

ASF

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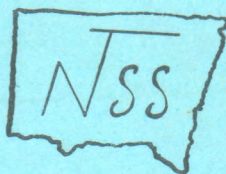
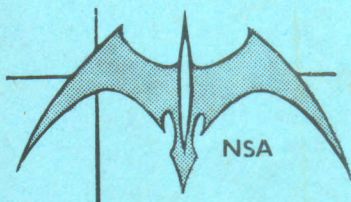
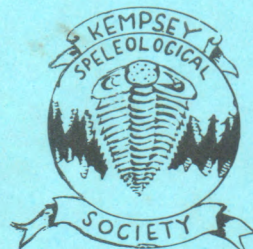
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Editorial

IN MY FILES IS A HALF PAGE CUTTING FROM THE "AUSTRALIAN" PUBLISHED IN APRIL 1970. ON ONE SIDE, NEXT TO A REPORT ON THE BARRIER REEF OIL DRILLING CONTROVERSY, MR BJELKEPETERSON IS PONTIFICATING ABOUT THE NEED FOR QUEENSLAND TO BECOME AN INDEPENDENT OIL STATE. ON THE OTHER SIDE A SMILING PHOTOGRAPH OF SHELL CHAIRMAN MR LESLIE FROGGATT PRESIDES OVER A SPIEL ON HOW HIS COMPANY IS FIGHTING AIR POLLUTION.

ELSEWHERE THIS YEAR, AMPOL FOUND IT DESIRABLE TO SUPPORT AN ENQUIRY INTO THE EFFECTS OF DRILLING FOR OIL ON THE GREAT BARRIER REEF.

IT LOOKS LIKE AN HISTORIC OCCASION ; GREAT CORPORATIONS ADVERTISING THEIR PUBLIC-SPIRITED ATTACK ON POLLUTION. BUT IN MID-AUGUST SHELL WAS WARNED BY THE AUTHORITIES IN SYDNEY TO REDUCE EFFLUENT FROM ITS CLYDE REFINERY. SO PERHAPS THE NEW BUSINESS ETHIC IS NOT ESTABLISHED FULLY YET AND WE'LL JUST HAVE TO HOPE.

STILL, IT'S AN ENCOURAGING SIGN. I WONDER HOW LONG IT WILL BE BEFORE A.P.C.M. LTD WILL BE PROUDLY ADVERTISING THAT IT IS FIGHTING ENVIRONMENTAL POLLUTION BY NOT MINING COLONG . . . ?

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Eighth Biennial Conference

The Eighth Biennial Conference of the Australian Speleological Federation will be held in Hobart, Tasmania, from 27th to 31st December, 1970. Several excellent field trips have been arranged to Mole Creek, Junee - Florentine, Ida Bay and Mt Anne. These range from a day or two up to two weeks and from very easy standard to quite difficult, thus catering for all tastes. Enrolment forms were printed in the ASF Newsletter for March 1970. Further information & forms:

The Secretary,
A.S.F. Convention 1970,
Box 641G, G.P.O.,
HOBART, Tasmania 7001.

PRACTICAL CAVE CONSERVATION

by Greg Middleton
from "Stop Press" 13(8):141

This section will not concern itself with erudite definitions of conservation - it will be assumed that "what" and "why" are already understood - nor will it deal with technical or contentious aspects but it will attempt to set out some guidelines to current practice for prospective members to follow and build on.

Conservation is generally regarded as a rather negative thing; its advocates usually pointing out what should not be done in order to further their aims. This, unfortunately, is due to the non-conservative nature of unrestrained Homo Sapiens

As far as caves are concerned, complete conservation is possible only if man does not enter them. But given that speleology would be difficult under such circumstances, our aim must be for minimum interference with the natural environment.

Practical conservation may be conveniently divided into two "orders":

1st Order Conservation

Object: To keep undesirables out of caves.

Methods:

1. Non-disclosure (and in extreme cases, concealment of entrances). Maps showing cave entrances are rarely published by responsible speleological societies and signs or other obvious indicators are seldom erected. This is the most satisfactory long-term method.
2. Gating of cave entrances or internal passages. Unfortunately gates attract attention and seem to encourage forced entry by those they are designed to keep out. They should only be constructed if justified, should be carefully designed and sited (keeping in mind hostile agencies e.g. vandals & natural factors e.g. bats) and should be regularly maintained. Control of keys is usually a major problem. This method has limited usefulness.
3. Blocking of cave entrances and passages. This is a rather drastic step, is difficult to justify and should only be undertaken by responsible. Needless to say, it is the most effective way.

2nd Order Conservation

Object: To minimise damage to caves by those who go caving.

Methods:

1. Exercise of care and common sense. The "bull in a china shop" approach to caving is an indication of inexperience and/or irresponsibility. Too many formations are broken through sheer carelessness. It may be necessary to

2. Control of deliberate marking. "In", "Out", "Up" etc. signs are unnecessary and unsightly - and often confusing. Likewise names of caverns and features are better shown on maps than walls. Even "historical" inscriptions cannot be justified today since new discoveries should be recorded in trip reports and surveys. Permanent survey points should be used sparingly and should be inconspicuous.
3. Removal of rubbish. No rubbish or waste of any kind should be left in a cave. Spent carbide and human waste can seriously affect the biological environment.
4. Restrictions on collecting. Biological sampling should only be carried out by qualified persons. Indiscriminate and purposeless collecting can have serious effects on cavernicolous populations. 'Geological' sampling is completely out. In most caving areas removal of formations is illegal; in none is it justifiable.

Summary

As a general rule it is difficult to improve on the old platitude:

"Take nothing but photos,
Leave nothing but footprints."

Recommended Reading

HAMILTON-SMITH, E. : Caves and Conservation. Report of the Subcommittee on Conservation, adopted by the Australian Speleological Federation, December, 1962. (in) Speleo Handbook: 21-30.

Further Reading

DUNKLEY, J.R. : Environmental Cave Conservation - Principles, Problems & Practice. Unpublished paper presented at the 6th Biennial Conference of A.S.F., December 1966.

WALLIS, G. : Cave Conservation - The Broader View. ASF Newsl. 40: 3-7 (condensed from a longer paper read at the 6th Biennial Conference of A.S.F., December 1966).

* * * * *

NEW LIBRARY SERIALS

Two new Journals have been added to the serials in the A.S.F. Library:

1. University of Bristol Speleological Society (Proceedings)
2. Craven Pothole Club

The library is in the process of being moved from Sydney to Melbourne and loans will not be able to be obtained until early next year probably. It is for this reason also that there have not been any abstracts published so far this year in the Newsletter.

EXPLOSIONS AND SAFETY

by E. Hamilton-Smith
from "Nargun" 3,9:77

In 1960, a caver entered a sump - enclosed chamber in Ogof Ffynon Dhu some half an hour after an explosive charge had been fired. He found the charge had failed to drain the sump and retreated quickly to the open air. Twelve hours later he became ill and was hospitalised for six months, even then being left with residual damage to the lungs. This accident was reported by Williams and Williams (1963) but little has since appeared in the caving literature on the avoidance of this particular danger.

A very recent paper by Phillips (1970) not only discusses the chemistry of explosives and the reasons for the Ogof Ffynon Dhu incident, but proposes a safe explosive compound for use in caves. As one of the occasions on which explosives may be necessary is during rescue operations, and there is then no chance of waiting for fumes to disperse before re-entry to the cave, this may prove to be a very significant and valuable paper.

Most explosives produce varying amounts of oxides of nitrogen and carbon. Carbon monoxide is, of course, a well known poison and generally feared. However it is not so generally known that nitrogen dioxide is some 10 times more dangerous than carbon monoxide and even small concentrations can cause permanent lung damage. This is a little easier to understand if one remembers that nitrogen dioxide and water react to produce a mixture of nitrous and nitric acids; then remembers what happens if we spill a little nitric acid on the skin!! Certainly, carbon monoxide is more likely to cause death, due to its reaction with the haemoglobin of the blood. But this will be little consolation to the persons whose lungs are damaged by a concentration of nitrogen dioxide 10 times less than the dangerous level of carbon monoxide.

Phillips recommends the use of a carbon-free Ammonal, consisting of 81.5% ammonium nitrate and 18.5% aluminium powder. The explosion products are nitrogen water vapour and aluminium oxide. The calorific value of the mixture is appreciably greater than that of nitroglycerine; it is safe to handle and non-toxic in itself.

Further recommendations include the use of aluminium foil for the wrapping of charges (to eliminate CO production from wrapping) and detonation by a no. 6 detonator with some 5 cms. of cordtex fuse as a booster. Electric fusing is suggested rather than safety fuse.

This mixture would have to be specially prepared, and would have to be stored in airtight containers because of its deliquescence. This also means that stocks would have to be renewed regularly. However, it seems significant enough to suggest that those concerned with explosives in caves should experiment with the mixture and gain some experience in its use. An expert with this substance might some day be invaluable in a serious rescue problem.

REFERENCES

- Williams, R.M. & Ann M. (1963) (in) Trans Cave Res. Grp. 6 (2) : 71-78
Phillips, J.A. (1970) (in) Bull. Brit. Speleol. Assoc. 84 : 16-20

USE OF ARALDITE 113

A precis of Selleys Technical Note on Araldite 113 with Hardener 953K

by Andrew Graham, UQSS
from "Down Under" 9,3:92

Araldite is an epoxy resin based adhesive which can be regarded as possessing 100% solids content, and therefore will not shrink or crack during or after curing. Its qualities include the permanent high strength, solvent and heat resistant qualities, and great variety of materials bonded including glass and metals but not perspex, PVC or polystyrene.

Tensile Shear Strength: on a test with Al-Mg-Si alloy, the surfaces being sanded and greased with acetone, cured for 30 minutes at 212°F, the Tensile Shear Strength at room temperature was 3000 to 100 PSI, and at 158°F, 1300 to 1400 PSI.

Surface Preparation: surfaces to be clean and free from dust and grease. Degrease metals and glass by soaking or washing in hot detergent solution or by use of solvents such as Shellite or Trichloroethylene. Avoid handling surfaces after cleaning. Increased bond strength may be obtained by roughening or chemically treating (see Selleys Tech. note M.4).

Mixing Instructions: thoroughly mix equal parts on clean surface. Usable pot life at room temperature 65°- 70°F about one hour. In hot climates do not allow temperature of mix to rise above 80°F. Application: spread on one surface and bring two surfaces together as soon as possible.

Curing: Avoid very cold damp weather (below 60°F) unless using at higher temperature. Absorbed moisture will adversely affect curing. Curing time 6 - 8 hours at 70°F, full strength after 3 days. Alternatively with 30 minutes curing at 350°F, full strength after one hour. Care should be taken with sources which heat unevenly e.g. infra red lamps. It is not essential to perform the curing at constantly low temperature.

Cleaning and Storage: clean with lacquer, thinners, acetone, toluol or chlorinated solvents before adhesive has set on them. Avoid skin contact, remove with detergent powder. Components last two years or more if sealed and cool.

In the same issue of Down Under, Malcolm Pounds describes personal experience of the Araldite method of forming rung wire joints. The main conclusions are:

1. There are good reasons to suspect the wisdom of washing wire in benzene or acetone.
2. Pins are essential in ladders of this type to spread the wire strands and allow penetration of araldite. Mild steel 1/16" nails are best and they need not be stainless steel as araldite protects pin from corrosion.
3. Araldite prevents differential corrosion between aluminium alloy rungs and steel cables due to its electrical insulating properties.
4. Make sure all air bubbles are removed from araldite when pouring.
5. Better to cure at room temperature than place in oven at 350°

HEIGHT MEASUREMENT OF GUN-BARREL AVEN, WYANBENE

by Noel Call, NUCC
from "Speleograffiti" 7,3:4

During a recent NUCC trip to Wyanbene, a group consisting of Greg Anderson, John Brush, John Furlonger and Noel Call attempted to measure the height of Gun Barrel and map its floor. Prior to this trip experiments had verified that hydrogen to fill balloons could be generated from 5N NaOH and aluminium shavings, the reaction being carried out in a wine bottle with the balloon connected to the neck via a rubber tube containing self-indicating silica gel to dry the gas.

Upon reaching the aven, two hydrogen generators similar in design to those mentioned in the preceding paragraph were assembled, and meanwhile mapping of the floor commenced. After $1\frac{1}{2}$ hours of impatient waiting the height measurement was undertaken using two balloons each containing about 1 cub. ft. of hydrogen attached to a cotton thread. The balloons reached about 200', however the party was sceptical that this figure represented the actual height of the aven as the balloons were still in sight. They were then released without an attached thread and observation of their upward flight confirmed the suspicion that 200' of cotton thread was all they would support and was not the true height of aven.

On the second attempt it was decided to transport the gas into the cave due to the slow process of generation on the spot. A cylinder of gas would have been ideal but could not be organized so twenty helium balloons were filled outside (not hydrogen for obvious reasons). They were wrapped in plastic sheets to form cylinders approx. 5' long and 10" in diameter, each cylinder with 4 balloons. The aven was reached with all balloons intact and a preliminary test showed that they would support 600' of cotton thread. They were then released.

The height of the Gun Barrel was found to be $346' \pm 10'$, the measurement being taken from the base of a smooth pyramid shaped rock. To the best of my knowledge the roof of the aven has never been observed and the exact nature of the obstacle at 346' cannot be stated.

CALIBRATION OF UNDERGROUND SURVEYS

by A. Sprent, UGSS
from "Down Under" 8,2:14

The form of classification of underground surveys as stated in the A.S.F. Speleo Handbook, based on the method of surveying, appears rather futile to me for the following reasons:

- a) No consideration is given to errors in the survey.
- b) No consideration is given to personal bias.
- c) Methods of surveying are not well defined functions of accuracy.
- d) No consideration is given to mistakes made e.g. misreading a distance or angle, magnetic mistakes due to attraction of personal ironmongery etc.

Consequently I would prefer to see a classification based on the checked accuracy of the survey, and put forward the following as a more useful class-ification. Obviously there will be some correlation between method and accuracy and as a rough guide the methods are given.

Grade 1b	No accuracy - sketch from memory		
Grade 1a	No accuracy --sketch produced on location		
Grade 2	1 in 10		
Grade 3	1 in 100		
Grade 4	1 in 500	compass and pacing	
Grade 5	1 in 1,000	prismatic compass & tripod	Plane table
Grade 6	1 in 10,000	tacheometric surveying	surveying
Grade 7	above 1 in 10,000	theodolite & chain	

I would appreciate it if anyone who has any ideas on this subject would contact me (Livesay Road, MOGGILL, Qld. 4069)

* * * * *

"Down Under", Vol. 8 No. 3 (July 1969) has some comments on this scheme by another UQSS member, Ken Grimes, mostly of a practical nature. A number of articles have questioned the value of the CRG system and no doubt Ant Sprent's will not be the last. Alternatives proposed include one based on consideration separately of the various instruments employed to measure horizontal direction vertical direction and distance. Whatever is decided, it is always wise to state the instruments used in the field when drawing up the map.

It is now 8 years since the A.S.F. adopted the Report of the SubCommittee on Cave Survey Standards (cf. Speleo Handbook, pps. 31-34) which is rather dogmatic on the point. Bearing in mind the approaching day when all measurements in this country are metric, it may well be appropriate to consider a revision of the current recommendations on survey standards. --- editor.

* * * * *

BACK ISSUES OF ASF NEWSLETTERS

Back issues may be obtained of most of the ASF Newsletters. Stocks are held varying in quantity from 1 to 50 of the following issues:

3, 7, 9, 10, 11, 12, 13, 14, 15, 17, 18, 21, 22, 23, 26,
27, 28, 29, 30, 31, 32, 33, 34, 36, 38, 43, 44, 45, 46, 47, 48.

Some of the earlier issues consist of only a few pages. However many of the Newsletters will be hard to obtain in future years so if you require a complete collection, write now. Copies cost 25c. each. Add 7c. postage for each two issues required. Also "CAVING IN AUSTRALIA" same price, booklet produced by A.S.F. Please address orders to Newsletter Manager, c/o A.S.F., P.O. Box 388, BROADWAY, N.S.W. 2006.

DOWN UNDER ALL OVER

: : : : : NEWS FROM AROUND THE SOCIETIES

. . . because this issue of the Newsletter is being typed more than a month before it is due (!!), there are very few club newsletters from which to extract information . . .

C S S To the Nullarbor and back in a weekend? Yes, it can be done if you are working in Ceduna, like Roger Curtis. In May he only managed to see N124, which is hardly worth all that effort, and he couldn't find White Wells Cave (N14). The PMG Coaxial cable trench runs tight through the grid location of N14 - has it been buried? A more successful trip on June long weekend managed to reach White Wells Blowhole (N61), Biduna Blowhole (N116) and Disappointment Cave (N85).

S S S Most of the SSS "heavies" went off to Chillagoe again in August, with the object of new exploration on the Mitchell River. August also saw a very fast trip to the Nullarbor. In June a trip to Yarrangobilly carried out some RDF surveying to determine the route of a projected tunnel into the Glory Hole System.

S U S S The first Barbara Dew Memorial Lecture in July, given by Mr R.E. Murdoch, Director of Tourism, attracted about 70 people despite short notice and a petrol strike which crippled Sydney. Arising indirectly out of this, several trips organized to obtain bats for university research met mixed success. There were none in North Sydney railway tunnel to make worthwhile the red tape involved, and those at Bungonia were hibernating. Rick Counsell (UNSWSS) performed spectacular manoeuvres to lever some off the walls of the Drum at Bungonia, leaning far out of a sling 60' up the ladder. A one day trip is planned to see if there are any available at Wombeyan.

T C C Albert Goede recently returned from sabbatical leave in Europe and preparations for the A.S.F. Conference have accordingly shifted into top gear. A new area, Weld River, has been opened up off the Port Davey track in the south-west. A party from Monash University Bushwalking Club had visited the area in May 1969 and provided some information (Speleo Spiel, November 1969). About 60 sinkholes were investigated and a few small caves located. In July 1970, TCC started cutting a track into the area and despite the considerable physical difficulties of access, exploration should be able to start soon.

V S A A Public Relations Officer has been appointed to deal with the growing problem of relations with land owners. It has been decided in principle to undertake gating and locking of appropriate caves in the Buchan and Murrindal areas. Some alarming changes have occurred this year with access generally in the Buchan area. All caves in the Reserve have been closed to all cavers and several private property owners are jacking up as well. A two way telephone system has now been installed between the Buchan hut and certain members' cars which saves reporting back to the hut with changes of plans etc.

CURRENT	AUSTRALIAN
SPELEOLOGICAL PUBLICATIONS	

This is not a free advertisement but a service to acquaint readers, particularly those overseas, with publications currently available on Australian speleology. In general only the self-contained publications dealing wholly or substantially with speleology will be included, and club newsletters will not be listed. Inclusions will be subject to space limitations from time to time.

* *

CONTRIBUTIONS TO THE STUDY OF KARST

"Syngenetic Karst in Australia" by J.M. Jennings, together with a paper on limestone solution in the Fergus River, Ireland, by P. Williams. 110pp., multilith.

\$2.50 from Australian National University Press, Canberra

* *

HELICTITE - Journal of Australasian Cave Research

Published quarterly by E.A. Lane, P.O. Box 183, Broadway, NSW 2007. Subscriptions \$2.40pa (4 issues) (o/seas \$2.60)

* *

* *

COMMUNICATIONS Occasional Paper No. 3

Description of SSS expeditions to Chillagoe in 1966-67, with reprints from previous papers on the area. Only accessible reference on area. 3 plates, 3 maps, iii + 46pp. raneood.

\$1 from SSS

* *

CAVES OF THE NULLARBOR

Authoritative, comprehensive survey of speleological work on and under Nullarbor Plain in South & Western Australia. 20 photos, 12 maps, vii + 61pp. 193 cave checklist

\$1-35 from SUSS, o/seas \$1-80

(* *)

SPELEO HANDBOOK

The bible of speleology in Australia. Summarises speleological knowledge of Australia, extensive cave lists, references, reports on cave science, equipment and techniques etc. 322pp.

\$3.50 to members of ASF societies

\$5.00 to approved non-members

from P. Matthews, Editor

TRANSCRIPT OF PROCEEDINGS, 7th Biennial Conference of Australian Speleological Federation, Goolwa, 1968.

12 papers plus summary of committee proceedings. 150pp.

\$1 from CECSA

FOR ADDRESSES SEE
INSIDE FRONT COVER

C O N T E N T S

September 1970

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