



1983

# ABSTRACTS



# SPELEOVISION PROGRAMME

9:00	12:15	13:30	18:00
SUNDAY 2/1/83		REGISTRATION OPENS	BARBECUE
MONDAY 3/1/83	ASF COMMITTEE MEETING	OPENING & KEYNOTE ADDRESS	ICEBREAKER BARBECUE
TUESDAY 4/1/83	Geomorphology papers	Surveying papers	Management papers
	Visual papers	Surveying papers	Management papers
WEDNESDAY 5/1/83	BURNSIDE MINES TRIP	SPELEO . . .	Archeological papers
		SPORTS . . .	Archeological papers
		SPOT	Archeological papers
THURSDAY 6/1/83	Diving papers	Management Workshop	Archeological papers
	Diving & Expedition papers	Workshop	Archeological papers
FRIDAY 7/1/83	ASF COMMITTEE MEETING	LOCAL CAVE TRIPS & Start of CAVE TOURS	LOCAL CAVE TRIPS

SPELEOVISION - 14TH BIENNIAL CONFERENCE

AUSTRALIAN SPELEOLOGICAL FEDERATION

FLINDERS UNIVERSITY - ADELAIDE

JANUARY 3-7, 1983

A B S T R A C T S

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PROGRAMMEMONDAY, JANUARY 3

OPENING SESSION: 2.00 p.m.

Introduction: Graham Pilkington (Convenor)

Official Opening: Dr Sue Barker B.A. M.A. Ph.D.  
Senior Projects Officer  
National Parks & Wildlife Service

Keynote Address: Elery Hamilton-Smith  
Convenor, A.S.F. Commission on Cave  
Tourism & Management

Reply: Ken Lance (President, A.S.F.)

Afternoon Tea: 3.00 p.m.

MANAGEMENT SESSION: 3.30 p.m. - Chairman: Ken Lance

Kevin Kiernan  
Wilderness Karst in Tasmanian Resource Politics

Elery Hamilton-Smith  
Caves as a Responsibility

Rauleigh Webb  
Drovers Cave, W.A. - Cave Destruction through Management

Henry Shannon  
Kubla Khan Cave, Mole Creek - An attainable goal for  
visitor proofing and restoration work.

Andy Spate  
Ramblings of a Cave Manager

TUESDAY, JANUARY 4

GEOMORPHOLOGY SESSION: 9.00 a.m. - Chairman: G. Pilkington

John Webb  
Caves behind Waterfalls

Guy McKanna  
Speleography of Mammoth Cave

Andy Spate  
Red Sands of the Nullarbor

VISUAL SESSION: 10.45 a.m. - Chairman: Kevin Mott

Graham Pilkington  
The Brain prefers Three Dimensions

Athol Jackson  
Audio visual - Cave Tour

SURVEYING SESSION: 1.30 p.m. - Chairman: Rauleigh Webb

Norm Poulter  
The Nullarbor - Where is it.

Kevin Mott  
Surveying in Victoria Fossil Cave

John Bonwick  
Photo tagging - the process and its application

AFTERNOON TEA:

Terry O'Leary  
An Australian Cave & Karst Data Base

Norm Poulter  
Light Emitting Diodes - A use for them in Caves

ARCHAEOLOGICAL SESSION: 4.00 p.m. - Chairman: Nick White

Kevin Kiernan  
Prehistoric Man and Karst in Southwest Tasmania

Stephen Harris  
New Caves from the Franklin River

THURSDAY, JANUARY 6

DIVING AND EXPEDITION SESSION: 9.00 a.m. Chairman: Ian Lewis

Peter Stace  
Cave Diving. Exploration and Mapping.

Peter Horne  
The Underwater Environments and Life Forms in the  
Sinkholes of the Lower South East of S.A.

Peter Rogers  
A New Record in Cocklebidy, The World's Longest  
Cave Dive.

MORNING TEA:

Ron Allum  
Cocklebidy. The Future.

John Dunkley  
Karst and Caves of Thailand. A Reconnaissance Report.

Rauleigh Webb  
Muller 82 - The Australian Expedition to the Muller  
Range P.N.G.

WORKSHOP SESSIONS:

1.30 p.m. - Management - Chairman: Andy Spate  
Lindsay Jolley  
Management at Naracoorte Caves

2.45 p.m. -Diving

4.00 p.m. - Workshop

## WILDERNESS KARST IN TASMANIAN RESOURCE POLITICS

Kevin Kiernan - Tasmanian Wilderness Society

Until the early 1970s karst resources were largely unrecognised in decisions regarding land-use in Tasmania. Over the past decade growing concern for the protection of the wilderness landscape of the island's south-west has stimulated the growth both of community based environmental interest groups and of protective agencies within the administrative machinery of government. Both have attracted individuals with expertise in karst and a personal commitment to its proper management. Largely through their awareness and individual efforts caves and karst have been promoted as little-known but worthwhile components of the wilderness. The positive results of this have included a stimulus to our knowledge of karst, an increase in public awareness of karst and a strengthening of the case for the preservation of the wilderness area. On the negative side, there may be some potentially dysfunctional consequences attached to the politicising of karst, including the loss of any "first strike" advantage which might otherwise have been available to karst advocates dealing with areas where it is a primary rather than subsidiary resource; and also the development in some sectors of the community of an "anti-cave" ethos which might otherwise not yet have arisen.

## CAVES AS A RESPONSIBILITY

Elery Hamilton-Smith - V.S.A. & C.E.G.S.A.

Convenor A.S.F. Commission on Cave Tourism & Management

Caves are now widely recognised as an important element within the National and World Heritage. More importantly, they are one of the least replaceable of all elements.

It will be argued that the responsibility of governments for the protection and management of caves must extend beyond the boundaries of parks and reserves. Care must be taken not to trivialise this responsibility by shoddy, inept or in-appropriate tourism or park management.

Others, including landowners, cavers and other visitors, can best be regarded as having responsibility which arises out of their degree of knowledge. Those with knowledge should stop moralising about the less informed and should act themselves, or seek government action when necessary, even where this may mean refraining from visiting specific caves.



## DROVERS CAVE, W.A. - CAVE DESTRUCTION THROUGH MANAGEMENT

Rauleigh Webb - W.A.S.G.

The factors leading to the gross vandalism of Drovers Cave are examined. Several management strategies are proposed which may have avoided or reduced this vandalism.

The managerial decisions which probably contributed to the vandalism of Drovers Cave are discussed with respect to other caves which may be befalling a similar fate.

## KUBLA KHAN CAVE, MOLE CREEK:

### AN ATTAINABLE GOAL FOR VISITOR PROOFING AND RESTORATION WORK

Henry Shannon - U.Q.S.S.

The main damage in Kubla Khan Cave is in the tracking of mud over originally clean flowstone in the upper levels. The source of the mud is mainly in some short sections of mud floored cave linking longer sections with continuous travertine floor. It is proposed to construct an elevated track over the natural mud areas, to be made of a non corrosive steel mesh which is obtainable locally. Once the mud source is isolated, volunteers with scrubbing brushes can work on the damaged areas with reason to hope for a permanent improvement in the cave as reward for the effort involved.

The inadequacy of gating and access restriction as an approach to protecting the cave is discussed in terms of the cave's past history, and some criticism is made of the philosophy behind this approach.

## CAVES BEHIND WATERFALLS - TWO EXAMPLES FROM EASTERN AUSTRALIA

John Webb - Department of Geology, University of Melbourne

Caves behind waterfalls often figure as hiding places in novels, particularly children's books, but are almost never mentioned in the speleological literature, presumably because they are usually little more than overhangs. Nevertheless, in eastern Australia there are at least two significant caves that have formed behind waterfalls. The first, Den of Nargun, is in East Gippsland, Victoria. It is a large overhang 10 m deep, 25 m wide and up to 3 m high at the entrance; there is no real dark zone. The roof is a flat-lying bed of resistant sandstone, and the cave has formed by erosion of the underlying crumbly red mudstone.

A large stalagmitic mass once partially blocked the entrance, but has recently fallen over. Active erosion of the cave is at present restricted to times of flood, because only then does water reach the back of the cave.

The second cave, Natural Bridge, is located in southeast Queensland, and consists of a single chamber 46 m long, 26 m wide and 6 m high, with a waterfall cascading through a hole in the roof. It has formed by erosion of a soft, brecciated basalt flow under a harder, more resistant flow. The history of this cave has been complex, involving initial erosion of a small cave behind a waterfall, abandonment of this when the stream migrated, reactivation when the stream broke through the roof, and partial infill by a mudflow, now being eroded. The exceptional size of this cave is the result of two periods of waterfall erosion.

### THE BRAIN PREFERS THREE DIMENSIONS

Graham Pilkington - C.E.G.S.A.

A resume of methods that can be used to depict three dimensional cave data on two dimensional media. Emphasis is placed on those techniques not requiring special aids, those that are suitable for use by active cavers and those that are good for public display.

### THE NULLARBOR, WHERE IS IT?

N Poulter - S.R.G.W.A.

Apart from being the world's largest expanse of limestone, the Nullarbor Plain is one of Australia's remote caving areas.

Remote yes, but no longer difficult to reach. With today's "affluent cavers", modern vehicles and sealed highways, the Nullarbor is within easy reach of most capital cities.

The caves of the Nullarbor are however, no easier to find. Despite advances in mapping and navigation technologies, ground parties still experience difficulty in knowing where they are in relation to caves, maps - and themselves.

This paper outlines a still un-resolved difficulty in plotting the location of Thampanna Cave (N206) and its historical namesake, Thampanna Rockhole.

SURVEYING IN VICTORIA FOSSIL CAVE

Kevin Mott - C.E.G.S.A.

Surveying in tourist caves poses particular problems with the effects of hand rails and electric lighting.

A survey was undertaken using a Tracon S25 surveying compass in the Victoria Fossil show cave. The problems of the survey and comparison of results between a magnetic survey and theodolite survey are made.

PHOTO TAGGING - THE PROCESS AND ITS APPLICATION

John Bonwick - S.S.S.

The process involves photographing cave entrances. Appropriate information is recorded on the negative by the use of a placard. It is designed to supplement and in some cases supplant the tagging system.

AN AUSTRALIAN CAVE & KARST DATA BASE

Terry O'Leary - N.S.W.IT.S.S.

Randall King - S.S.S.

Technology has proceeded to change the way we think and the way computers work. In the past 10 years computers have become more complex yet much easier to use, and of course they have become much cheaper.

Software developments have not kept pace with hardware developments. Software however has become much more user friendly. Now software may form the main cost of any computer project, where once hardware was the major cost.

Recent developments in software are aimed at reducing the cost of this software component of any project.

The scope of this paper is to examine how some of these recent changes in software and hardware would affect a cave and karst data base.

LIGHT EMITTING DIODES - A USE FOR THEM IN CAVES

N. POULTER - S.R.G.W.A.

Light Emitting Diodes (LED's) are bright, virtually indestructable point sources of light with low power consumption.

They have a use as temporary or emergency track markers and have made ideal survey markers.

This paper attempts to demonstrate their usefulness.

PREHISTORIC MAN AND KARST IN SOUTH-WEST TASMANIA

Kevin Kiernan - Department of Geography,  
University of Tasmania

Don Ranson - National Parks & Wildlife Service,  
Hobart, Tasmania

Rhys Jones - Department of Prehistory,  
Research School of Pacific Studies,  
Australian National University

Recent archaeological discoveries in karst areas have disproven previous theories that the inland of south-western Tasmania was not occupied by the original inhabitants of the island. Most of the sites reflect occupation during the cold climatic conditions of the late Pleistocene when the present heavy rainforest vegetation was restricted to specific refugia and a more open landscape permitted easier movement of man and game through the area. Preliminary excavations in Fraser Cave have vastly advanced knowledge of the Tasmanian stone tool technology, which appears to be derived from the pre-Holocene industries of Greater Australia. The faunal remains indicate specific targetting after a style reminiscent of that of the glacial age hunters of northern Europe. As a number of factors are likely to have attracted prehistoric man to the karst areas, and as a result of the drowning of coastal sites by post-glacial sea-level rise, the inland karsts have assumed a particular importance to the study of the Earth's most southerly ice-age inhabitants. However the karst is largely confined to the valley bottoms which puts it at a specific disadvantage if hydro-electric dams are constructed in the region.

NEW CAVES FROM THE FRANKLIN RIVER

Stephen Harris - Tasmanian National Parks & Wildlife Service

Maps of six new caves discovered on the Franklin River during March 1982 are presented. These include the now longest known cave in the Franklin River area - Biglandulosum Cave with a surveyed length so far of 366 metres. This cave has passages yet to be explored and surveyed. Two caves discovered and explored by the Sydney Speleological Society Expedition in January 1977 have been resurveyed and both these contiguous caves have been named (Eucryphia Cave).

Five of the caves contain archaeological relics. All caves have been named for plants which are typical of the Southwest Tasmania riverine rainforest.

CAVE DIVING EXPLORATION AND MAPPING

Peter Stace - C.E.G.S.A. & C.D.A.A.

In the last 30 years in Australia cave diving has flourished with sinkhole diving in the Mount Gambier area, now safely controlled and highly advanced cave diving being successfully undertaken in a variety of other areas. During these years many thousands of sinkhole dives have been conducted, hundreds of sumps negotiated, tunnels penetrated and considerable 'dry' cave discovered by divers. However even now many of the regularly dived caves have not yet been mapped beyond sketch level with some no more than vague recollections in the water logged memory of old time divers. The reason for this is not that cave divers are bone lazy but the technical difficulty in conducting underwater surveys.

This discussion will outline the basic techniques and equipment of cave diving and underwater surveying and will include a brief history of Australian cave diving and examples of detailed exploration and mapping, that has been conducted.

THE UNDERWATER ENVIRONMENTS AND LIFE FORMS IN THE SINKHOLES  
OF THE LOWER SOUTH EAST OF SOUTH AUSTRALIA

Peter Horne - C.E.G.S.A. & C.D.A.A.

This paper presents the early findings of preliminary research into the waterfilled caves and sinkholes in the Mount Gambier region of South Australia.

Until recently, very little research had been undertaken regarding underwater life-forms in the caves, although some of the popular streams and ponds have been thoroughly studied by qualified people in recent years.

Initially spurred more by curiosity than a feeling of obligation to Science, the author, assisted by his cave-diving companions, took it upon himself to observe and attempt to document the sinkhole environments and creatures so that at least some basic information existed which could interest experts in the right scientific circles.

A three-monthly study of water temperature profiles in four selected sinkholes brought out some interesting and, for the cave-diving community, potentially useful facts, and discoveries of relatively rare creatures of significant scientific value were made during the first year of research.

The work is now being undertaken in conjunction with qualified members of the scientific community and it is hoped that the findings presented here will be of interest to all conservation-minded cave-divers and researchers involved in speleological studies.

A NEW RECORD IN COCKLEBIDDY, THE WORLDS LONGEST CAVE DIVE

Peter Rogers - C.E.G.S.A. & C.D.A.A.

(Ron Allum, Hugh Morrison)

On Wednesday September 8, 1982 three push divers, part of a trip organised by Hugh Morrison from Perth, extended Cocklebidy Cave in Western Australia by one kilometre, increasing its total explored length to 4.5 kilometres. The major push dive involved each diver wearing three back mounted scuba tanks and pushing between them an underwater sled comprised of another 15 tanks. Prior to the push dive an advanced base was established at "the rockpile", an air chamber approximately one kilometre of waterfilled passageway from the entrance lake. All equipment used on the push dive had to be carted from the surface to the entrance lake, some 90 metres below, assembled, carried by divers to the rockpile, taken apart, carried over the rockpile (a 20 metre high, 60 metre long pile of very loose rocks!), and re-assembled in the lake on the far side of the rockpile again.

From this point the push divers followed the guideline left by previous expeditions for 2 kilometres, before breaking new ground. Another 550 metres of submerged passage was explored before a lake leading to a new air chamber approximately 500 metres long was discovered. The new air chamber was christened Toad Hall before the divers commenced the return leg of a trip that took a total of 16 hours and in which each diver swam over 7 kilometres and breathed 21 kg of compressed air!

#### COCKLEBIDDY. THE FUTURE.

Ron Allum - C.E.G.S.A. & C.D.A.A.

(Peter Rogers, Hugh Morrison)

With no end to the cave system in sight, further plans are being made to continue cave diving exploration in Cocklebidy. Air carrying capacity is the major limiting factor in this type of cave diving, and this is directly affected by air consumption rates, which in turn can be influenced by many factors including mental and physical stress. Thus a limit may well be reached where attempting to carry more air by conventional SCUBA techniques will increase air consumption to such an extent that little extra ground will be covered. The future may well then see rebreathing apparatus using electronic oxygen/inert gas monitoring systems; however cost and availability are currently prohibitive. The next push dive planned for Cocklebidy will see an increase in the number of scuba tanks and equipment carried, this will be achieved using 3 one-man underwater sleds rather than one large one. Also, communications equipment is being designed to allow contact between the parties in the rockpile chamber and Toad Hall, and the surface. Such a communications system allows for a more flexible exploration plan with the likelihood of an overnight camp at Toad Hall, to combat physical fatigue and allow time for the decompression of nitrogen from the divers bodies, now a distinct probability.

#### KARST AND CAVES OF THAILAND - A RECONNAISSANCE REPORT

John R. Dunkley - C.S.S.

Carbonate bedrock occurs over approximately 20% of Thailand, primarily as Permo-Carboniferous Rat Buri Limestone and Ordovician Thung Song Limestone. Throughout the country these rocks have been moderately to strongly folded and in places faulted. The limestone regions tend to be exposed as long narrow isolated belts following the lineation of mountain chains, trending from NNE/SSE to ENE/SSW. Local relief is commonly 300-400m in the south, to as much as 1,700m at Chiang Dao in the far north.

Karst topography is widely distributed. Tropical karst towers predominate in the south, where aligned belts and ridges extend discontinuously for over 600 km, entering the sea in spectacular ranks at Phangnga Bay, near Phuket. In the far north, altitude modifies climate and there are significant areas of a more temperate doline karst with extensive underground drainage and dolines up to 400 m deep.

Caves are widespread and a preliminary field reconnaissance turned up 200. The longest may be Chiang Dao Cave, north of Chiang Mai, a tourist cave said to extend 10 to 14 km, opening at the foot of a massive limestone mountain rising a further 1,700 m above the entrance. Good scope exists for vertical caves of the order of 500-1000 m in this region, as many dolines are marked on a high plateau.

Distribution of known caves correlates with settlement patterns and many have been discovered only in the last 20 years or so. Much of Thailand is still very thinly inhabited but access is much easier in recent years. The scope for exploration is enormous.

#### MULLER 82 - THE AUSTRALASIAN EXPEDITION TO THE MULLER RANGE, P.N.G.

Rauleigh Webb - W.A.S.G.

An examination of the results of two months of intensive cave exploration by the fifty-nine participants of the Muller 82 expedition to the karst of the Muller Range, Papua New Guinea.

Several specific aspects of expedition cave surveying and photography are considered in some detail.