

# SYDNEY SPELEOLOGICAL SOCIETY'S CONTRIBUTION TO SPELEOLOGY FOR THE USE AND MANAGEMENT OF WILD CAVES

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## Abstract

In 1954 The Sydney Speleological Society was formed to enable cavers to pursue their interests in wild caving, but found fuller and richer experiences because so many scientific questions called out for an answer. Speleology is by now established as a science to warrant undertaking many forms of exploration and documentation in various karst areas of Australia and Overseas. The research that has been undertaken by various members of the Society since then has been diverse and it is hoped that it will ensure the future of the caves.

Attention is drawn to the many skills and activities of caving groups, that can serve as a resource to management.

## INTRODUCTION

“Somewhere between the Professional Scientist, carrying out a specific research project and the recreational visitor, we find the speleologist, who is almost certainly an amateur, but who is genuinely concerned with the exploration, mapping, recording and general studies of caves. Again, I would argue that the speleologist is an invaluable asset to Park Management”

(Hamilton-Smith 1976).

The types of caving groups that use “Wild Caves” are

- a) Speleological Societies and Clubs. Generally have a direct interest in the preservation of the caves, and contribute where possible to better management.
- b) Adventure and Commercial groups. Make minimal or nil contribution to the preservation of karst areas, except for some financial gain
- c) General Public. Provide finances to maintain “Show Caves” and often, history in the form of Photos, written and oral documentation.

This paper endeavours to broaden awareness of the significance of contributions made by members of the Society for the Use and Management of Wild Caves. These achievements over many years by the Society's cavers, too numerous to name, have laid the guidelines for all members of Sydney Speleological Society to continue with the work mentioned below.

Of course many well established caving groups around Australia have made their own contribution, however we cannot speak on their behalf so the following will be limited to the work of the Sydney Speleological Society. Some of these efforts will be presented in fourteen sections.

- 1: History
- 2: Expeditions and Discoveries
- 3: Surveys and Maps
- 4: Photographic Documentation
- 5: Tagging
- 6: Phototagging
- 7: Journals and Reports
- 8: Publications
- 9: Library Facilities
- 10: Scientific Research.

- 11: Cave Diving
- 12: Development of Technical Aids for Exploration and Research
- 13: Search and Rescue
- 14: Conservation

## HISTORY

Prior to the advent of caving societies, the most prolific documentation of New South Wales cave history was produced by Oliver Trickett (1847-1934) (Middleton 1991). As a registered Surveyor he set the precedence for recording and preserving cave areas. Many NSW caving fraternities used his references as a guide to their individual pursuits. The records kept by Society members provide historical data via regular Journals containing trip reports, maps, survey, photographs, personal experiences through interviews and reprinting of historical articles, particularly on Bungonia, Jenolan, Colong, Timor, Tuglow, Wombeyan and Yarrangobilly. Many speleological society members are interested in the history of caving areas and search out published items to be reprinted in club publications. SSS has been reproducing old newspaper accounts, sections of books, illustrations and other early material on Australian caves over many years in its journal. More detailed publications such as Occasional Papers and Books have also been produced. Most societies send copies of their publications to Karst Management Authorities, The Australian National University Library, The Sydney University Library and Mitchell Library, Sydney.

## EXPEDITIONS AND DISCOVERIES

Many and varied expeditions have been embarked on by the Society. Some examples of these are

- a) St Paul's Underground River, Palawan in the Philippines (Hayllar 1980). It was on this trip that the first all Australian Documentary shot by Channel 10 for “John Law's World” was produced as an “Introduction to Adventure Tourism” and was televised all over the world.
- b) Chillagoe: Queensland. On the trips to this region, the discovery of the first recorded specimens of *Phlerbotomus* larva was collected from Trezkinn Cave (Wellings 1970). A Crocodile skull proved to be quite important (Molnar 1978) and fossilised bones of the Giant Wombat (*Phascolonus gigas*) were located (Middleton 1970). Many new caves

were found and surveyed in Chillagoe-Mangana and Rookwood Areas as well as the first investigation of the Little Mitchell River area (Ellis 1971).

- c) The Kimberley's: Where several new caves were discovered and surveyed in conjunction with ISS.
- d) Wyanbene: Extensions to Wyanbene Cave into Chamber Pot, Diarrhoea Pit and Frustration Lake were discovered.
- e) Tasmania: Gordon and Franklin River trips where the documentation of the caves beside these rivers helped towards eventual preservation of the rivers unique wilderness values.
- f) New Guinea: New exploration and documentation of several caves was carried out in the Porol Ranges, Chimbu District in 1964/65.
- g) New Zealand: In the Ellis Karst Field and East Owen Karst Field, several deep caves were discovered and surveyed.
- h) New Caledonia: The Grottes D'adio-Poya was surveyed and described.
- i) Madagascar: Articles have been published in the SSS Journal on significant discoveries and documentation work done in several areas of Madagascar.
- j) Mauritius: The extensive lava caves of this island have been studied in detail with numerous descriptions and maps published in the SSS Journal.
- k) Yarrangobilly: Significant caves found recently are Mut Mut Cave and Upper Mut Cave
- l) Jenolan: The penetration of the Right Imperial Syphon by cave divers. The World of Mud, extension in Mammoth Cave and the extension of Dwyers Cave (J41) were major discoveries made at Jenolan.
- m) Wombeyan: The Olympian Cavern, off the Junction Cave was a significant discovery and Urinary Tract Cave, Sigma Cave and of more recent times, Locksmith's Delight Cave are just some of the unique finds at Wombeyan.
- n) Walli.: The Box Cave connection with Oolite Cave and Stovepipe Cave created a fairly extensive system. A lengthy extension was later found in the Piano Cave.
- o) Borenore: Of recent times a known entrance was greatly extended and named Proposal Cave.
- p) Bungonia: The opening of The Efflux was a major accomplishment as was the exploration of the B4-5 Extension in Fossil Cave/Hogans Hole. Odyssey Cave, at one time the deepest cave on the Australian mainland, was explored to a depth of 148 metres.

The above description of expeditions and discoveries is only a brief history of the Society's activities over past years.

## **SURVEYS AND MAPS**

It is considered that the first fundamental step in collating cave data is through cave and surface surveying. The resultant map provides a blueprint for all the significant aspects of a cave. The Society archives contain a total of 1406 maps, of which 465 are of the Wombeyan area. All these maps have been produced by members on trips run by the Society to various karst

areas of Australia and Overseas. Maps have been provided to management authorities and are available for study by members and other interested persons.

## **PHOTOGRAPHIC DOCUMENTATION**

It can be said that the one thing a speleologist aims to do is document the physical, biological and archaeological data of the cave environment, and what better way to do so than with photographic evidence of cave development. The earliest documents of human art are those found in caves; photography has become the speleologist's art. Many of the Society's members have undertaken trips armed with their trusty camera or, of recent times, video cameras, producing physical evidence of the existence of what really lies beneath the surface. Working, as they do, in one of the most difficult environments possible for photography, speleologists have developed techniques and equipment that has made it possible to achieve excellent results in almost any situation. Most of the photographs are published in speleo publications, books and viewed at Society Meetings.

## **TAGGING**

The tagging system of allocating and fixing numbers to cave entrances and karst features came about in the Society in 1957, Yarrangobilly being the first. It is used as a means of positively identifying those caves that had or had not been explored previously and collectively brings together the data on each individually tagged cave. Management authorities use this form of identification of specific caves to assist them with understanding the complexity of the karst area, assist in research and direct interested parties to a particular cave. Tagging has also proved beneficial in aspects of Search and Rescue.

The Society has initiated tagging in eight (8) areas, Jenolan, Wombeyan, Timor, Yarrangobilly, Bungonia, Murruin/Limestone Creek, Church Creek, and Walli areas. The following numbers indicate the approximate number of tagged entrances and features for these areas, at present there are 330 at Jenolan, 462 at Wombeyan, 47 at Timor, 280 at Yarrangobilly, 180 at Bungonia, 12 at Murruin/Limestone Creek, 19 at Church Creek and 66 at Walli.

We also encouraged the Orange Speleological Society to push on with tagging at Borenore, where there are now 115 tagged entrances on and off the Reserve.

Another area the tagging was initiated by the Society was Chillagoe in Queensland, the first 51 tags were placed by some of our members prior to 1970 and the Chillagoe Caving Club now controls the tagging.

## **PHOTOTAGGING**

An innovation by the Society in 1977 to preserve the integrity of the tagging system. It facilitates the finding and identification of entrances independent of the tag. Phototagging involves taking two (2) photos of the cave entrance, the first being a close-up shot with a displayed numbering board and a bearing. The second shot is a long-distance photo showing the surrounding terrain with prominent features, if they exist, also with a

bearing and display board. A detailed article on this system was published in the SSS Journal. (Bonwick 1980).

Phototagging is presently being carried out at Jenolan, Wombeyan, Yarrangobilly, Bungonia, Borenore, Murruin/Limestone Creek and Walli areas.

The New South Wales National Parks and Wildlife Service have assisted with the processing of photos and purchased a number of the 280 Yarrangobilly prints available, while the Jenolan Caves Trust have purchased 80 of the 270 prints for the Jenolan area. There are also 311 Wombeyan prints, 116 Bungonia prints, 86 Borenore prints, 66 Walli prints and 9 Murruin/Limestone Creek prints available. Some of these are Black and White prints, while others are in Colour.

### Journals and Reports

Journals are a means to print Reports and provide a chronicle of written articles supplied by various members and other interested persons. They are an account of the Society's various meetings and field trips and a vital means of record keeping, documenting new finds, trip experiences, work such as surveying, etc: Used as historical references, they are an invaluable source.

Since inauguration of the Society in 1954, there have been five hundred and forty (540) issues of the *Journal of the Sydney Speleological Society* published under various names. These include *SSS News Bulletin*, *Communications*, *Stop Press* and the 39th *Year Book* will be published in April 2001.

Of the approximately 2073 registered trips run since 1954, by the Society, in excess of 1000 trip reports have been incorporated into the Journal. There have been approximately 396 registered trips to Wombeyan of which about 196 trip reports have been published.

### PUBLICATIONS

In order to gain an insight of the pursuits and activities carried out in various karst areas the Society has promoted and supported many publications. In particular, some of the Society's Publications, such as the *Single Rope Techniques* has sold over 9,000 copies and was considered a forerunner in vertical climbing techniques. The *Bungonia Caves Book* was classed as a model for how a cave conservation book should be formatted. The following is a list of all the Publications produced by the Society since 1954.

#### PUBLICATIONS OF THE SYDNEY SPELEOLOGICAL SOCIETY

##### Occasional paper series

- No 1: *R.D.F. Equipment and the New Caledonia Expedition* (Out of Print)
- No 2: *History of the Colong Caves and New Guinea Caves* (Out of Print)
- No 3: *Chillagoe Caves* (Out of Print)
- No 4: *Bungonia Caves. New South Wales.*
- No 5: *Australasian Speleo Map Index No 1* (Out of Print)

- No 6: *Timor Caves. New South Wales*
- No 7: *Single Rope Techniques – A Guide for Vertical Cavers*, by Neil Montgomery
- No 8: *Wombeyan Caves. New South Wales.*
- No 9: *Index to References to Caves in three New South Wales Government Publications 1870-1919.* Greg Middleton (Out of Print)
- No 10: *Oliver Tricket, Doyen of Australia's Surveyors, 1847-1934* By Greg Middleton.
- No 11: *Walking the Valley –* Sonja den Hertog (Editor)
- No 12: *The History of the Sydney Speleological Society, 1954-1994.* By Erik Halbert and John Bonwick.

##### Reprint Series

- No 1: *History of Cave Science* by Trevor R. Shaw

##### Abstract Series

*Australian Speleo Abstracts*, 10 issues to date 1970-1979

##### Regional Bibliography Series

- No 1: *Bibliography of Tasmanian Karst* by Kevin Keirnan.
- No 2: *The South East Karst of South Australia – A Bibliography*  
– E. Hamilton-Smith and Andy Spate (Editors)

##### Communications Annual

- No 1: *Communications Annual – 1955* (Out of Print)
- No 2: *Communications Annual – 1956* (Out of Print)

##### Monthly Journal

*Journal of the Sydney Speleological Society*, 46 Volumes (1957- 2001)

Compiling of information for an extension of the *Wombeyan Caves* book is presently being undertaken. It is planned to publish it in conjunction with the Society's 50th Anniversary in 2004.

### LIBRARY FACILITIES

At present the Society exchanges the Journal with forty-two inter-national and seventeen national caving fraternities. The publications received are placed in the library for reference by all members and interested parties. The library has been operational (in existence) for 47 years, and contains between 5000 to 6000 national and overseas publications. The management authorities are welcome to make use of our library at any time.

### SCIENTIFIC RESEARCH

The investigation by the Society of Physical Processes that take place in caves, has involved

- a) Water and Speleo Chemistry: Society members have made detailed studies of various aspects of Water Chemistry, and the results of these studies have been published in the Occasional Papers Nos; 4 and 8 (James et al 1972, James et al 1982) and many issues of the SSS Journal.
- b) Water Tracing and Hydrology: Many water tracing experiments have been conducted on Society trips, and the study of the hydrology of karst areas is a continuing project. The information gained through

these studies is also published in the Occasional Papers Nos; 4 and 8 (James et al 1972, James et al 1982), and several issues of the SSS Journal. Water Tracing experiments are performed as effectively as possible so as to cause minimal interference with the environment.

- c) Cave Meteorology: A particular interest to some of our members is the long term study and measurements of dust deposition in the Jenolan Tourist caves (Michie 1996). Extensive articles have been published on cave climate studies in the Occasional Paper No; 8 (Halbert and Michie 1982), and in the SSS Journal over the years (Halbert 1970, Halbert 1972, Halbert and Michie 1972).
- d) Flora and Fauna: Study over many years by some Society members has resulted in significant finds of unusual flora and fauna at Chillagoe, Bungonia and Wombeyan, all of which has been covered in various Society publications (Wellings 1970, Whaite 1972, Sontar 1972, Clements 1982, Bear 1982, Smith 1982).

Although many speleologists are not noted as scientists, through their exploration work they are the first to discover and make known to management authorities and the scientific community, anything that may be of major consequence.

## CAVE DIVING

Some of the Society's cavers turned to cave diving in order to enter seemingly impenetrable places. Initiated by Dr Dennis Burke in October of 1957, a team breeched the Imperial Syphon at Jenolan to a point 50 metres upstream. The Lower River in Mammoth was dived with no success of physical connection between the Lower River and the Imperial Syphon. (Halbert and Bonwick 1994).

Later exploration at Wombeyan connected Olympian Cavern (off Junction Cave) to Figtree Cave. Glass Cave was dived with the hope of some lead into River Cave, without success.

Subsequent dives were the pool in Cathedral Cave at Wellington and The Efflux and Odyssey Caves at Bungonia, all of which have been documented in various SSS publications.

## DEVELOPMENTS OF TECHNICAL AIDS FOR EXPLORATION AND RESEARCH

To simplify the process of exploration and research, many aids have been devised by some of the Society's members

- a) Scaling Poles (Bonwick 1955) and Ladders (Bonwick 1960) were developed to facilitate access to difficult areas of a cave.
- b) Instruments for Climate Measurements to estimate the size of a cave as well as recording temperature and humidity readings, and if a multi-entrance system existed.
- c) Radio Directional Finding (R.D.F.) this is used as an aid to crosscheck cave surveys particularly those that run horizontally. Can also help to locate the position of points in a cave on the surface. The most notable uses of the R.D.F. were the re-alignment of the

Binoomea Cut at Jenolan (Driscoll 1955) and the Nangwarry Cut at Yarrangobilly (Halbert 1967).

- d) Gas Mask (Breathing Apparatus) Members of the Society studied ways, whereby they could explore caves containing high percentages of foul air (CO<sub>2</sub>) and various types of gas masks were tested. (Crawshaw & Moleman 1970)
- e) The Super Flash. This is an electronic flash designed especially for cave photography, which has a particularly strong light output.
- f) The Michie Phone (Michie 1974). A single wire earth return telephone system developed to aid communications in caves over long distances and easily installed, of particular value in Search and Rescue situations.
- g) Bonwick Stretcher (Bonwick 1977). A two-part stretcher carried as a backpack and used occasionally at Jenolan.
- h) Caving Suits. More recently members have assisted in the production of a suitable caving suit that would withstand the rigours of wild caving. The advantage of these suits has been realised by the Jenolan Caves Trust, who has purchased them. (Night Owl 2001).
- i) The book *Single Rope Techniques* (Montgomery 1977) was published as a guide to safe vertical caving techniques.

Several of these developments, especially ladders, have been used by management authorities to assist them in their activities.

## SEARCH AND RESCUE

New South Wales Search and Rescue originated from SSS who ran regular Search and Rescue Practice weekends for many years.

The SSS publication *Single Rope Techniques* is used as a training guide for Search and Rescue. Recently members of the Society donated a Little Dragon breathing apparatus to Search and Rescue.

## CONSERVATION

The Society has been active in many conservation issues, related to cave preservation (Sydney Speleological Society 1975) and has been successful in several instances.

- a) Wombeyan: The quarrying within the caves reserve has been a sore point for many years. The Society drew attention to the proximity of the Glass Cave to quarry work. The cave was removed from the lease and explosives were banned from that part of the quarry. The NSW Institute of Architects was advised that Wombeyan marble use was helping to desecrate a Public Reserve and co-operated by making this fact known to its members.
- b) Bungonia: The threat of mining to the gorge and caves of Bungonia (Middleton 1972) provoked members of the Society to organise public days and collect information. This resulted in the publishing of *Bungonia Cave* Occasional Paper. Public awareness then resulted in the site becoming a State Recreation Area.
- c) Church Creek: In the late 1960's SSS was active in the Church Creek Cave area, documenting and

surveying the caves there in a successful attempt to protect the caves from mining. The ploy of naming the caves after some of the politicians of the time proved to help the cause.

- d) Gordon below Franklin River: Once the Society heard about the proposed dam to be constructed in this wilderness area, it applied to do some speleological work there, numerous expeditions were run resulting in the discovery of over 80 caves. Because of such significant finds a Public Meeting was organised by the Society with convincing

arguments as why the caves and flora were too valuable to be lost forever, not only to Australia but to the world. The meeting helped to make the public aware and eventuated the stoppage of the dam causing this loss.

Other conservation matters that the Society has supported both financially and verbally were Yessabah at Kempsey, NSW and Mt Etna, Queensland.

## ACKNOWLEDGMENTS

Our expression of thanks goes to ACKMA and Michael Chalker for inviting us to present this brief history of the Sydney Speleological Society's activities.

Time has not allowed us to address other questions relating to use and management, though karst management is a difficult job we feel we can help as we both aim to conserve the karst asset. In particular the Society appreciates the access given by the management so that all aspects of speleology can be continued.

It is hoped that an increased awareness of the input from dedicated caving groups will help preserve caving into the third millennium.

Finally, we would like to thank all members of Sydney Speleological Society for all their help with the research and input for this topic and their ongoing work.

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