CAVE EXPLORATION GROUP SOUTH AUSTRALIA Inc.

P O Box 144 Rundle Mall, Adelaide 5000

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NEWSLETTER

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CAVE EXPLORATION GROUP SOUTH AUSTRALIA INCORPORATED

MEETING PLACE: 4th Wednesday of each month at 7:45 p.m. at the Royal Society meeting room, South Australian Museum.

OFFICE BEARERS 1991

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CEGSA NEWSLETTER VOLUME 36 No 1 1991

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DEADLINE for articles for Volume 36 Number 2 -
Wednesday 22nd MAY, 1991.

Opinions expressed in this newsletter are those of individual authors and not necessarily those of the Cave Exploration Group (Sth Aust.) Inc. nor its Committee.

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SPECIAL REMINDER **STOP PRESS**

27TH APRIL AT 1PM ONWARDS AT MARK SEFTONS
26 NORMAN ST,
ST MARYS

BE THERE FOR AN AFTERNOON OF FUN AND EXCITEMENT FOR THE WHOLE FAMILY. STARTS WITH A GOOD OLD FASHIONED BYO BARBY FOLLOWED BY THE USUAL TALL STORY TELLING AND CHIT CHAT FOLLOWED BY A GOOD OLD FASHIONED *CEGSA* AUCTION OF ANY USEFUL ITEM THAT MEMBERS MAY WANT TO DONATE (SORRY, NO UNWANTED WIVES, GIRLFRIENDS, HUSBANDS OR BOYFRIENDS ACCEPTED FOR AUCTION).

EVEN IF YOU CANT MAKE IT ON THE DAY BRING ANY ITEMS FOR AUCTION TO THE GENERAL MEETING ON 24TH APRIL.

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EDITORIAL

In these uncertain times that we live in it is reassuring that one thing remains certain, that is, change itself.

This was the case for the Group in 1990 with the Committee losing Darren Crawford due to study. Max Meth moving to Ceduna (any excuse to be close to the Nullarbor) and Kevin Mott moving to Mt Gambier (any excuse to be closer to both the Upper and Lower South East).

This left a number of holes in the Committee during the course of last year making the workings of the Committee a little more difficult than usual. This was offset with the election of Steve Milner to the Committee part way through the year.

This year has seen the election of a new face to the Committee, being that of Nigel Dobson-Keeffe, and the re-election of Peter Kraehenbuehl who was last active on the Committee in 1989.

Another noticeable change has been in the publication of the Group newsletter currently being edited by myself and co-produced with the assistance of Kath and Stan Flavel. Trip reports or other items of interest are most certainly welcome for future newsletters.

Property owners change from time to time along with their access requirements making it necessary to keep up to date with these changes.

Change has also been seen in the management of caving areas for which the Group has provided a number of written submissions discussing proposed management plans for those individual caving areas during the course of last year.

For caving to continue to survive within the process of change it is important that the Group be active within the change.

Mark Thiselton
Editor

ADMISSION FEES

In an attempt to help cover the cost of the increase of the hire fee of the venue for the Group General Meetings, the Committee has decided to charge an admission fee per person per meeting of $1-00. This will also include the supply of coffee, tea and biscuits for those members attending the meetings.

FEES

Fees for 1991 were due on 1st January 1991. If you have not paid this year's membership fee then your prompt payment would be appreciated as the Group cannot operate efficiently if people only pay their fees half way through the year. Remember also if no fees are paid then no newsletter is sent.

Fees for 1991;

Full	$25.00 (plus ASF levy $7.50)
Country Full	$21.00 (plus ASF levy $7.50)
Associate	$18.00
Long Term Associate	$25.00

MEMBERSHIP

Congratulations to these members.

New Associates:

Ken Clarke	20 Musgrave St, Crystal Brook, SA, 5523 Ph.. 086 32 2446
Dave Clarke	20 Musgrave St, Crystal Brook, SA, 5523 Ph.. 086 32 2446
Michael Tracey	6 Krammel St, Mt. Gambier, SA, 5290 Ph.. 087 25 4427

Transfers to Full Membership:

Nigel Dobson-Keeffe
Bart Jansen

Change of Address:

Mark Thiselton	4 Alexandra Ave, Magill, SA, 5072 Ph.. h.. 364 2123 w.. 292 1846

CAVE MONITORING

The use of a versatile microprocessor-based data acquisition system is enabling speleologists to continuously monitor a cave system and look at changes caused by alteration of surface land use.

Cave monitoring involves the systematic and repeated sampling and quantification of one or more variables affecting the formation and alteration of a cave system and its associated environment.

The physical variables acting upon a cave are cyclic in their intensity and effect and may have cycle lengths varying over 6 to 7 orders of magnitude. Variables or events changing or happening every second and events happening only once a decade may be of interest to a speleologist and need to be appropriately sampled.

Cave meteorology is the study of the atmospheric variables including the temperature, barometric pressure, gaseous composition of air (including water vapour as the relative humidity) and the movement of the air mixture within a cave system.

Cave hydrology is the study of the passage of precipitated water from the surface through a permeable substrate into and around an underground cavernous environment.

The instrumentation required to monitor a cave is determined by the variable to be measured, duration of sampling period, required accuracy of results and ultimately by the budget constraints of the investigating team.

THE PROJECT

Blackberry Cave (5U-8 and 5U-9) is a double entrance limestone cave lying within and adjacent to the Naracoorte Caves Conservation Park in the South East region of South Australia. The cave contains some well-decorated chambers, containing a variety of speleothems, connected by long rock-filled passages. A gated side passage leads to a long section containing a terminal chamber boasting a 5 metre long straw.

Several aspects of this particular cave environment have led to speculation that has necessitated the inquiring mind to ask the following questions...

1. The present use of much of the land above the cave system is as a plantation of Pinus radiata planted in 1930's and intended to be harvested next century. The Ranger in Charge, Brian Clark, is of the opinion that the current vegetation may be responsible for retaining groundwater that would normally flow or diffuse into the limestone rock that the cave is formed in.

Direct evidence of this fact has been shown by the apparent increase of water movement over speleothems in caves above which Pinus radiata has been removed in the past 5 year period. Is this true?

2. What damage is likely to occur to decorations within the cave, in particular the long straw, if activities such as heavy-duty logging occur above the cave?
3. What are the implications and effects of increased usage of the cave as a recreational cave?
4. Will "dead" formation rejuvenate if surface water influx increases?

There exists a strong possibility that the Pinus may be removed sooner than next decade and thus it has provided the opportunity to monitor before, during and after a major environmental change.

METHODS AND MATERIALS

A microcomputer controlled data acquisition system is being developed that will collect analogue signals from remote transducers, convert and store digital information in digital memory and then transfer it to another microcomputer for subsequent analysis, archiving and display.

1. Sensors have been devised to detect the movement of water from speleothems ... Drip Detector.

   An array of drip detectors allows multiple dripping straws or stalactites to be monitored such that all drips are detected and the intervals between drips stored.

2. An array of temperature sensors will be used to measure changes at stations and between stations to detect temperature flux and thermoclines.
3. Solid-state sensors will monitor relative humidity.
4. An array of solid-state pressure transducers will measure barometric pressure at different points including external surface pressures.
5. Air flow measurement using a sensitive hot-wire anemometer will be possible.
6. A low-voltage battery-powered microcomputer and memory board based on a NEC_V25 microprocessor and associated support circuitry will allow half a million data points to be stored. This will allow one year of continuous monitoring of 8 dripping speleothems and 8 channels of meteorological data before needing data transfer to a microcomputer.

7. Support circuitry to allow communications with a portable computer to allow entry of control parameters and transfer of data.

8. Software to display and analyse transferred data and produce hardcopies of all or sections of annual data.

9. Power supply to allow a long-term study without constant replenishment.

As well as these sensors it would be possible to measure water quality by measuring specific ion concentrations and conductivity.

Air composition may be further analysed using oxygen and carbon dioxide sensors in situ or in a laboratory.

Water levels of any pools may be monitored using resistive float sensors.

DISCUSSION

As this stage only preliminary data is available but it is encouraging to see some of the capabilities and inherent flexibility of this system.

Data obtained from Alexandra Cave (5U-3) have shown that drip rates are much more variable than first thought, possibly showing cycles effected by visitation and entrance closure.

This type of long term monitoring is appealing and practical for several reasons:

1/ it is not labour intensive; gone are the days of stopwatches sling psychrometers and mercury thermometers and clockwork thermographs.

2/ it is unobtrusive into the cave environment and unlikely to alter the parameters it is trying to record.

3/ the use of a computer-based monitor allow the investigators to program variables and download the accumulated data at appropriate times in the field using a small laptop computer.

4/ the programming contained in the monitor is concise but powerful (2000 lines of Modula 2).

Stan Flavel

T R I P R E P O R T S

FLINDERS RANGES

Trip Report 11-12th August 1990

Present: Mark Thiselton, David Trehearne, Darren Crawford and Glen Dallimore

Features visited: F3, F4, F5, F7, F27, F28.

The trip originally started as a working bee to repair damage to the gate in Clara St Dora Cave. However, at the last minute circumstances caused this to become a "Claytons working bee".

Friday night saw the four of us headed north, finally finding a spot to camp on the veranda of an abandoned building around midnight. We awoke to the sound of light rain on Saturday morning, then after breakfast we headed onto Chimney Cleft (F28) where we found a small lizard hiding in a crack along the side of the entrance cleft.

Shortly afterwards we headed to Lizard Cave (F27), the two entrances leading to its' dusty interior being found after a short search. On the way out of the cave David and Darren showed us their climbing skills by climbing out the natural chimney entrance while Glen and myself used the ladder through the roof hole.

We then proceeded to Clara St Dora where we changed the old lock and checked out what was needed for repair at a later date. After lunch we headed to Mairs Cave where David and Darren again demonstrated their climbing abilities by free climbing down the 20m entrance pitch (it was a good thing the Safety and Training officer wasn't looking). They later free climbed out. Moving into the cave we negotiated the 8.25 inch squeeze where David and Darren decided to have a go at the passage referred to as "difficult" on the map - apparently this is an understatement. After all this fun we moved a little further into the cave to have a look at the "Christmas Tree" decoration. On exiting we replaced the old lock with a new one.

Sunday morning saw us entering Arcoota Creek Cave where David and Darren once again demonstrated yet more of their rock climbing skills by climbing out of the dusty environment of the cave via one of the old mine shafts, only this time to be followed by Glen and myself.

We then visited Mt Sims cave where we replaced the old lock with a new one before descending down to the lake. We then headed home after a good working bee trip - the type I look forward to running in the future "Claytons working bee trips".

Mark Thiselton

FLINDERS RANGES

Trip Report	28-30th September 1990
Members present:	Mark Thiselton, Darren Crawford, Michael Woodward, Graham Woodward and Glenroy Venturer Unit.
Features visited:	F3, F4, F7

Darren and myself drove up Friday night with a car-load of tools (it was after all a working bee) and found the others camped down at midnight.

On Saturday morning we awoke to meet the others and discuss the plans for the weekend. We started with a visit to Mt Sims (F7), where Darren and myself completed some cleaning of the gate and modification to the second bolt on the cave gate, while some of the others explored the cave and found the water level to be approximately 300mm higher than that previously observed in May 1990. There was also evidence that the water level had been higher still by approximately 1 metre.

We called in to visit the property owner and lunched in the Siccus River on our way to Clara St Dora Cave where the work really began.

With everybody's help we unloaded the tools, including a 4KVA generator and welder, from the car and set about repairing the hole in the gate (what a way to learn how to weld!). This occupied most of the afternoon while part of the group ventured into Mairs Cave practising their abseiling and SRT skills.

Sunday morning saw Darren and myself repairing a small hole in the Mairs cave gate while part of the group returned to Clara St Dora to check that the "new" gate still functioned.

We ventured home after a successful working trip.

Many thanks to all those involved.

Mark Thiselton.

PROGRAM

MARCH		
27	**General Meeting** 7.45 p.m.	Film / slides
29-Apr 1	LOWER SOUTH EAST	Gordon Ninnes
APRIL		
6/7	FLINDERS – (Mt. Remarkable)	Paul Harper
6/7	YORKE PENINSULA Corra Lynn Competent Caver Course	Graham Pilkington
10	**Committee Meeting** T.B.A.	
13	YORKE PENINSULA Corra Lynn	Paul Harper
14	YORKE PENINSULA Town Well	Steve Milner
20/21	UPPER S.E. Blackberry survey	Steve Milner
21-27	NSW Bunginia, Wombeyen	Peter Kraehenbuehl
24	**General Meeting** 7.45 p.m.	Steve Milner Austria
27	**AUCTION AND BARBECUE** 1pm 36 Norman St St Marys	At Mark Sefton's
MAY		
4/5	YORKE PENINSULA Survey	Graham Pilkington
8	**Committee Meeting** T.B.A.	
12	MURRAY RIVER Monarto	Stan Flavel
18-20	KANGAROO ISLAND	Paul Harper
22	**General Meeting** 7.45 p.m. P.N.G.	Terry Reardon
26	ADELAIDE Sellicks Hill	Nigel Dobson-Keeff
JUNE		
1/2	YORKE PENINSULA Survey	Graham Pilkington
12	**Committee Meeting** T.B.A.	
26	**General Meeting** 7.45 p.m.	
SEPTEMBER	Advance Notice	
22 Sept-Oct 12	CEGSA's Australian Expedition to Old Homestead Cave, Nullarbor Plain This two week Scientific Expedition will be limited to 40 people	Graham Pilkington