Anything that is caving related will be accepted. This list is located at Boston University, hence the .bu. in the address.

Once you join the Cavers Mailing List, you will be sent a Cavers Digest on a daily basis. The Digest comprises all the mail sent to the forum.

To join, send a mail message to:
cavers-request@vlsi.bu.edu

You will also be sent a complete listing of the Cavers Digest Archives. So far there are eight index listings, each are about 50k (50,000 bytes), or 16 pages each. A reader can then request an article from the archives by sending a mail message to cavers-archive@vlsi.bu.edu

You will be asked to send a self introduction which will be included in the Cavers Mailing List Digest.

To send in an article, mail to cavers@vlsi.bu.edu

BATLINE (Bat Research Information Exchange Network) is an unmoderated list using LISTSERV. This LISTSERV is located at the University of New Mexico.

To join, send mail to:
LISTSERV@UNMVMA.UNM.EDU and in the body of the message type SUBSCRIBE BATLINE <your name>
eg: SUBSCRIBE BATLINE Chris Bradley

To send submissions mail to:
BATLINE@UNMVMA.UNM.EDU

It is important to distinguish between sending mail to LISTSERV and BATLINE. LISTSERV is where you join and BATLINE is for submissions.

Have Fun!!!

I can be contacted through CompuServe [100237,2753] or on the internet as 100237.2753@compuserve.com.

Acknowledgement: Thanks to Donald Glasco for his valuable comments on this article.

Reference:
Navigating The Internet, Mark Gibbs & Richard Smith, Sams Publishing.

FOR SALE

ONE, (1) ONLY AUSTRALIAN CAVERS

EDITOR'S ARMCHAIR AND DESK.

Any interested party will need to be able to create material out of the ether or have a direct line to a creation bin. Failing that the ability to type, have a love affair with Telecom, (or that other company), and access to as much computer power as the R & D section of Harrods would be a significant advantage.

Applications to Steve Brooks, Chris Bradley or Cathy Brown.

**Steve Brooks
C/-6 Kidbroke Pl
Westfield. 6112**

Horne P., 1993: Lower South East Cave Reference Book. Adelaide, privately published by the Author, about 600 pages. Reviewed by K. Grimes.

This massive tome (over 600 A4 pages and 35mm thick) provides a detailed description of all the caves and numbered karst features in the Lower South East region of South Australia - that is, the Mt Gambier area, but not the Naracoorte areas which is 'Upper South east'. Sorry not quite all of them, the most recent discoveries (L-301 to L-320) are given brief summaries at the end of the book. Each of the first 300 is given a two page spread: typically a map on the right hand page and text and photos on the left hand side. For some of the less well known sites, and those that were destroyed shortly after discovery, the map or photograph may be missing and there is only a short text. There are also 16 pages of introductory text, including an alphabetical list of cave names cross-referenced to the official L-series numbers. A list of 'useful references' appears at the end. The back cover is a spectacular photograph by Mark Nielson of divers laddering into Hells Hole, one of the area's large cenotes.

The text is in Peter's chatty style. For each cave, it generally provides a history of discovery, exploration (and in some cases of destruction), the origin of the name, a brief cave description, mention of significant features and biology, along with some anecdotes and sly digs at his fellow cavers. It makes for easy reading, but one sometimes wishes he was a bit more organised in his approach. A major lack (for a bibliophile such as I) is references to published reports. One set of features he has carefully avoided describing are the recently discovered aboriginal petroglyphs and flint mining sites - presumably at the request of the workers in that area who are trying to keep this information confidential until the sites are documented and adequately protected. There is no mention of locations, of course, though some of the photographs could provide clues to people who know the general area of the cave.

The photographs are a mixed bag, and many have suffered in reproduction - lots of muddy dark areas. They are mainly entrance shots, which will help avoid future confusion of lesser known sites. Some are internal shots and a few are aerial views. There are some particularly good views of the cenotes. About two-thirds of the sites have photos - none existed for the others (or the text didn't leave room for a photo).

Some of the maps are Peter's own, others are redrawn by Peter from maps in the CEGSA collection - often with unfortunate generalisation of detail as they are reduced from originals that were on A3 or A2 sheets, but the result is generally ample for an overview of the cave - you can chase the original in the CEGSA collection if you need it. The original author is acknowledged, but the CEGSA map number is not given. I like Peter's maps: they are only hand

drawn and hand lettered and tend to look a bit rough at first, but Peter belongs to the group of cave mappers that puts detail ahead of accuracy. [Pause, while I climb on my soap box]. Some mappers put all their energy into producing a survey baseline that is accurate to the nearest centimetre, and then provide nothing further than an outline of the walls. By contrast, some of Peter's maps are only surveyed at 'Grades 1, 2 or 3', but they provide much more in the way of floor and wall detail that helps you visualise the nature of the cave. Mind you, sketching in the bullant nest, complete with angry bullant, for L-76 is perhaps taking things a bit far! Still, if you visit that cave you can't say you weren't warned.

Peter apparently got a quote from a printer of \$22,000 for 500 copies! Given that he will be lucky to sell 100 copies over the next ten years, and no-one had \$22,000 they wanted to lock up for that period, he decided to do it himself. I gather he is photocopying and binding a dozen or so copies at a time and selling them as orders come in. This means that he is not thousands of dollars out of pocket, and presumably also has the advantage that he can add updates and corrections on the fly! The disadvantages are that the spiral binding isn't quite up to the size of the volume (mine is already starting to pop loose at the back) and more importantly that the cost per copy is a bit high for individual cavers - though when you consider the size of the book, and the amount of information you are getting, 20 cents per cave isn't too bad at all. He deserves all the support you can give him so don't use the cost as an excuse to go stealing photocopies from others that could afford to it.

Peter tells me he has managed to get a larger size of spiral binding which should avoid the problems I have had with mine, and he is also offering a hard - bound option (for an extra \$7.00, but with just a plain red cover) for those that do not like spirals (advisable for libraries?). I believe he is looking into a three-ring binder version, which will allow easy updates (but will also cost more). By the time you read this he may have worked out a cost for that option, so ask when you order.

Available from:

Peter Horne

C/- 12 Addison Rd, Hove, S.A. 5048.
Phone: (08) 295-6031.

For soft bound version \$68.00 plus
10.00 for post and packaging

or the hard bound version (in Red)
sells for \$75.00 plus P&P.



OBITUARY SHECK EXLEY

Cavers and cave divers around the world will be saddened to learn of the tragic death of veteran American underwater cave explorer, Irby Sheck Exley, during an exceptionally deep "mixed-gas" cave dive in Mexico on Wednesday the 6th of April 1994. Details were still sketchy as this advice went to press: all that was known with reasonable certainty was that Sheck's body was found at considerable depth (perhaps around the 100-150 metre mark) several days after he failed to surface during an attempted very deep dive to around the 300 meter mark. Rumour has it that he exceeded a depth of 900 feet (270 metre) but apparently experienced problems with his gas supply during his long ascent.

Those of you who never had the privilege of knowing Sheck missed out on meeting one of the most experienced, safety-conscious and responsible cave diving pioneers the world has ever known. Sheck became interested in cave diving during the mid-1960s and after serving as the founding Chairperson of the CDAA's "sister" body, the NSS-CDS in 1973, he achieved many spectacular "firsts" for which he became very well known. However, he was far more than just another talented record-breaker....he was also an extremely modest, kind and likable Floridian who never failed to make friends wherever he went, and he always looked after his friends and overseas visitors every way he could.

In 1992, thanks mainly to the efforts of Melbourne based cave diver, Tony Davis, we in Australia were very fortunate to have had the opportunity to play host to Sheck while he experienced his life long ambition to dive in Mount Gambier's famous waterfilled caves during his well received (and often very humorous) lecture tour around the country. Despite his obsession with hi-tech cave diving and his "living legend" status as perceived by his peers in the cave diving community, Sheck always had a polite word or funny story to tell anyone who said "G'day" to him, and he provided a great deal of technical and safety advice.

As a true cave diving pioneer, Sheck lived for the satisfaction of introducing new and safer cave diving practices and equipment, and his adventurous spirit led him to push underwater speleology's knowledge, equipment and human physiology to the limit. Cave divers who knew Sheck personally had a good understanding of how close to the edge he was prepared to push himself and we were always fearful that perhaps one day, Sheck might pay the ultimate price for courting the poorly understood dangers which this brave man faced so many times in his life.

To Sheck's family and close friends, the Australian caving and cave diving community extends our sincere condolences and best wishes during this extremely difficult time; we hope that Sheck's astounding achievement and foundation teaching will be remembered forever.

Peter Horne.

OBITUARY NORMAN BARNETT TINDALE

Norman Tindale died at age 93 in California, November 19, 1993. Some cavers will know of his 1933 paper on the Tantanoola Caves, which remained for many years as one of the most comprehensive studies on any Australian cave area. However, his influence on the development of Australian caving during the 1950s is also of some importance and worthy of record.

Tindale spent 47 years on the staff of the South Australian Museum. Initially appointed as an entomologist, he suffered severe eye injuries in an accident and his doctor insisted upon a change of occupation, so he turned to anthropology. In his 'spare time', he proved the doctor wrong by continuing to pursue his studies of entomology, and amongst other things, became an authority on the *Hepialidae* (Ghost Moths). But he made his greatest contributions to knowledge in anthropology. On "retirement" in 1965, he was offered, and accepted, a chair in anthropology in the United States, where he worked until his death. He laid the foundation of Australian archaeology with his 1929 excavation at Devon Downs. He was distinguished for his insistence upon integrating evidence from a wide range of disciplines and approaches in endeavouring to understand the prehistory of the continent. I recall walking the southern Flinders with him as he built a picture of the relationship between the surviving evidence of Aboriginal impact upon the landscape, geology and vegetation patterns, past fauna, hydrology and the recent impact of white occupation, all of it focussed upon understanding a specific occupation site and its art.

But to return to caves - he had long recognised the potential importance of caves as a research resource, and when a small group of us commenced caving during the early 1950s, he both encouraged and informed our efforts. He was later one of the founders of the Cave Exploration Group of South Australia, and indeed, one of those who argued strongly that such a group should be established. In turn, he helped to design the initial system of recording which was used by CEGSA, insisting that "... unrecorded exploration is nothing more but vulgar curiosity: it only becomes exploration when it is documented". The numbering system, now used throughout Australia was initially developed by the late Alan Hill for use on Kangaroo Island, but with Tindale's input, it was then made more systematic and applied to the total South Australian record and has since, of course, been very widely adopted. Similarly, he gave particular encouragement to cave surveys as a vital aspect of documentation, encouraging Sexton and Hill to develop quality in cave mapping. He ensured strong support from the Museum for all of CEGSA's early efforts, establishing the strong linkage that still survives, particularly through Neville Pledge, even though it is perhaps not as alive and diverse today as in his day. In summary, much of what is now generally accepted and recognised as good caving practice in Australia was given a kick-start by Tindale. We owe him a great deal and those of us who shared the delight of working with him will not forget. **Elery Hamilton-Smith.**

ILLAWARRA MAKES A COMEBACK

Robert Robinson.

Yes folks, it's back! The Illawarra Speleological Society Inc. (I.S.S.Inc) has pulled off that which makes Lazarus waking from the dead look pedestrian. After six years of being buried, but not forgotten, the club has risen again to take its rightful place in the world of Australian caving.

In the middle of 1987 a great sadness swept over the caving world. It was deemed necessary to kill off the ISS until it could obtain insurance for public liability, which also meant it had to become incorporated. The caving world then had to mourn the loss of a club that had been in existence since April, 1963. The club became a council member with the ASF in 1964. As a fledgling club it soon began spreading its arms - mainly into areas such as Bendethra, Bungonia and Wyanbene, with other jaunts to places further afield, such as Tuglow and Wee Jasper.

Club membership varied over the years, and as is the case with most clubs it did have its share of characters. There were the usual ones who liked to partake of the contents of the bottle as much as they enjoyed hanging off ladder pitches, screaming at each other for "More rope...Take up the slack... If I die here leave me here...Where's the ladder gone?... Are we there yet?...I'm never coming back here again.... Where the hell are we?" One of the members and a former president, Bill Wilton was held in such high regard by his peers that he was named as a life member of the club, the only one to this day. There has also been a regrettable loss of some of these former members to cancer. It goes without saying that this was not only a loss to their families, but also to Illawarra caving.

During the 1970s the club was at its peak in activity. The focus at the time was on Wyanbene, specifically the Avon or Gunberrel. This provided the club with an interesting exploration problem - what was at the top of the Gunbarrel? A chamber so high it can not be seen with pit lights and has its own water cycle. Attempts by rock climbers to reach the heights of the chamber had been abandoned, for various reasons, so it challenged the club to come up with something different, which was done. Thanks to the ingenuity of the clubs members, huge sheets of dry cleaner's plastic were formed into equally large helium balloons. At the bottom of these was tied a camera, made of balsa wood for lightness, and a small flash. A number of attempts were made, each varying in their success, sometimes using a timer to take the photo, at other times using a remote triggering system from the floor of the cave. The result was that the photographs were able to show what was up in the roof, providing a different perspective of the cave, which others have benefited from. The club also held scientific interest in the caves they visited. Movement gauges were placed in strategic places around various caves to measure rock movement.

The year of 1977 marked a change in where the I.S.S. did its caving. The club conducted its first trip to the

Kimberleys in Western Australia. The trip was a huge success and was well attended, mainly by Land Rover owning speleos, a tradition that continued for quite some time. The success of the trip can be mainly attributed to the fact that the participants were able to get in touch with a unique bloke by the name of Roy Munster at Fitzroy Crossing. Roy, who had hitched a lift the one of the members, Dave Dicker, was able to take the party to the known karst areas and the ever rare water holes. Movement gauges were placed in strategic areas around the caves visited and are checked at every opportunity. Roy was shown the appropriate gratitude by being welcomed into the group and some of the many holes in his one pair of shorts being repaired. As a result, the club continued trips into the area for many years and consequentially has become well known for producing maps of the caves in the area, one cave providing about 13 kilometres of survey so far.

Up until 1987 the club went on its merry way until members started expressing concern over liability claims against members of similar non-profit organisations. It was decided that the club should be put "on hold" until insurance cover could be obtained. However, the fact that the ISS was no longer active, did not stop its former members being so. Trips were still conducted, privately, to the Kimberleys, other members satisfying themselves with private trips to caves more local to the Illawarra region. During this hibernation period the club downgraded its membership with



**What some people do and
what lots do not!**

ILLAWARRA MAKES A COMEBACK

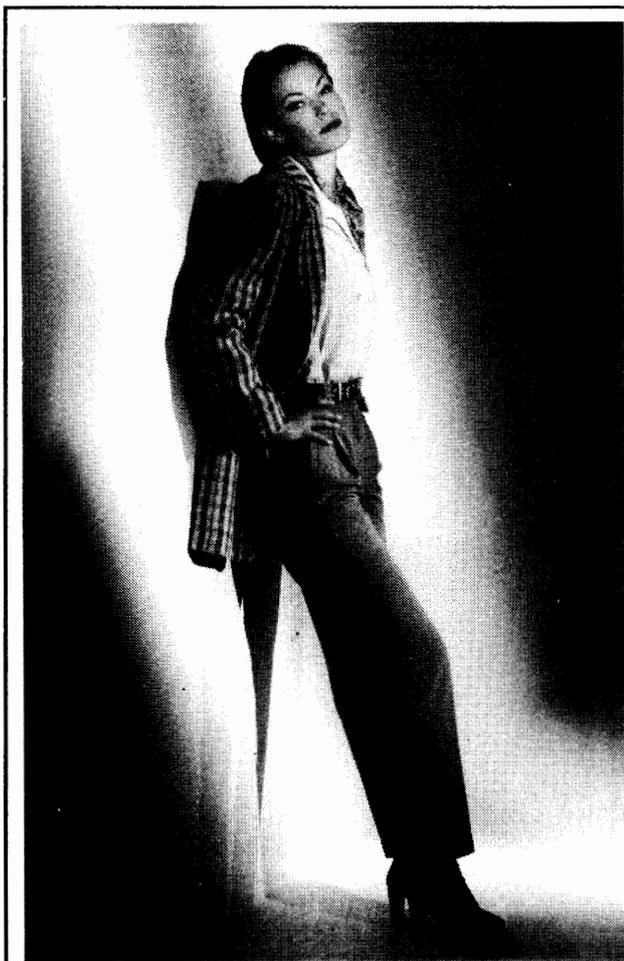
the ASF, from Corporate to that of Associate. Some members, notably John Poulton, passed the time trying to get the club incorporated to enable it to be insured. Some members decided to try and keep in touch with the caving fraternity by holding positions in the ASF.

In what seemed to be a bolt from the blue, after years of the club being "on hold", an announcement was sent out in September 1993, that a meeting to re-start the club would be held on 13 October of that year. At a meeting, chaired by Ron Poulton, it was voted to officially reform the club. As a result we believe it is the first caving club to become incorporated in New South Wales, and remains the only one to do so, so far. At the same momentous occasion it was decided that the Annual General Meeting would be held in March each year. An interim executive was then elected, with Lloyd Robinson as President and Ron Poulton as Vice-President, to lead the club to its first AGM since re-formation.

Since that stupendous meeting the club has become active, with training weekends for novices and some trips. An active recruitment drive is about to commence to build the already growing numbers of the club and a meeting venue has been established at the University of Wollongong. Of

course the club has also now held its 1994 A.G.M. At this meeting a new executive was elected, with Ron Poulton as President and Fabio Bertolla as Vice President. Under this regime the club has only one way to go, and that is onward, including becoming a Corporate member of the ASF. The current members appear to be providing the club with a sound foundation, including the novices, who are keen to learn and participate. This is evidenced not only by the attendance on trips and training weekends and by the fact that the club has already distributed an internal newsletter, of interest to members only, but also that we are preparing one for distribution. The club was also represented at the January '94 ASF Council Meeting in Canberra.

It is the sincere intention of the club and its members to not only be active cavers, but to abide by the ASF Code of Ethics and contribute to the preservation of cave and karst environments. On behalf of the club, I'd like to say that it's nice to be back and I hope that this marks a new association of the Illawarra speleos with the speleos of Australia.



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On April Twenty fifth 1994,

the founder and guru of the Northern Caverneers retained the title, unopposed, of the oldest active caver in the world. Bob Woolhouse turned 75 and is still going strong (although the odd creak can be heard while he is negotiating a tight squeeze). For those of you who haven't had the delight of Bob's gentle unassuming and witty company, here is a bite of Bob's past. You will have to go caving with him to find out more - but watch out for the native pepper bush trick.

Originally from England where he founded the Sheffield University Mountaineering Club in 1938, Bob moved to Launceston, Tasmania in 1961, attracted by caves marked on a map. Not wasting any time, he and two expatriate Hobartian caverneers formed the Tasmanian Caverneering Club(Northern Branch) in the same year, which later became the Northern Caverneers. They then started looking for Marakoopa II. Since then, Bob has been intimately involved with every major cave find in Northern Tasmania.

One of the highlights of his caving career was being blessed by the Bishop of Panniers, in a service in the cave 'La Bouiche', on a cave diving expedition with Norbert Casteret, an Anglo-French expedition of the late 40s early 50s.

Bob's vast knowledge of botany and biology, his interest and fascination for everything, has enabled him to nurture many a caver to becoming a speleologist.

Bob has finished building his new house, alongside which his 'home grown' rainforest is prospering. He is looking forward to the next season of new cave exploration without any drop bears.

HAPPY BIRTHDAY BOB

from the Northern Caverneers
and our Fellow cavers Australia wide.

Paul Van Nynanten. President. Northern Caverneers.

Contrary to popular opinion, CSS

has not forsaken caving for letter writing. As CSS enters its fortieth year, the society remains as active as ever. In 1993, CSS received a large boost in members, following the winding up of the Capital Territory Caving Group. The expansion has not resulted in any increase in caving activity. However, the equipment officer has noticed rising demand for armchairs, particularly since one member demonstrated that it is possible to abseil down a vertical drop while comfortably seated.

While the local caving areas have lost some of their appeal, many members are now seeking new horizons further afield, including Thailand and the Northern Territory.

In July 1993, seven members escaped Canberra's winter (possibly reflecting a shortage of snow) for CSS's third annual expedition to the Gregory National Park, N.T. On the second day of the trip we discovered Berks Backyard

Cave. Over six solid days, two teams explored and mapped a total of 11.2km of passage. The cave is by far the longest known at Gregory and is already one of the longest in Australia.

We also did a small amount of surveying (300m) in the 5km long Two Fishes Cave, explored in 1991, and in Razzle Dazzle Cave. Near the end of the 1992 trip Razzle Dazzle was partly explored and 500m of passages mapped. In 1993, a further 500m of passage was explored and mapped to connect it to Dongo Cave, and through that to Dingo Cave, thus creating the Dingo-Dongo-Dazzle complex. Over the three CSS Gregory expeditions, we have explored ten major caves and mapped a total of more than 26km of passage.

John Brush

You haven't heard from the Hills group

lately, but the club is still alive and kicking. We've had a varied diet of speleological activities for many years, and it doesn't look like stopping. Although only small, Hills are quite active and manage to cover a fair bit of ground. Over recent years we have :

Trogged, mapped and produced field guides to Glenrock, Crawney Pass and Mt Fairy karsts.

Helped out on the Old Homestead survey on the Nullarbor.

Spent more weekends than we care to remember on the "Great Jenolan Survey", mapping the depths of the Jenolan Tourist caves. The final drawings are now on the board, with the North Side (Chifley, Jubilee, Devils Coach House etc) at the final draft, soon to be inked.

A definitive map of Main Cave at Pigna Barnery has been completed and mapping at Y50 is still in progress.

Church Creek has seen many visits for exploration and mapping, and also (in liaison with NPWS) looking for evidence of the rare Brush Tailed Rock Wallaby (*petrogale pencillata*). Extensive searching has as yet failed to find any trace of the wallaby. Limestone outcrops have been cleared of all

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scats, in the hope of identifying "newly laid poos" in the future. Botanic searches have been made for possible preferred feeding sites.

Cotterills Cottage at Yarrangobilly has been the site of much activity recently, with many clubs helping in restoring the building. Somehow, we drew the short straw and are now acting as liaison between the NPWS and the Sydney clubs to finish off this project.

Completed detailed and "tourist version" maps of Careys Cave for (the then) Leaseholder.

Actually enjoyed a weekend planting trees with the property owner at Cliefden Caves.... the BBQ was good tooooo...Also varied our diet with the X-C skiing, cycling, canyoning and some more caving.

See you over karst, Rick Pinnock.

Long Cave Discovered

A large cave has been discovered by members of the Canberra Speleological Society Inc. More than 11.2km of passage was discovered and mapped in July 1993 during CSS's third annual expedition to the Gregory National Park, N.T.

We have named it Berks Backyard Cave.

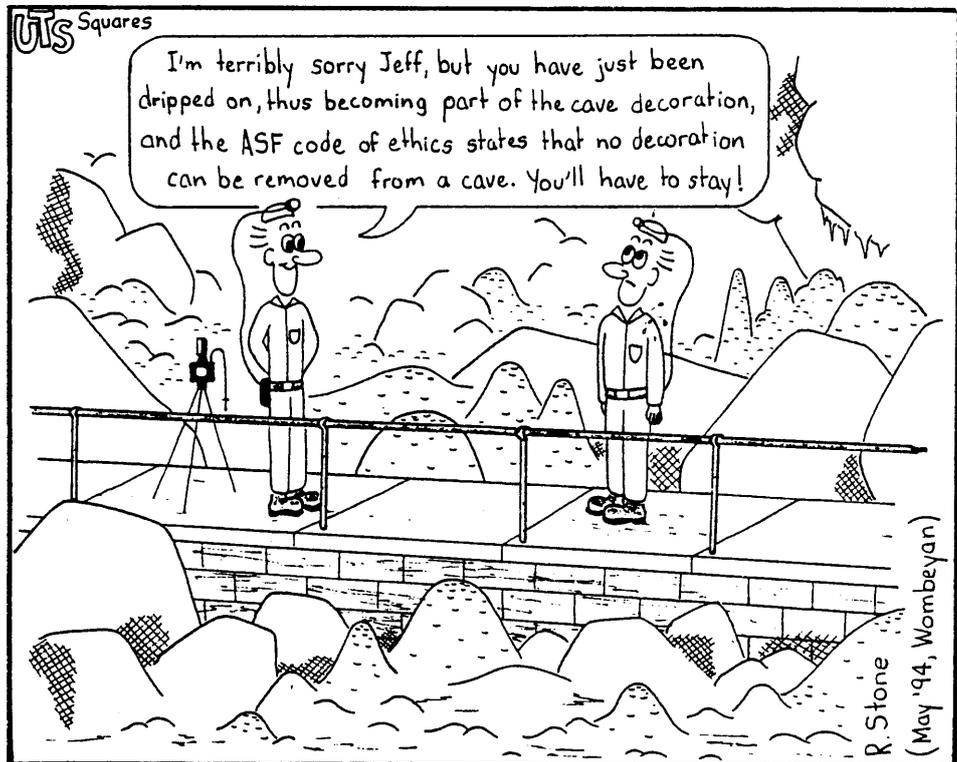
Backyard cave because the cave has relatively good access, only 30 minutes walk from a 2wd road, and Berks because it is suprising no one had stumbled into it before. Also, with ferns, leafy entrances and numerous fig tree roots, the cave has a definite garden feel about it.

As with other caves in the area, it is essentially a horizontal maze-like fissure system, with several entrances

and innumerable daylight holes. Most passages are joint-controlled fissures and many trend in a south westerly direction. In places there are up to nine parallel passages. Typically, they are 0.5 metres wide by 1.5 to 5 metres high. However, there are also several large flat roof chambers. These are 20 metres or more across and 1 to 3 metres high. Small phreatic(?) tubes also occur, but in the best of CSS traditions were generally ignored. The far end of the cave, some 1.5km (straight line distance) from the main entrance, is a maze of collapsed blocks. It is in this area of the cave that TESS discovered a connection from a nearby cave it was exploring. The connection was made in September 1993.

The cave found by TESS is about 4km long, with 2km of this mapped to date. The known passage length of the whole system is some 15km, making it one of the longest in Australia.

The main entrance is about 10 metres wide and two metres high and immediately drops into a flat-floored airy chamber, 10 - 20 metres wide by 35 long and 6 high. Passages lead off in several directions, and one eventually leads to the main part of the cave. However, a second entrance 120 metres to the south west, gives more direct access. It leads through the Garden of Edam (a favorite lunch spot) to the Bruce Ruxton Way (BRW), which goes on and on and on and can be followed to the far end of the cave. Other notable features include the Hanging Gardens of Babble On, an attractive area of decoration in the BRW; Lunar Park with its barren rubble floor: Hide Park, a large low-roofed chamber it is easy to get lost in; Queue Gardens, with its line of thick fig roots; the Rein Forest, a curtain of long fibrous roots; Fern Pteris, a bed of ferns beside a (dry) waterway and the Sterling Moss, a large area of what, in the wet season, is obviously a very high quality patch of moss.



Apart from bat and cave crickets, beasties we noticed included spiders with luminous red or green eyes. We also saw evidence of echidnas (droppings) and wallabies (polished nails, dropping) through the cave. Wallabies also appear to occasionally drop in from above. Pet Corner and the Road Tested Wallaby are two such places.

The cave is developed under a deeply dissected karst pavement formed on a gently dipping, massive dolomite unit approximately 20 metres thick. This unit, known as

An extract from ASF Newsletter Number 43, March 1969, noted: "the National University Caving Club was formed on 5th March, 1964, and became affiliated with the University Sports Union. Average membership is 30 and there's plenty of activity. For example, in 1966 there were 28 trips and some 19 areas were visited from 1964-67. Perhaps the best work has



the Supplejack Dolomite Member, occurs in a sequence of thinly bedded dolomites and dolomitic siltstones.

While minor surface solution features occur in the flaggy dolomites, features such as grikes, rillenkarran and cave entrances are confined to the Supplejack Member. Moreover, little significant karst development at Gregory appears to take place until the Supplejack is exposed. Once overlying beds are eroded away, solution of the Supplejack takes place along joints and forms the fissure passages. When the fissures reach through the Supplejack to the underlying flaggy dolomitic siltstones, karst development continues, but passage morphology changes dramatically. Passages become very wide with the base of the Supplejack forming flat roofs. Continuing breakdown and removal of the siltstone walls creates large chambers with flat roofs, supported by little more than occasional pillars. In places, pillar removal/collapse results in large dropped blocks of Supplejack, 10-20m square and bounded by fissures, abruptly terminating the passage.

If six days of exploration can produce more than 11 km of cave, what would another trip produce? Who knows? Most of the obvious walk-in leads that have potential to lead to new territory have been pushed. We could start pushing the crawls, but this would be against a fine CSS tradition. Nevertheless, the thought of leaving such a large cave only partly explored has become unbearable. We are going back again this year.

**National University Caving Club
celebrates its 30th birthday.**

been done at Bunyan (Rosebrook) near Cooma, an outcrop largely ignored by the older clubs. "Speleograffiti" is a refreshingly original name for a club newsletter and has appeared regularly for over five years".

Actually nothing much has changed now, still average annual membership of 30 etc. It seems that the Editorial hasn't changed from 1969 either, and I quote: "It's not my fault or responsibility that it's later than ever. There will be no pontifical pronouncements at this stage. And there will, I trust, be no complaints until the newsletter is rehabilitated" etc.

SRG led a multi-society trip to the Nullarbor Plain during December '93 - Jan. '94 concentrating on the Mundrabilla/Madura region. Several small caves were numbered and some entered, as well as other features numbered, thanks to the presence of the Nullarbor Coordinator Max Meth of CEGSA. Navigation and cave location was made easier due to two Global Positioning System receivers being on the trip.

The cave of 1993, 6N707 had its main

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passages mapped by Rauleigh Webb, John Cugley WASG, Jim Fyffe WASSG using a laser range finder to avoid leaving the established track for measuring purposes. The terminating region has now been called "THE DEAD END" as the fauna found there, bats, cockroaches and Male Tartarus spiders were dead and people too, if they probe the rockpile and sediment banks carelessly! Extensive track marking took place in this and several other caves on Mundrabilla. Another small colony of female Tartarus Spiders was found in a new cave 6N747, which was most unusual, in that it had ferns growing in its protected entrance. Norm Poulta had a brief encounter with a Death Adder while cave numbering the Witches Cave series.

Following a report by CEGSA that spiders on webs were encountered in the dark zone of the Erosion Cave 6N36, a party of four crawled into a very steep, unstable cave to check the report out. Nine spiders were found before exploration was stopped due to the continuing passage being blocked by an occupied web. The large horizontal webs (up to 1m²) are even more difficult to see than female Tartarus webs but can occupy just as much space. One spider was ultimately captured and later identified by the WA Museum as a male Tartarus, the first live specimens encountered. Contrary to the historic(?) location of the spiders found in the Dome of Mullamullang cave, all Tartarus spider colonies found by SRGWA have been associated with either water of damp earth.

Between April 1993 and the end of 1993, 27 visitors had registered in the book outside the Mullamullang's Dome, a party from CEGSA reported that they had seen two cockroaches near the The Drop Off during October. As well as adding to the route markers in the main passage of Mullamullang, track marking took place in the coffee and cream section of the Easter Extension in an effort to arrest the devastation that is occurring there. An interpretive sign was also installed. Another piece of speleo history dating back to 1965 was recovered from the Right Hand Extension for preservation, deciphering and later re-installation.

We are interested in hearing from anybody who has visited Walpet Case 5N38 in recent years, in an effort to date the partial collapse of its southern cliffline adjacent to the cave entrance. A huge slab of rock, possibly weighing several tonnes fell out in the not too distant past. A small cave cricket was captured and an unidentified web fragment noted in the dark zone of the cave.

Altogether, more than 30 karst features were physically numbered on Mundrabilla and Madura stations, as well as the Nuytsland Nature reserve. During the course of the trip, tags were either placed on readily visible rock faces or under protective cairns if rock pavements were all that was permanently available. The cairns were usually built with an E-W orientated cavity underneath, to protect the tag from the weather while still allowing the tag to be seen.

Norm Poulta

Well folks, this is the last issue of Australian Caver

that I will be editing. Lucky me hey! Some of the time it has been great fun and at other times I would have definitely preferred to go caving. At any rate, I feel that it has been a privilege to be able to bring the ASF's only publication to its members, so that they can debate issues of importance and maintain contact with one another.

Steve Brooks, Cathy Brown and Chris Bradley remain involved on the Newsletter Commission. Steve is in charge of membership matters. That is, if you change your address tell Steve, as he maintains the data base and prints the labels for postage. If he does not have your address, then you won't receive Australian Caver. Cathy and Chris are the people to contact if you have material that you want printed. The next deadline will be the end of July. I hope that you will be even more supportive of their attempts to maintain the Commission and publish the newsletter.

I would like to thank, Peter Ackroyd for his support of my editorship and continual supply of material, the ever suffering proof reader Heiko Maurer who proofed this edition by the light of a kero lamp. (One of the many joys of moving to a house with no power.) Lots of thanks go to Steve Brooks and Rauleigh Webb who work so hard, with little support, to keep the membership data base together. Also Stuart Nicholas, Karen Magraith, and to the many FUSS members who kept me sane. See you all underground.

Clare Buswell

SEND REPORTS OF ALL CAVING INCIDENTS AND ACCIDENTS TO:

Mike Lake

Convenor of the ASF Safety Commission

**C/- 2 Derribong Place,
Thornleigh,
NSW 2120**

Ph: (02) 481 0949 ah

Earth, Water, Fire and Air



Our Motto says it all: The Earthly limestone and the Water that dissolves them, the Fiery volcanoes and the hot Air at the conference itself.

The 20th ASF Conference will be held at Monivae College, Hamilton, Western Victoria, commencing Monday, 2nd January and concluding Friday, 6th of January 1995.

Being held in the volcanic heart of Victoria, Vulcon will naturally feature the unique caves of the area, and will be strongly volcanically oriented. There will however be ample time spent on limestone, with limestone caves at Bat's Ridge, Codrington, Warrnambool and the Glenelg Area featuring in the program.

Anyone who has a love of caves, karst and caving will find that Vulcon is a "must see" event.

Conference Packages.

There are three conference packages available for Vulcon which cater for those who wish to stay on site with everything provided, those who wish to arrange their own accommodation and meals and those who do not wish to attend for the full conference, but visit on a day-to-day basis. Costing for each of the packages, as well as details of what each provides is included on the registration form itself.

Partners and Children.

A package is available for non-conference going partners and children. This package provides accommodation and meals for those who are partnering a conference delegate but who do not wish to attend the conference activities themselves. A discounted rate is available for children under 6.

Registration.

Registration will take place at Monivae from 10.00am Monday, 2nd January 1995. 50% of your total payment is required when placing a booking, with the balance falling due on the 1st of November 1994. Bookings received prior to 10th August 1994, will go into the draw for an early bird prize. Cancellation refunds are subject to the organising committee's discretion.

Childcare.

Child care facilities are available (subject to numbers) for those who wish to "forget about the kids" whilst at the conference. Child care is open to children under 10 years of age at a cost of \$5.00 per day including lunch. All personal requirements (e.g., portacots, diapers, favourite toys etc) are

to be provided by parents.

Caving Field Trips.

Pre-conference field trips will be held at Mt Eccles National Park. Details will be sent to delegates on receipt of booking forms. Field trips will be held from December 27th until January 1st.

Those travelling from Eastern and North Eastern states may wish to visit the Buchan area. There will be no official trips held there. It is up to individuals to arrange visits to these caving areas.

Post conference field trips will be held at Mt Eccles from January 7th until January 10th. Other areas may be used, details will be included in a mailout after booking forms are received.

A trip to local volcanic areas will form part of the conference.

Caver's Dinner.

The Caver's Dinner will be held at Monivae on Thursday, 5th January and will be a night not to be missed. The Caver's Dinner is not included in the conference packages and must be booked. It will be a three course dinner, hors-d'œuvres and drinks. The cost of the Caver's Dinner is \$31.00 per person.

Photo Competition.

The viewing night for the photo competition is planned for Tuesday, 3rd of January. Details and application form will be included in the Information Booklet, which will be sent with your receipt.

Call for papers.

Expressions of interest in presenting a paper and/or poster or conducting a workshop to be sent to:

VULCON 1995
123 Manningham St.
West Parkville, Vic 3052
Fax Number: (03) 328 4154

Please forward your paper no later than 30th October 1994. Papers should be on A4 size white paper. Typing should be 12pt size in a clear black font to aid computer scanning. Where sketches/drawings are included please ensure black ink is used. All submissions should be a maximum 8 pages in length.

Earth, Water, Fire and Air

VULCON REGISTRATION FORM

Each delegate is to fill out their own individual registration form.

Any non conference partners and/or children accompanying
are to be listed on one form.

Please tick boxes for any options you require and write in the spaces provided.

Please return to:
Vulcon Conference 1995
P.O. Box 506 Malvern,
Vic 3144

Name: _____ **Female** _____ **Male** _____
Address: _____ **Age:** _____
_____ **Postcode:** _____
Caving Club: _____
Phone: (H) (0) _____ (W) (0) _____

I agree to have details listed in a Conference Mailing list. Yes No

Monivae Package \$ 216.00 All inclusive. Divided dormitory accommodation, Conference package. All meals (except Caver's Dinner) I am travelling as a: Single <input type="checkbox"/> Family <input type="checkbox"/> Group <input type="checkbox"/> I prefer to be in a dormitory with:.....	\$ <input style="width: 100px; height: 30px;" type="text"/>
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Conference Package Only \$ 56.00 Includes morning and afternoon tea, Conference registration, (including papers). Meals and accommodation not included. (For meals see Extra Meals)	\$ <input style="width: 100px; height: 30px;" type="text"/>
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Day Package \$20.00 per day Includes Lunch, Morning and Afternoon tea, Conference fees. For meals, see Extra Meals. Please note that Lunch is included. Conference papers not included. No. of days attending: <input type="text"/> Conference papers additional @ \$25.00. No. of sets required: <input type="text"/>	\$ <input style="width: 100px; height: 30px;" type="text"/>
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Non Conference Attendees \$160.00 each Partner and children over 6 yrs: Accommodation and meals: x 4 at Monivae Children under 6 years: \$45.00 per child Accommodation and meals: x 4 at Monivae Please list partner and children's names (with ages) below. 1.....2..... 3.....4..... 5.....6.....	\$ <input style="width: 100px; height: 30px;" type="text"/>
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VULCON REGISTRATION FORM

Child Care.

I require childcare: Yes No
Attending: Tuesday Wednesday Thursday

\$5.00 per child per day

No. of Children

Names and ages of children attending:

1 _____ 2 _____
3 _____ 4 _____

\$

Other.

Number of T-Shirts @\$10.00 each. Small ___ Medium ___ Large ___ X - Large ___

Conference Tawny Port @\$10.00 per Bottle _____

Number of stickers @ \$1.00 each _____

Number of extra Conference Papers @\$25.00 ea _____

\$

Caver's Dinner.

Number of people attending Caver's Dinner @\$31.00 per head:

\$

Extra Meals:

Please indicate the number of extra meals

Breakfast: \$8.00 ea. Lunches \$8.00ea. (Included in Day Package).

Dinners \$12.00 ea.

Tuesday:

Breakfast _____ Lunch _____ Dinner _____

Wednesday:

Breakfast _____ Lunch _____ Dinner _____

Thursday:

Breakfast _____ Lunch _____ Dinner _____

\$

\$

\$

Special Dietary Requirements.**Field Trips.**

I intend to participate in:

Pre Conference field trips: Post Conference field trips:

Transport During Conference. Needed Not needed

Papers.

Are you presenting a paper? Yes No

Total Due

Amount paying now. Minimum 50% required,
outstanding balance due 1st November 1994.

\$

