CAVE CONVICT 1980

ABSTRACTS

A B S T R A C T S

and

D E T A I L E D P R O G R A M

for

C A V E C O N V I C T

13TH BIENNIAL CONFERENCE

AUSTRALIAN SPELEOLOGICAL FEDERATION

MELBOURNE DECEMBER 1980

TIMETABLE and PROGRAM

SATURDAY 27TH	SUNDAY 28TH	MONDAY 29TH	TUESDAY 30TH	WEDNESDAY 31ST
ASF Committee Meeting. Part 1. 9.00 am - 12.00 noon International House	9.00 am - 12.15 pm Victorian Karst Seminar Chairmen: L. Mill & S. White	9.00 Geomorphology Chairman: P. Mackey	9.00 Area Descriptions Chairman: M. Pierce	ASF Committee Meeting Part 2. Labertouche Trip leaves 9.00 am
		10.45 Conservation Chairman: B. Leslie	10.00 Symposium - What is happening to Caving? Chairman: N. White	
12.30 LUNCH	12.30 LUNCH	12.30 LUNCH	12.30 LUNCH	
2.00 pm - Opening - Keynote Speaker - N. J. White Chairman: P. Mackey 3.45 pm Afternoon tea	1.30 pm Geomorphology Chairman: K. Grimes	SPELEO SPORTS	1.30 pm Equipment Symposium Chairman: P. Toomer	ASF Committee Meeting Part 2
4.00 pm - Papers Chairman: K. Lance	4.00 pm Specialist Workshops 1. Photography 2. Data Management	PRINCES PARK	4.00 pm Specialist Workshops 1. Conservation 2. Cave Documentation 3. S & R & Safety	
	6.30 pm DINNER	6.30 pm DINNER	6.30 pm PREDINNER DRINKS 7.00 pm CAVEMAN'S DINNER	
7.00 pm B.B.Q. Royal Park	Photographic Competition Films	Informal / Films Parwan Lava Cave		

PROGRAM

SATURDAY, 27TH DECEMBER

OPENING SESSION:	2.00 p.m.
Introduction:	Phil Mackey (Cave Convict Chairman)
Official Opening:	The Hon. Evan Walker (Deputy Opposition Leader in the Legislative Council, Shadow Minister for Conservation)
Keynote Address:	Nicholas J. White (past President A.S.F.) Conservation & Management of Victoria's Cave Resources: A Blueprint for the Future.
Reply:	Ken Lance (President, A.S.F.)
Afternoon Tea:	3.45 p.m.
SESSION:	4.00 p.m. - Chairman: Ken Lance

E. Hamilton-Smith
Australian Caves Since 1800.

D. S. Gillieson and M. J. Mountain
Geomorphology and past environments at Nombe Cave, Simbu Province, Papua New Guinea.

SUNDAY, 28TH DECEMBER

VICTORIAN KARST SEMINAR: 9.00 a.m. Jointly chaired. L. Mill, S. White

L. Mill
Victorian Karst Areas - an Overview

L. Mill, D. Smith, J. Enger
Cape Schanck Sea Caves

L. Mill
Buchan Caves Reserve - an introduction

B. Leslie
Limestone Creek/Jackson's Crossing

B. Finlayson
Granite Caves of Victoria

E. Hamilton-Smith
Volcanic Province of Western Victoria

S. White
Limestones of Western Victoria

M. Russell and B. Franz
Formation of Rimstone Co-operative and the Operation of Homeleigh as a Base for Caving at Buchan

GEOMORPHOLOGY SESSION 1.30 p.m. Chairman: Ken Grimes

A. P. Spate and J. K. Ward
Water Quality in deep caves of the Nullarbor Plain, Australia

Susan White and A. P. Spate
Caves on Mundrabilla Station, Nullarbor Plain, Australia

D. S. Gillieson
Scanning electron microscope studies of cave sediments

J. N. Jennings, Bao Haosheng and A. P. Spate
Blind Valleys at Yarrangobilly, New South Wales

WORKSHOPS 4.00 p.m.

1. Photography: Chairman: Phil Mackey

2. Data Management in Large On-Going Cave Surveys:
Chairman: P. Matthews

G. Pilkington
Distributed Processing for Karst

MONDAY, 29TH DECEMBER

GEOMORPHOLOGY SESSION: 9.00 a.m. Chairman: P. Mackey

Guy Cox
Spider Cave, Jenolan - A Fault-controlled System

E. B. Joyce
Lava Channels and Lava Caves

P. G. Matthews, A. P. Spate and E. Hamilton-Smith
Scratched Markings in Tantanoola Cave (L-12), South Australia

G. Taylor
South-West Tasmania with special reference to Cave Areas

MORNING TEA: 10.30 a.m. Chairman: B. Leslie

E. Hamilton-Smith
The "Commons Theory" and its relation to Caving

N. Rosengren and M. Williams
The Assessment of Sites of Environmental Significance with particular reference to Karst

J. Dunkley
Sociological and Technological Changes and their Relationships to Caves and Cave Resources

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TUESDAY, 30TH DECEMBER

AREA DESCRIPTIONS: 9.00 a.m. Chairman: M. Pierce

M. Moyland and N. Gibson
Limestone of Mitchell-Palmer Region, North Queensland

H. Shannon
Karst and Problematical Features in the Northern Territory

SYMPOSIUM: 10.00 a.m. Chairman: Nicholas White

What is happening in and to caves?

What should the ASF do about it?

Contributors: Nicholas White, E. Hamilton-Smith, A. Pavey, J. Dunkley and others...

Participants: Everyone.

SYMPOSIUM: 1.30 p.m. Chairman: Phil Toomer

New Equipment and Techniques

F. Hendricks
Packaged Nutrition

J. Webb
Strength and Energy Absorption of some Ropes and Knots Used in Caving

T. Porritt
Modifications to the Gibbs Ascender

WORKSHOPS: 4.00 p.m.

Cave Documentation: Data Gathering and Data Presentation
Chairman: Peter Matthews

Conservation, Hot Spots and Tactics
Chairman: Nicholas White

S & R & Safety
Chairman: Gray Wilson

SPIDER CAVE, JENOLAN - A FAULT-CONTROLLED SYSTEM

Guy Cox

Spider Cave is an influent cave, representing one point in the progressive capture of the surface flow of the Jenolan River by a cave system. It consists principally of a rarely-active inlet passage, largely of phreatic form, which descends to join the large streamway carrying the Jenolan Underground River. Both the position and form of the inlet passage have been strongly influenced by a fault, which has also deflected the course of the surface river and formed a large cliff - Frenchmans Bluff. Faulting has also affected the form of the main underground river passage.

SOCIOLOGICAL AND TECHNOLOGICAL CHANGES AND THEIR RELATIONSHIP TO CAVES AND CAVE RESOURCES

J. Dunkley

A discussion.

UNDERGROUND STREAMS ON ACID IGNEOUS ROCKS IN VICTORIA

Brian Finlayson

Underground streams occur on rocks of granitic composition over a wide area of eastern Victoria. All the underground streams follow the alignment of the original surface stream and in many cases flood runoff uses the surface channel as well. There is very little published literature dealing with caves of this type.

The largest and best known of these features is Labertouche Cave. The underground stream is 175 m long and is 46 m below the present ground surface at its deepest. The stream sinks in a blind valley and the col which terminates the blind valley is now covered with soil and a mature Eucalypt forest. The underground streams at Labertouche, Brittania Creek and Mt. Buffalo have accessible cave passage associated with them. There are many other underground streams with no known accessible caves.

The method of formation of these features is not known and a number of possible mechanisms are discussed. They are:-

1. A surface stream erodes weathered material from between corestones to the point where it is substantially covered by the corestones. Vegetation assists in trapping colluvial material on the corestones, eventually developing a soil on which the local forest eventually becomes established.

2. Subsurface seepage through weathered material produces subsurface pipes which enlarge to accommodate all the stream flow leaving an abandoned stream bed on the surface in which colluvium accumulates.

3. Rapid mass failure on the valley side slopes deposits corestones and weathered material in the stream bed. The stream transports the fines from between the corestones developing a subsurface passage.

The first two of these mechanisms may be assisted by biotite induced grussification. Irrespective of the mode of origin the final results will probably all look similar.

The caves produced in this way are quite robust and relatively unaffected by visitor pressure. As such they are useful for satisfying the curiosity of those who wish to go underground without being particularly interested in speleology.

GEOMORPHOLOGY AND PAST ENVIRONMENTS AT NOMBE CAVE, SIMBU PROVINCE, PAPUA NEW GUINEA

David S. Gillieson and Mary-Jane Mountain

Nombe is a large rockshelter located at an altitude of 1660 m on the flanks of Mt. Elimbari, a limestone peak in the Chimbu region. The shelter has formed at a karst spring which drains a steep cavernous strike ridge. Following infilling by water transported sediments, a deep deposit of anthropogenic sediments has accumulated. Excavation of these sediments by the authors has resulted in a large faunal and lithic assemblage indicating continuous occupation since the late Pleistocene. The lowest levels contain remains of extinct marsupials such as Protemnodon and Thylacinus, as well as stone tools comparable with assemblages from elsewhere in the Sahulian region. Upper levels are rich in arboreal mammals and reflect a forest based economy. The stratigraphy encompasses the phase of introduction of horticulture into the Highlands, and detailed studies of sedimentation are expected to yield information on past man - land relationships in the area.

SCANNING ELECTRON MICROSCOPE STUDIES OF CAVE SEDIMENTS

David S. Gillieson

The surface texture of quartz sand grains in cave sediments has been studied to provide information on the transportational and weathering processes affecting the sediments. Certain combinations of surface features have been found to characterise the action of a range of processes, from glacial and aqueous transport to chemical weathering. A methodological review is followed by specific examples from Australasian and European caves.

CAVES AS COMMONS

Elery Hamilton-Smith

In 1968, Garrett Hardin published his "Tragedy of the Commons". This important paper generated considerable discussion and led to a set of ideas which can be termed "commons theory".

The present paper examines the applicability of these ideas to the problems of cave protection. It assesses the various solutions which are proposed, and argues that these will prove futile in the long run unless there is a major shift in the attitudes of cavers.

AUSTRALIAN CAVES SINCE 1800

Elery Hamilton-Smith

Previous attention to speleological history in Australia has tended to deal only with the story behind specific caves or cave areas.

This paper draws attention to the value of an overview analysis. It is shown that while no caves were known to white Australians in 1800, we had established by 1900 a sense of both investigation and responsibility for caves as a public asset which led the world in many ways. This waned rapidly in the early years of the twentieth century to a point of almost complete disinterest. While there has been a renaissance in some aspects since the mid-century point, the acceptance of caves as a resource which warrants a high level of public responsibility is still far less than at the turn of the century.

VOLCANIC PROVINCE OF WESTERN VICTORIA

Elery Hamilton-Smith

A discussion of the main lava cave areas of the Western Victorian Volcanic Province. The caves are all found in the Pliocene-Recent Newer Basalts and exhibit a variety of forms and features.

PACKAGED NUTRITION

F. Hendricks

Food technology in recent years has developed a wide range of freeze-dried and dehydrated foods. The qualities of these in relation to bodily requirements are discussed. Additional things are recommended to give an adequate and balanced diet for those people contemplating extended trips using these foods as a basis.

BLIND VALLEYS AT YARRANGOBILLY, NEW SOUTH WALES

J. N. Jennings, Bao Haosheng and A. P. Spate

The seventeen blind valleys of Yarrangobilly range widely in size. In some the streamsink has shifted position and successive phases of incision are sometimes identifiable. The river basins truncated by underground capture have normal fluvial morphometrics above the streamsinks. Whether a stream sinks into the limestone or not is closely related to the ratio of the length of limestone to be crossed to the whole length of the stream or basin, the greater this ratio the greater the chance of capture. Basin relief ratio interferes in some cases, very steep catchments failing to sink.

Although the size of blind valleys might be expected to be related to discharge into them and so to the size of the catchments above, measurements at Yarrangobilly show that here this is true to a limited extent only. This is because the timing of underground capture is irregular in relation to the development of the river basin and size depends on the age of the blind valley as well as discharge into it.

LAVA CHANNELS AND LAVA CAVES

E, B. Joyce

Features of lava channels including recent examples from Iceland, Etna and Hawaii are discussed in relation to the lava caves and channels of Western Victoria.

LIMESTONE CAVE AND JACKSON'S CROSSING

B. Leslie

A description and discussion of these areas.

SCRATCHED MARKINGS IN TANTANOOLA CAVE (L12), SOUTH AUSTRALIA

Peter B. Matthews, Andrew P. Spate and Elery Hamilton-Smith

Recently discovered markings on the walls of Tantanoola Cave are described and alternative hypotheses which might explain their origin are discussed. An archeological assessment is awaited at this stage, but an Aboriginal origin seems plausible. If this is so, the present occurrence offers better opportunities for dating than other Australian examples of scratched markings already attributed to Aboriginals.

VICTORIAN KARST AREAS

L. Mill

The Karst Areas of Victoria are divided up into four groups on the basis of host rock. These groups are:

(i) Paleozoic Limestone

(ii) Cenozoic Limestone

(iii) Tertiary Basalts

(iv) Miscellaneous - mainly sea-caves and granite caves.

The various areas and typical caves are described.

BUCHAN CAVES RESERVE - AN INTRODUCTION

L. Mill

The Buchan Caves Reserve and some surrounding farms are situated on a discrete block of limestone to the west of the town of Buchan in East Gippsland, Victoria. Various geographical, geological, hydrological and historical aspects of the area and its caves are discussed. The caves are described and grouped in terms of their development and structural control. Current research in the area is summarised.

CAPE SCHANCK SEA CAVES

L. Mill, D. Smith and J. Enger

Cape Schanck is the southernmost tip of the Mornington Peninsula, some 100 km south of Melbourne. The caves have been formed by the mechanical action of the sea, on the Tertiary Basalt which is overlain by Quaternary Dune Limestone. Angel Cave is notable for its profuse calcite decoration and constant "rain" from the roof. The other caves are described in terms of three groups based on height of cave floor above the shore platform.

LIMESTONE OF THE MITCHELL-PALMER REGION, NORTH QUEENSLAND

M. Moylan and N. Gibson

MODIFICATION TO THE GIBBS ASCENDER

Tom Porritt

From the selection of mechanical prusiking devices available, the Gibbs ascender is about the cheapest and strongest, but also awkward and difficult to use.

The failure of the Gibbs to grip the rope at the top of each step has often been a problem. A small variation of the angle of the Gibbs cam relative to its shell can cause the ascender to grip the rope as desired, or slip.

Described and illustrated are a few methods of controlling the Gibbs to give smooth operation without slipping, and some other methods such as the "Gibbs flick". Part of the discussion is a non-mathematical analysis of the forces on the Gibbs in each case.

A collection of Gibbs modifications to improve the handling or to suit specific applications are presented, a number of the modifications are from the published work of various authors.

THE ASSESSMENT OF SITES OF ENVIRONMENTAL SIGNIFICANCE WITH PARTICULAR REFERENCE TO KARST

N. Rosengren and M. Williams

This paper discusses a program funded by the Victorian Ministry of Conservation to select sites of environmental significance which included a study of limestone areas in East Gippsland. Summaries of the morphology of karst features were presented with recommendations for research and management of the most sensitive areas.

FORMATION OF RIMSTONE CO-OPERATIVE, AND THE OPERATION OF HOMELEIGH AS A BASE FOR CAVING AT BUCHAN

Monty Russell and Brian Franz

In 1974 a group of mainly VSA people formed Rimstone Co-operative, with the objective of establishing a permanent base for caving at Buchan.

After considering various vague proposals, Rimstone decided to buy the old Homeleigh Guest House, which would provide plenty of accommodation, although it was not ideal in all respects.

Funds were raised by issuing shares and fully calling up the capital, and by charging minimal accommodation fees. The property was paid off on vendor terms over five years.

Rimstone has coped with the inevitable problems of management, maintenance, finance and conflict, to the extent that it now owns the property, is providing a permanent base for caving at Buchan, is a respected member of the local community, and can now consider a variety of possible projects or directions for the future.

KARST AND PROBLEMATICAL FEATURES IN THE NORTHERN TERRITORY

H. Shannon

A discussion and description of various karst and pseudo-karst features in the Northern Territory.

WATER QUALITY IN DEEP CAVES OF THE NULLARBOR PLAIN, AUSTRALIA

A. P. Spate and J. K. Ward

The analyses of a series of water samples are presented. The samples were collected from lakes in all the deep caves of the Nullarbor and in most caves samples were taken at depth as well as at the water surface. A review of literature is also presented and a discussion of both past and present results is undertaken.

SOUTH-WEST TASMANIA WITH SPECIAL REFERENCE TO TWO CAVE AREAS

Gordon Taylor

Tasmania is the mecca of Australian sporting cavers. Most know of the caves of the Junee-Florentine, Mole Creek and Exit Cave. However, many other limestone areas are present in Tasmania, many of them remote in the South-West wilderness, remaining virtually unexplored.

Two such areas are Exit Hill and The Cracroft. Located south of Hobart, Exit Hill has the large Exit Cave system developed through it. Up above numerous shafts penetrate the hill. Only one of these, Mini-Martin, had been explored prior to 1980. Mini-Martin, a vertical shaft, with 360', 135' and 80' pitchs being once descended in 1967. It was not until 1980 that the region was revisited. On that occasion numerous entrances were located and tagged, and Mini-Martin descended using S.R.T. Another cave, Big Tree Pot was descended to a depth of about 300'. The potential in the area is good. Many deep, vertical caves penetrating to Exit Cave below presumably remain undiscovered. The recutting of the access track makes possible a day trip to Mini-Martin, one of Australia's premier SRT caves.

In contrast to the depth of Exit Hill, the Cracroft is dominated by horizontal systems. Located on the South Cracroft River, the longest cave in the region is Judd's Cavern (C1) with 1721 m of passage, being first entered in 1881. It was subsequently relocated in the early 1970's. An expedition in 1980 relocated and surveyed unsurveyed caves, as well as discovering several large new caves. The total surveyed length of one cave, Icebox is 767 m. The potential for new cave finds is great; it's simply a matter of looking.

South-West Tasmania is a gem to the speleologist, providing an enormous potential for new cave discoveries, as well as providing a true wilderness caving experience.

STRENGTH AND ENERGY ABSORPTION OF SOME ROPES AND KNOTS USED IN CAVING

John Webb

Used Bluewater II rope was found to have only 75% of the strength of new rope, but the energy absorption had decreased to a lesser extent, because older Bluewater II was stretching more than unused rope. The overall energy absorption of Bluewater is poor compared to dynamic ropes, and so it is not recommended for use as a belay rope.

The double fisherman's knot is 5-10% stronger than the figure 8 knot for joining 11-12 mm ropes, and is slightly stronger ($<$ 5%) than the tape knot for joining tapes. As end loops in 11-12 mm rope, the bowline and figure 8 have much the same strength, and the alpine butterfly is slightly stronger ($<$ 5%). For loops in the centre of the rope, the alpine butterfly is preferable to the figure 8, as it reduces the strength of the rope less.

As expected, knicks significantly reduce the strength of tape. The breaking strain of 2" tape is reduced by 40% by a cut 1/8 the width of the tape, and by 60% by a knick 1/4 the width of the tape.

Tests of tape loops showed that maximum weakness occurs at the point of greatest curvature, usually where the loop passes through a karbiner. Thus tape loops are normally only slightly stronger than the tape of which they are made.

CAVES ON MUNDRABILLA STATION, NULLARBOR PLAIN, AUSTRALIA - ARE THEY DIFFERENT?

Susan White and A. P. Spate

This paper discusses the distinctive caves of Mundrabilla Station in relation to classifications of Nullarbor caves erected by previous authors. These caves are of intermediate depth, contain abundant, but largely inactive, calcite spelecthems and have an aura of antiquity. They contrast strongly with both the deep and blowhile groups of caves and have a variety of entrance types. An hypothesis is presented in an attempt to account for these differences. A conjectural relationship to the deep caves is also discussed.

LIMESTONES OF WESTERN VICTORIA

Susan White

The Tertiary and Quaternary Limestones of Western Victoria contain only a limited number of caves compared to the area of limestone. Caves have been compared to the area of limestone. Caves have been found in the Tertiary limestones at Timboon, Warrnambool, Portland and Glenelg as well as along the coast. The Tertiary limestone coastal scenery east of Warrnambool is particularly spectacular. Quaternary limestones also show interesting karst development. Caves are found in the Bridgewater Formation at Codrington, Bat Ridges and Cave Ridge. All of Western Victoria has more potential for caves.

WHAT IS HAPPENING IN AND TO CAVING?

WHAT SHOULD THE ASF DO ABOUT IT?

SYMPOSIUM - Chairman: Nicholas White

There have been a number of technological changes which affect our ability to go caving e.g. jobs and petrol prices. Many caves have restricted access. Is this fair? Can ASF members expect to have exclusive access to them? Is the ASF an effective lobby group? Have we lost touch because of an inability to communicate? Do you care?

Chairman: Nicholas White
Contributors: various - Elery Hamilton-Smith, John Dunkley, Andrew Pavey etc., for very short times.

Then a break into discussion groups followed by a PLENARY SESSION with reports from group leaders and discussion.

CONSERVATION AND MANAGEMENT OF VICTORIA'S CAVE RESOURCES:

A BLUEPRINT FOR THE FUTURE

Nicholas White

This paper is an attempt to put in perspective the existing knowledge of Victoria's cave resources; to discuss the particular values and attributes of the caves and landscapes associated with them; to discuss the regional, state, national and international values attached to this resource; to examine the existing legislative framework under which various of these caves and cave areas are reserved and managed at present; to delineate the shortcomings of the available legislative mechanisms and to examine ways in which new legislation might be employed to afford better protection for this very limited resource.

SPECIALIST WORKSHOPS

1. CAVE PHOTOGRAPHY

Chairman: Phil Mackey

Who should attend: those interested in cave photography.

Objectives: 1/ Close-up photographic methods (Poulter).

2/ Lighting methods with particular reference to the computerized flash underground.

2. CAVE DOCUMENTATION: DATA GATHERING & DATA PRESENTATION

Chairman: Peter Matthews

Who should attend: This session is especially directed to society record keepers and to users of cave information, but anyone who has an opinion or experience on this subject is encouraged to attend. And of course those who are just interested.

Objectives: 1/ To share experience on successful or unsuccessful methods of gathering, storing and retrieving cave information in a club situation, including the ASF aids to club record keeping.

2/ To discuss and suggest any improvements on the ASF method of gathering data for the national cave list.

3/ To suggest desirable methods of presenting cave information both on a club basis and for the national list.

3. CONSERVATION: HOT SPOTS & TACTICS

Chairman: Nicholas White

Who should attend: People who feel that the impetus has been taken away from cavers and is lost in the mire of state government instrumentalities and who feel powerless to do anything about it.

Objectives: 1/ Brainstorming to overcome the above problems.

2/ Exchanges of experiences.

3/ Identification of problems.

4. DATA MANAGEMENT IN LARGE ON-GOING CAVE SURVEYS

Chairman: Peter Matthews

Who should attend: People who are experienced with or interested in managing for optimum benefit, or just plain keeping track of, accumulating masses of survey data in a club situation. This workshop is concerned with the stage beyond the routine calculation of survey results.

Objectives: 1/ To share experiences in this area. Presentations will be invited.

2/ To set down some guidelines for success in this area.

5. S & R AND SAFETY

Chairman: Gray Wilson

Who should attend: Those with S & R interests, especially club officers amd S & R co-ordinators.

Objectives: 1/ Discussion of methodology and organisation.

2/ Problems of remote caving.