

ASF

AUSTRALIAN
SPELEOLOGICAL
FEDERATION

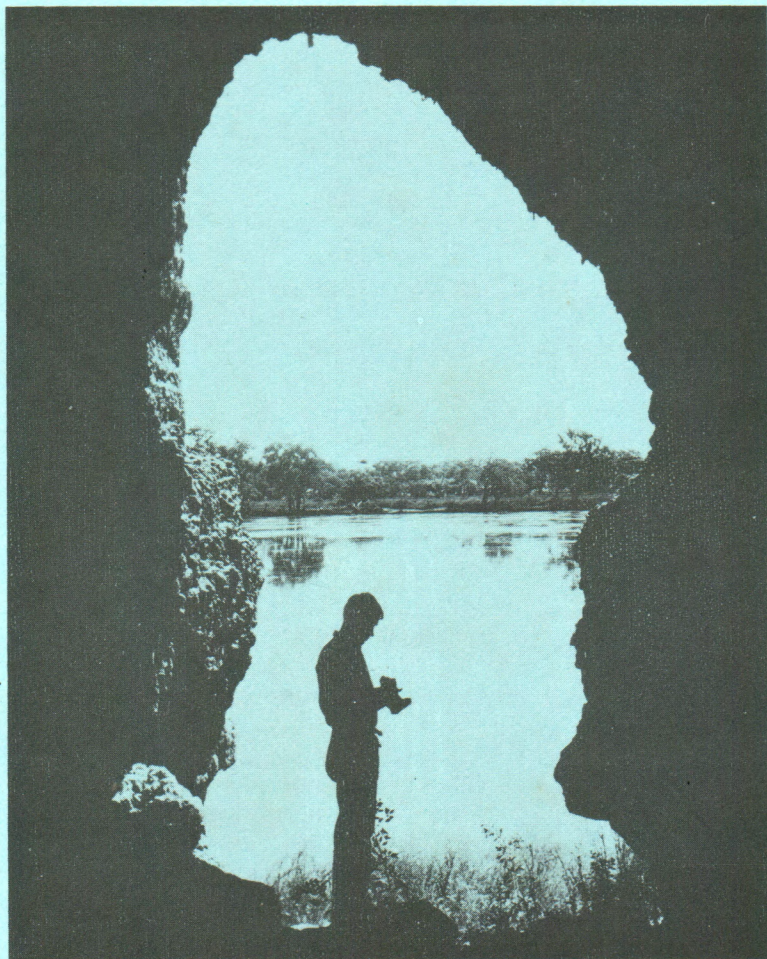
NUMBER 36
JUNE 1967

NEWSLETTER

Punyelroo Cave
South Australia

Photo:

E. G. Anderson



Annual Subscription 35 cents
Single copies 25 cents

Registered in Australia for Transmission by post as a periodical.

ASF NEWSLETTER

PUBLISHED QUARTERLY BY
AUSTRALIAN SPELEOLOGICAL FEDERATION
PO BOX 198, BROADWAY, N.S.W., AUST.

EDITOR: IAN D. WOOD
MANAGER: GRAEME WILSON

EXECUTIVE COMMITTEE OFFICERS

president	Maj. Roland Webb	839 Bourke Road, Ingleburn	NSW
vice-president	Andrew Spate	2/63 Brougham St., Nth. Melbourne,	Vic
secretary	John Dunkley	10 Riverview Street, West Ryde,	NSW
assistant secretary	Glen Hunt	76 Roseberry Road, Killara,	NSW
treasurer	John Noonan	8/78 Holden St., Nth. Fitzroy,	Vic
librarian	Grahame Wallis	20 Malvern Avenue, Roseville, East,	NSW
handbook editor	Peter Matthews	23A Royal Crescent, Camberwell	Vic
newsletter editor	Ian Wood	87 St. Albans St., Abbotsford Point,	NSW
newsletter manager	Graeme Wilson	45 Westmere Crescent, Coolaroo	Vic.

STANDING SUBCOMMITTEE OFFICERS

bat research	David Purchase	CSIRO Div. of Wildlife, Canberra,	ACT
cave safety	Lloyd Robinson	66 Cliff Road, Wollongong,	NSW
n.s.w. co-ordination	Ian Wood	87 St. Albans St., Abbotsford Point,	NSW
cave nomenclature	Elery Hamilton-Smith	17 Helwig Avenue, Montmorency,	Vic

COMMITTEE MEMBERS

capital territory	Canberra Speleological Society	CSS
new south wales	Highland Caving Group	HCG
	Illawarra Speleological Society	ISS
	Kempsey Speleological Society	KSS
	Newcastle University Speleological Society	NUSS
	Northern Tablelands Speleological Society	NTSS
	Orange Speleological Society	OSS
	Sydney Speleological Society	SSS
	Sydney University Speleological Society	SUSS
	University of New South Wales Speleological Society	UNSWSS
queensland	University of Queensland Speleological Society	UQSSS
south australia	Cave Exploration Group of South Australia	CEGSA
tasmania	Tasmanian Caverneering Club	TCC
victoria	Sub Aqua Speleological Society	SASS
	Victorian Cave Exploration Society	VCES
western australia	Western Australian Speleological Group	WASG

Please address correspondence directly to the appropriate officer, to expedite delivery. Newsletter subscriptions and subscriber address changes should be forwarded to the treasurer.

Editorial

A.S.F. SOCIETIES IN SEVERAL STATES OF AUSTRALIA ORGANISE SEARCH AND RESCUE PRACTICE OPERATIONS, BOTH ON CLUB AND INTERCLUB LEVELS.

IN TASMANIA, THE TASMANIAN CAVERNEERING CLUB OPERATES IN CLOSE LIASON WITH THE STATE POLICE ORGANISATION, WHILE IN NEW SOUTH WALES, THERE IS A CO-OPERATION BETWEEN THE POLICE RESCUE SQUAD AND THE N.S.W. CO-ORDINATION COMMITTEE. IN OTHER STATES SIMILAR SYSTEMS EXIST.

THROUGH THESE PRACTICE OPERATIONS, SOCIETIES HAVE BEEN ABLE TO PARTICIPATE, OBSERVE AND LEARN MANY OF THE BASIC FUNDAMENTALS AND REQUIREMENTS OF SEARCH AND RESCUE.

THERE ARE, HOWEVER, ASPECTS OF SEARCH AND RESCUE THAT HAVE YET TO BE EXAMINED. IS IT TIME THAT THE TYPE OF SEARCH AND RESCUE THAT IS AT PRESENT PRACTISED IN AUSTRALIA BE EXTENDED TO OPERATE UNDER AN AUSTRALIA WIDE BASIS? SHOULD THE FEDERATION FORM A SUBCOMMITTEE TO PREPARE A REPORT ON S & R TECHNIQUES: OR A STANDING COMMITTEE TO PREPARE REPORTS AND PAPERS TO BE PRESENTED AT A.S.F. CONFERENCES AND CIRCULATED TO THE FEDERATION SOCIETIES AND OTHER INTERESTED BODIES? COULD THIS BE INCORPORATED WITHIN THE FRAMEWORK OF THE EXISTING A.S.F. SAFETY COMMITTEE WHICH IS PREPARING A SAFETY CODE AT PRESENT?

THIS IS A QUESTION FOR SOCIETIES TO DISCUSS, THERE IS NO DOUBT THAT THERE IS A LACK OF INTERSTATE DISCUSSION ON THE SUBJECT OF SEARCH AND RESCUE.

IN THIS ISSUE OF THE NEWSLETTER THERE IS A REPORT ON THE LATEST SEARCH AND RESCUE PRACTICE IN NEW SOUTH WALES. WHILST THIS PRACTICE HAS RECEIVED SOME CRITICISM, THERE IS NO DOUBT THAT THERE NOW EXISTS IN N.S.W. SCORES OF CAVERS WELL VERSED IN THE METHODS AND TECHNIQUES WHICH HAVE BECOME FAIRLY STANDARD THROUGHOUT THE STATE. IT SHOULD BE POSSIBLE THEN, FOR THE N.S.W. SOCIETIES TO LOOK TO THE FORMATION OF A PERMANENT S & R BODY WITHIN N.S.W. AND THE ESTABLISHMENT OF TRAINING VENTURES FOR SELECTED PERSONNEL AS A SUPPLEMENT TO THE FULL SCALE S & R PRACTICE OPERATIONS.

NOTICES

1968 A.S.F. COMMITTEE MEETING

The 1968 committee meeting of the Federation will be held during the week-end 27th-28th-29th January, 1968 at Orange, New South Wales. Host society for the meeting will be the Orange Speleological Society.

Orange is situated in the Central Western District of N.S.W. with caving areas such as Cliefden, Walli and Wellington within easy driving distance.

Further details of the meeting will be published at a later date. Note that both society delegates and observers can attend the meeting.

BIBLIOGRAPHY OF AUSTRALIAN CAVES

by Bud Frank
Australian National University

Work has begun on a bibliography of Australian caves for publication, that will be useful to cavers and to other persons interested in caves.

It is proposed to examine all the Australian serials and books that may contain articles dealing wholly or partly with caves. All of the Australian speleological publications will of course be included and the earlier newspapers and popular magazines will also be examined. Articles in foreign publications will present some difficulty, but with the help of knowledgeable people in each major field of study and the references given in Australian publications the great majority and the most important of these should be uncovered.

There are four main points of difficulty that will arise or have already been encountered.

The first, and most obvious concerns the definition of a cave. Should articles on shelter caves be included? When does a shelter cave become a true cave? Should articles on filled caves be included? The basis of decision or exclusion on this point, as well as on the following ones, will be utility. If an article about a shelter cave or a filled cave has some historic, speleologic or scientific significance it will be included. If it is not significant it will be excluded.

The second major point concerns the amount of information given about a cave in an article. Should an article be included if it only barely mentions the existence of a cave? Almost all articles that contain a mere mention of a cave will be excluded except where they are the first record of the cave or where they have some other significance that would warrant inclusion.

The third major point requiring decision concerns articles that deal indirectly or broadly with Australian caves. These will not be included unless they make reference to specific caves or groups of caves. If the caves mentioned in the article cannot be named or located specifically the article will be excluded.

The fourth point concerns articles in newspapers, magazines and other popular publications. Earlier newspaper accounts will be included but an arbitrary cut off date, probably sometime in the early 1900's will be used, and the more recent newspaper articles will not be included. Popular magazine articles, may or may not be included depending on their worth, but, as with newspaper articles, the earlier ones will be included for their historic significance. Items such as brochures issued by commercial caves and other types of advertisement will not be included.

Other points of difficulty will undoubtedly arise as the compilation progresses. Should review articles be included? What about articles that have been destroyed or are otherwise unobtainable?

It is not intended that this bibliography be simply a list of references dealing with caves. Without a thorough indexing and cross referencing system a bibliography is of little use. At the very least the indexing and cross referencing system will include cave name, locality name, type of cave, major and minor subject of article, and, for biological references, taxonomic and common names.

The compilation of the bibliography will admittedly be a time consuming task but with the ever-increasing rate of published material it is essential that it be done now, before it becomes an impossible job.

MT. ETNA CAVES
ROCKHAMPTON QLD.

by Michael Graham

Reprinted from 'DOWN UNDER', Journal of the University of Queensland Speleological Society.

The following facts and rumours have been assembled from the sequence of events since U.Q.S.S. first became interested in the area and from local lore, learned from inhabitants during visits to the Caves Hotel and in the dealings with the local property owners.

The first recorded use of the caves was as a source of fertilizer for early German settlers. Johansen's Cave was mined extensively for guano; at first by crude methods with the men in bad conditions, prone in narrow crawlways, passing the guano out by a human chain with leather buckets; later with the enlarging of tunnels, trolley lines were laid. At present, all accessible guano has been removed.

To a speleo, the outer part of this system, bearing the marks of this activity, creates the atmosphere one would associate with a fire-gutted stone building. All the "True" atmosphere has been destroyed by the barricades of stacked rubble, blanketing dust, rotting timbers, broken rock-drills, painted and overpainted navigation marks and broken or soiled formation. This outer system is labyrinthic and the sculpturing of caverns, tunnels and arches is impressive.

During the 2nd War, Johansen's Cave was utilized as a munitions store while Mt. Etna provided the environment for a Commando Training School under the guidance of Captain (now Professor) S. Carey, for concealed activities "behind enemy lines". This was done with a small occasional amounts of debris (old cases and torch batteries) in areas where they do not spoil appearances. Captain Carey's team produced a very thorough map of four of the larger systems, around and including the Main Cave, showing surface contours and internal spot heights.

Pilkington's Quarry in the West face of the ridge over-looking Mt. Etna, has for most of its life been a smallish affair producing lime for burning, but has nevertheless eaten a large face into the limestone, and in doing so, has destroyed the most beautiful formation in the area; the Crystal Cave.

In 1962, all that remained of the original system, allegedly once loaded with shawls, columns, stalactites and a multitude of helictites, were a few vestigial passages with shattered beautiful debris. Now the cave is completely destroyed.

The Lands Department classification has devolved irrevocably into mining leases. In 1920, the limestone areas were gazetted as recreation reserves, the idea being to develop the tourist potential of the caves. However, these caves have no tourist potential, (their fascination is great – but for speleos) and of course the thing flopped. Meanwhile pressure from people wanting to use the limestone kept mounting while nothing was ever achieved cave-wise, until the present leasing became inevitable.

It should be noted here that the attitude of the Government and civilians has been one of financial exploitation throughout – tourism or mining. The abstract idea of preserving the caves for their intrinsic value and their value to the adventurous minority apparently has never crossed their minds. Thus any pressure at present for the creation of a national park has been overruled by the experience of the earlier Recreation Reserve idea which was really quite different.

The thing to deplore here is the lack of speleologically minded people at the right time: i.e. 40 years ago.

The U.Q.S.S. first developed an interest in the area in 1962, and an extended trip was made under the leadership of David Fenn in August. This party entered 14 caves on the limestone ridge and four on Mt. Etna, and conducted a thorough search of the Eastern flank of Mt. Etna, proving one cave only, (search has made no improvement on this). In December of the same year three of the Mt. Etna caves were mapped and an extremely large colony of Mineopteris sp. was noted in the Bat Cleft on the North flank. (Lately this has been recognised as a breeding colony).

Mt. Morgan Pty. Ltd., started to mine a site situated exactly at the entrance of the cavernous and extensive Johansen's system in 1963 and have succeeded in mining the rock profitably for flux purposes in copper smelting in spite of the "difficulty of blasting very cavernous limestone." Much of the produced limestone has "leaked", forming huge debris cones in chambers below the quarry floor. The cave is recorded as being a breeding cave for the rare False Vampire or "Ghost Bat" — Macroderma gigas and it was on these grounds that the Queensland Museum was able to exert influence which prevented further quarrying in that direction.

At this stage the attitude of U.Q.S.S. was "they've ruined the ridge but we still have Mt. Etna unscarred", and so withdrew up to the mountain stronghold to pursue a policy of splendid isolation.

However, in 1964 the newly formed Central Queensland Cement Co. bought the leases for Pilkington's Quarry and the limestone of Mt. Etna, causing a speleological panic. U.Q.S.S. undertook a programme of rapid exploration and mapping (where possible) to try and assess the extent and worth of the caves in the mountain.

By 1965, moves to set up mining operations were begun, forcing U.Q.S.S. to "go off half cocked". An appeal for support in a drive to restrict mining to non-cavernous limestone met with little interest from N.P.A. and Brisbane's naturalistic societies. The Queensland Museum felt that it could not act unless proof was produced showing the necessity of the caves to the bat populations (especially Macroderma gigas) for breeding purposes; i.e. the recommendation of a specialist in the study of Microchiroptera.

The result of the immature campaign by U.Q.S.S. was to antagonise the cement company with the result that an injunction was obtained from the Mining Warden in Rockhampton, permitting the cement company to eject the society if they caused trouble on the lease. U.Q.S.S. policy since then, has been to gain a thorough knowledge of the Mt. Etna caves with the object of providing information regarding extent and location of caverniferous sections to aid the company's stated policy of avoiding the mining of caves where possible, and to facilitate the co-operation of the company in the examination of new caves uncovered in the course of mining operations. However, at present, apartheid is still being enforced.

On the site, offices have been built, and there is now completed bulk-handling equipment:- endless scoop chains, and hoppers with truck loading bays. Apparently mining will commence on the Eastern flank where there is a large reserve of limestone already shown to be non-cavernous. Meanwhile, present demands are being met by renewed mining of Pilkington's Quarry.

Exploration to date had revealed the presence of the following listed caves which are presented with a numbering system, the names currently used by the society, together with an approximate grading for size. It is hoped to have entrances located on a map prepared from an aerial photo enlargement by the end of September.

.

SEARCH AND RESCUE PRACTICE – CLIEFDEN

During March, 1967, the Orange Speleological Society organised a Search and Rescue Practice at Cliefden Caves in the Central Western District of New South Wales.

O R G A N I S A T I O N

Two members of the society entered a cave in the area to represent the 'lost party'; their whereabouts not being officially known to the organisers. The situation explained to the 'rescuers' as they arrived at the caves was that the lost party had entered the area several days earlier and had not returned to their homes as expected. Members of the society had travelled to the caves and found the vehicle used by the cavers still parked. A surface search of the area revealed no conclusive evidence to which cave they could be in as several of the gated caves were found to be still unlocked. It was decided however, that they were still in a cave but it was not possible to determine which one. Assistance was then requested from other A.S.F. societies.

A base camp was established on a vantage point overlooking most of the limestone outcrop so that searchers arriving in the area could be contacted, registered by the organisers and allocated to search parties, dependant on their knowledge of the area and the caves.

T H E S E A R C H

Each search party leaving the base was equipped with two-way radio. Call times were issued and areas of search allocated.

Throughout the first day caves in the eastern half of the limestone were searched with various degrees of thoroughness, dependent upon their size and nature. Approximately two square miles of limestone was covered. The Main Cliefden Cave was still being searched when a halt was called for the evening.

On the second day, the search was transferred to the western half of the area. By midday, the search had narrowed to the area around the Taplow Flat. Here, two packs were found under a tree, close to the entrance to the Taplow Flat Cave. The cave is well known for its maze of interconnecting passages and dangerous and crumbling floors. All parties were redirected to the cave as they called into base on their radios. Base camp was then moved to the river flat opposite the cave entrance and eventually to the cave entrance.

T H E R E S C U E

Several groups of searchers entered the cave whilst others began to prepare rescue equipment at the entrance. Several stretchers were manufactured from saplings and clothing. A ladder was rigged on the 30 foot pitch inside the entrance chamber, together with a series of safety lines.

The 'lost party' was located at the far end of the cave. Both cavers had suffered 'injuries' when one had attempted to save the other from falling, whilst traversing above a short pitch in an extension they had discovered.

One was considered to have a broken leg while the other, possible head injuries. Both were suffering from exposure.

First aid was given on the site, however, as rescue was considered to be of prime importance, the rescue attempt was begun almost immediately.

Over two hours were required to move the injured cavers through several hundred feet of low, dust filled passages to the base of the ladder pitch. One caver was lifted up the ladder on the back of a rescuer, the other hauled up by ropes from above and guided from the ladder. All rescuers and rescued were safety-lined from the top of the pitch.

Once on the surface, further treatment was given to the injured before being driven to 'hospital' by a Land Rover brought to the cave entrance.

THE PHYSIOLOGY OF "FOUL AIR"

Reprinted from "StopPress" Newsletter of the Sydney Speleological Society.
by Dr. Ann Sefton.

Normal (dry) air contains approximately 79% nitrogen (N_2), and approximately 21% oxygen (O_2) and a negligible volume of 0.003% carbon dioxide (CO_2). In the body N_2 is inert, but O_2 is used by all living cells which produce CO_2 . This must be removed; air which is breathed out from the lungs at rest usually contains about 3% CO_2 and the O_2 concentration is reduced to 18%. The normal function of the body depends on its maintaining the "internal environment" within narrow limits, so that any decrease in O_2 or increase in CO_2 breathed in, will trigger compensatory mechanisms, which tend to remove excess CO_2 or to increase the volume of O_2 available to the tissues. The level of CO_2 in the blood and to a lesser extent, the level of O_2 , regulates breathing in normal and abnormal circumstances.

"Foul Air" underground in mines, usually refers to the presence of toxic gases, particularly carbon monoxide (CO) or methane (CH_4). In caves, the problems are different, because the term usually refers to an increase in CO_2 concentration, perhaps without, but often with a concomitant decrease in O_2 . The effects of foul air on cavers can be analysed by considering the effects of CO_2 alone, O_2 decreases alone, and then the combination, first at rest and then while exercising. In the discussion, air pressure is assumed to be close to 760mm Hg - equivalent to that at sea level.

I N C R E A S E I N CO_2 A L O N E (O_2 21%)

Any increase in CO_2 breathed in stimulates breathing, increasing both rate and depth (hyperventilation). With concentrations between 2 and 3%, the volume of air breathed per minute at rest may double, from (say) 8 to 16 litres without the subject being aware of any change in his breathing. With higher concentrations, the subject at rest will hyperventilate further and will begin to notice his respiratory effort. At a concentration of 6% CO_2 , the subject may breath 40-60 litres per minute, close to the maximum possible.

The hyperventilation, at least at low concentrations of CO_2 may compensate fully and successfully protect the subject.

When the CO_2 level in the blood begins to rise appreciably, mental confusion and depressed sensory acuity follow; the symptoms are potentially dangerous, because they distort judgement. Heart rate and blood pressure rise.

At this stage, if the subject returns to air of normal composition he will continue to hyperventilate for a short time. A headache commonly develops, often only on return to fresh air, and vomiting sometimes follows.

If the subject remains in the high CO_2 concentration, grave toxic effects occur; slowing of heart rate, unconsciousness, depression of breathing and death. The symptoms, particularly hyperventilation, provide a good warning of a potentially dangerous situation and should not be ignored.

D E C R E A S E I N O_2 (CO_2 N E G L I G I B L E)

O_2 concentration must be reduced to less than 15% before breathing in a subject at rest is affected. At this concentration, hyperventilation occurs, associated with dulling of the intellect and impaired sensations; this level of O_2 is equivalent to an altitude of about 8,500 feet. With greater decreases in oxygen levels, head-ache, depression, apathy and drowsiness or marked excitement and loss of self control are seen, associated

with muscular weakness and tiredness. Nausea and vomiting are common.

During a brief exposure to low O_2 conditions there may be no symptoms, these may develop only 8-12 hours later.

LOW O_2 PLUS HIGH CO_2

In many caves, CO_2 accumulates at the expense of O_2 (as reported for Bungonia). Thus a CO_2 level of (say) 5% is associated with an O_2 concentration of 16%. The combined efforts of low O_2 and high CO_2 are not simply additive; the lowered O_2 sensitises the subject to the increase in CO_2 . A given concentration of CO_2 will therefore have a much more profound effect in the presence of low O_2 , than in 21% oxygen. Conversely, the body can be protected to some extent against moderate increases in CO_2 concentration if the O_2 is increased well above 21%. For example, a mixture of 95% O_2 and 5% CO_2 can be breathed in comfort for very long periods.

THE EFFECTS OF EXERCISE

When a subject is exercising he needs much greater amounts of O_2 and he produces more CO_2 in the tissues. He hyperventilates, and a trained subject in severe exertion may exchange 60 litres of air per minute (close to the maximum possible). So that if he exercises in air containing low O_2 and high CO_2 his normal protective hyperventilation mechanism is no longer fully available to him; his tolerance of the foul air is reduced from that at rest and his exertions become less efficient.

With exercise, oxygen lack begins to assume great importance; at rest probably most of his symptoms will be due to CO_2 excess. Any oxygen level of 16% is similar to that existing at altitudes of 7,000 feet — equivalent to the 1968 Olympic Games site at Mexico City. Studies have shown already the discomfort produced by this altitude, further study is being continued.

INDIVIDUAL VARIATION AND LETHAL LEVELS

Subjects respond quite differently to the "foul air" situation, some being quite markedly affected by small changes in O_2 and CO_2 . This is related to the physiological state of the lungs (e.g. smoking) and to overall physical fitness, as well as to psychological differences.

It is obvious that no single "lethal level" of CO_2 can be given; a prolonged stay in moderate concentrations could be fatal. Experimentally, subjects are not subjected to concentrations of CO_2 greater than 6% if the O_2 level is reduced, as this concentration could certainly prove lethal if maintained for any length of time. This should be so, particularly if the subject were exercising.

COMMENTS ON RESPIRATORS

It is obvious from the foregoing remarks that a fully efficient respirator would both restore O_2 concentrations and to remove CO_2 . The report by Neville Michie in Stop Press (May, 1967) indicates that CO_2 removal is inadequate in preventing symptoms. This underlies the importance of maintaining adequate O_2 , particularly when exercising. It is not usually practicable to use enormous volumes of O_2 to provide protection against 5-6% CO_2 : thus O_2 respirators would be likely to be effective and safe only in lower CO_2 concentrations, unless CO_2 is also removed from the air to be breathed in.

Two other recent papers on foul air have been published apart from the "The Physiology of Foul Air" reprinted on the previous page. These are; "Foul Air Experiments" by N.A. Mitchie, Stop Press Vol.11, No 5 May, 1967 and "Underground Gases" collated by M. Gree, The Western Caver, Vol 6, No.5 October, 1966.

A measuring device, the Karathometer, is described and a circuit shown in the paper by Mitchie while the paper "Underground Gases" deals with five gases encountered underground and lists information regarding the danger, formation, properties and detection of these gases. Mitchie's paper also deals with methods to overcome foul air and three common signs of the presence of CO_2 . "Underground Gases" also suggests the use of animals to detect underground gases and also lists a "General Guide of Action in Dangerous Areas."

Here is listed the "Table of Flame Test Results" from "Underground Gases" and the information on the Karathometer from "Foul Air Experiments".

TABLE OF FLAME TEST RESULTS
FOR FLAT FLOORED CHAMBERS AND HORIZONTAL TUNNELS

TYPE OF FLAME	CONDITIONS WHEN FLAME EXTINGUISHED		DEGREE OF DANGER	SYMPTOMS
	% CO_2	% O_2		
Candle	3.0	17.9	Slight	Respiration at twice normal. Depth at normal rate.
Spirit Lamp	4.9	16.0	No immediate danger but becoming dangerous.	Laboured breathing.
Carbide Lamp	8.9	12.0	Extreme. Get out quickly. Only small safety margin.	Headache, vomiting, rapid pulse. Partial loss of consciousness.
	Greater than 10% CO_2		Critical	Rapid loss of consciousness.

The Karathometer consists of . . . "Four resistors formed by equal lengths of .001 inch platinum wire 2 inches long, in solid brass containers in two compartments, one sealed, one open to air but not draughts". . . These resistors form the legs of a Wheatstone Bridge circuit. One sealed resistor and one open resistor for a series circuit with a 250 m.A. current source, a 250 m.A. meter and a calibrating rheostat. A second series circuit contains the common open resistor and the second closed resistor, together with a 0.1 m.A. meter and calibrating rheostat. "Best results (are achieved) if the wires are 2 inches long. The bridge current is 250 m.A. and the wires coaxially mounted in 1/4 inch diameter metal holes."

LAVA CAVES AND ASSOCIATED FEATURES IN WESTERN VICTORIA

Reprinted from "S.U.S.S." Vol. 6, No. 10, Sydney Speleological Society Newsletter.

One of the field trips arranged following the A.S.F. Conference in Victoria was an excursion to the Lava Caves. The rolling plains of Western Victoria make up the third largest lava flow in the world, extending from Bachus Marsh to beyond the South Australian Border, and from the Glenelg Highway to the coast. Such tourist attractions as Mt. Gambier, and Tower Hill, Warrnambool are quite well known. Not so familiar are the numerous crater lakes, lava flows and caves.

The age of the lava flow varies greatly, the oldest being at least 20 million years, the youngest not much over 5 thousand, that is, after the arrival of the aborigines in Australia. The newness of the flow means that many features are preserved in fine detail. In many places, especially Byaduk, the rock has not had enough time to begin breaking down into soil, so that in this area the flow of lava appears like a dark patch on aerial photographs as it flows along valleys like a river in flood. Numerous craters of extinct volcanoes dot the landscape, accompanied by cinder cones etc. There are several crater lakes, Mt. Gambier and Tower Hill being the best known, although Mt. Eccles, being only 5,000 years old, is perhaps more interesting. Also at Mt. Eccles is a remarkable spatter cone rising about 40 feet above the surrounding countryside, and down which one can descend vertically for about 100 feet into the old magma chamber from which the lava was ejected. Around the rim of this little volcano one can still see the remarkably fresh signs where liquid lava dripped off rocks leaving flow marks, stalactites and the like.

Inside the caves are of about the same size as a railway tunnel, although some are larger, and others are asymmetrical. Church Cave, Byaduk, is of Mulla-mulla proportions in cross-section. The walls and floor are usually considerably darker in colour than limestone caves. Other than this the lava tunnels are very similar. The longest single cave is at Mt. Hamilton which has 3,126 feet of branching tunnels. The caves at Byaduk are all part of one single lava tunnel which has collapsed in several places, giving it the appearance of a succession of dolines. Many of the caves contain small lava stalactites up to several inches in length. In a recess of the Church Cave, Byaduk, a tiny growth of flowstone was observed — about 2 to 3 square inches in size. The origin of the calcite in this cave is obscure, the surface covering being basalt bedrock with practically no soil, and the roof of the cave only 10 to 15 inches thick. A small cave nearby seemed to contain some genuine calcite cave coral.

In some places there was very little surface collapse, e.g. Mt. Hamilton, the entrance to which is a narrow slit. Accordingly, it seems likely that there are other lava caves completely sealed from the surface awaiting the future explorer.

Lava caves occur also in North Queensland, where no exploration has been done, in Hawaii, where it is possible to actually look through a collapsed roof and see lava flowing inside the tube, in the Western United States and Uganda. Because there is no inherent reason why a lava tube should have good ventilation, many of the ones in the United States are Ice Caves e.g. at Lava Beds National Monument in northern California. In Crystal Falls Cave, Idaho, there are natural underground glaciers. Near the Snake River in Idaho there is a lava tube 20 miles long, most of it, unfortunately, collapsed.

ABSTRACTS AND REVIEWS

Cave Pearls in Mines. Kirchmayer M.

Reprints in library. Text in Australian, 18 figs. 6 tables, 40 pp, extensive bibliography.

Discusses the mineralogy, size of rings, frequency of rings etc., of cave pearls occurring in abandoned mines.

Swiss Speleological Society. Standard Symbols for Speleological use.

Adopted at the 4th International Congress of Speleology, September, 1966.

Published in Stalactite, December, 1966, 16 (3)

Greek Speleological Society.

4th International Symposium on the Speleology of the caves of Greece and surrounding countries. Papers in German, French and English (2). Illustrations, 199 pp.

Commemoration Issue from Institute of Speleology — Rumania. Vol. 5, 1966.

Contains 273 pp, 18 papers, illustrations and text figures on Speleology in Rumania — physical speleology, fauna, karst studies etc. Rumanian text.

Titles listed in French with some French abstracts.

Speleological Abstracts. Vol. 1, No. 1. Publications of 1962 in Great Britain.

Abstracts and references for areas in Great Britain. Contains 349 abstracts plus three chemical and 16 geomorphological abstracts.

Largest and Deepest Caves in Austria. Compiled by H. Trimmel. 1966. Supplement No. 14 to "Die Hohle".

Contains details of 17 caves ranging in length from 2 to 42 Km. and 18 caves ranging in depth from 205 to 710 metres. Also contains two lists of the deepest and the longest caves on earth as documented by the International Union of Speleology in December, 1965.

WANTED MOST URGENTLY! TRANSLATOR FOR TITLES OF OVERSEAS PUBLICATIONS

SCOUTING AT MOLE RIVER CAVES, QUEENSLAND, EASTER 1967.

At Texas, Qld., it was the occasion of the Senior Scout Venture and approximately 110 senior scouts attended. The choice of three activities was offered to the scouts: rock climbing, caving and canoeing. The scouts who chose caving were arranged in groups of about 30 and taken to the caves, situated about 12 miles from the camp. Here they were given a short talk on cave safety and conservation and shown through the Main Cave, River Cave and several smaller ones. They were introduced to the inhabitants of the caves and to the formations and decorations. At night, films were shown and talks given on conservation; slides of most examples of caves all over Australia being screened.

DOWN UNDER ALL OVER

by Kel Booth

CANBERRA SPELEOLOGICAL SOCIETY

By now most of the N.S.W. would have been told of the incident at Wee Jasper on 24th June, 1967. At about 4.30 p.m., "there was a muffled roar and the whole of the hill shook." By chance, some members of C.S.S. decided to look at the No.3 Extension of the Dip cave system. It was discovered that the rockfall at the end of No.3 had settled up to ten feet and had become very unstable. In the No.4 and No.5 Extensions, freshly broken decorations were found. No major collapse of any cave has yet been discovered, particularly from observations on the surface. The violence of the noise led people to believe that the roof of No.3 Extension had collapsed away. C.S.S. suggests the possibility of an earth tremor — a party on top of the "Punchbowl" heard a loud subterranean rumbling and those sitting on the ground felt the ground shake. However, no damage was observed in the Punchbowl Cave itself.

C.S.S. is working hard at Wee Jasper, surveying in the vicinity of the Dog Leg Cave in order to determine the location of the cave in relation to the actual survey of the cave itself. They have also discovered a promising hole on the Punchbowl Hill.

At Cooleman, an area on which they could be recognised as authorities, another small cave has been discovered. In March, about 20 further caves were numbered.

CAVE EXPLORATION GROUP (SOUTH AUSTRALIA)

Flinders Ranges, Norina Lake Cave (F11)

A new discovery, the cave is situated about 16 miles north of Blinman, and contains a large chamber with two lakes. Further on, there is a third lake, reached through a hole in the ceiling, joined to the other two lakes under water. "The cave contains decoration, columns, cave pearls and on the surface of the water is a thin layer of calcite flakes."

Kangaroo Island

Most of the energy of the group has been channelled into digging in the main Emu Cave, in Gartrell's Dig. Entry was late in the evening into a low chamber which did not extend.

C.E.G.S.A. plans publication of a paper on the Naracoorte caves of South Australia. They hope to publish late in 1967.

KEMPSEY SPELEOLOGICAL SOCIETY

.....Kempsey has once again been subjected to severe flooding. Caving has continued however, even though the caves are rather muddy. The May-June issue of TROG reports two trips.

Kunderang.

A five day trip to the Kunderang district met with little success as far as caving was concerned as the weather was cold, wet and sleety. However, the main purpose of the trip, that of building an extension to the cavers'

hut was fulfilled. Cave insects were collected in cave K 1. Surface exploration along the new Western Kunderang Trail, failed to locate the reported limestone.

Big Hill

K.S.S. had one of its biggest outings for some time at the Big Hill cave where 27 members gathered for a one day assault. Bats were reported but as they were high in the ceiling, could not be identified.

Temagog

K.S.S. joined with the Newcastle University Speleo's at Temagog and a new discovery made. A full report is not at hand as yet.

ORANGE SPELEOLOGICAL SOCIETY

Molong

Investigation of the recently exposed holes in the Molong Quarry did not provide what had hoped to be the access to the cave system that appears to be in existence in the area. The whole area is covered with a great number of depressions but no major cave system has ever been located. If a system is in existence then a great deal of work would be necessary to enter it. Vast quantities of rubble would have to be removed from the dolines before entry possibilities could be estimated. Foul air was detected in the quarry cave also, providing further difficulties.

At Boomey, the channelling of surface run-off into the main influx appears to be opening up the doline. Entry has been gained by excavation into the influx doline but progress has been halted by two large boulders. Dolines on the top of the hill above the influx are also receiving attention.

Cliefden

36 persons from seven N.S.W. societies attended the Search and Rescue Practice conducted by O.S.S. This is reported further in the Newsletter.

Since the S. and R. Practice, a new cave has been opened up at Cliefden. Numbered C1 31, it is situated near the Taplow Flat Cave (scene of the rescue in the S and R). A vertical choke of rubble was excavated for a depth of about six feet opening out into an enlarged joint. A cross joint gives access via a thirty-five foot pitch, to a chamber below. One further chamber with a flowstone floor completes the extent of the cave at present. The system of joints and cross joints appear to be highly fractured and unstable.

SYDNEY SPELEOLOGICAL SOCIETY

Wombeyan

The current spate of cave mapping in which the society is at present engaged is strongly evident at Wombeyan Caves where maps of most of the main caves have been prepared. The most recent addition is that of the Basin Cave which required approximately 100 survey stations to complete.

The topographical survey, begun earlier this year, has been continued along the Gorge of the Mares Forest Creek to its junction with the Wombeyan and the creek. Further trips will complete the main traverse upstream along Wombeyan Creek to the tourist caves area so as to include all the known caves.

Jenolan

A rapid trip was undertaken to J41 where the 'dig' at the bottom of the Pit of Babel was inspected. A small amount of excavation was carried out while the water level was low.

Interest in Mammoth Cave (J13) has been revived. A contingent of surveyors spent a week-end in the cave in order to continue the mapping of the system. Completed on this trip were surveys of the Sand Passage, the left hand branch of the Northern River section and several sections in the region of the Horseshoe Cavern were joined.

Walli

Several trips to this area have been concerned with the use of resistivity equipment to detect an accurately known cave — the Piano Cave. To date, the results indicate the difficulties that will be found in the interpretation of the data, rather than the use of the equipment.

Yarrangobilly

The society has been requested to carry out Direction Finding observations in the tourist reserve area at Yarrangobilly. So far, the area has been visited for discussions with the ranger with respect to several aspects of the work.

Bungonia

Exploration work at Bungonia is now occupying a large amount of the societies time both above and below ground. The efflux continues to receive attention: the long awaited breakthrough has not yet occurred.

A complex of sinkholes in the B51-16 area is being systematically investigated in an endeavour to force a connection into the B4-B5 cave system. B51 has received most of the work with many excavationstrips in the terminal passage.

Surface excavation work is being carried out in the B22 sinkhole.

TASMANIAN CAVERNEERING CLUB

Ida Bay, Exit Cave

Nearly four miles of passages have been surveyed and another two known but not yet mapped — a grand total of some six miles of passages. Although the most obvious leads have been followed up, exploration is by no means complete. The last major discovery was made in May when a breakthrough at Keller's Squeeze added another mile of cave.

This new extension is at least two miles from the entrance and has extended the cave almost to the steep sided valley to the West of Marble Hill. The presence of Cave Wetas and a number of skeletons suggest that the extension is close to the surface. The chances of another entrance appear good.

The greatest discovery, however, was the location of the surface entrance of 'Mini Martin'. The bottom of this shaft was first discovered early this year and caused considerable excitement. Although 'Mini Martin' is 400-500 feet below the surface, several logs were found at the base of the shaft and on a later visit the stem of a Man Fern was found sprouting a new leaf. This proved beyond doubt that there was a direct surface connection at this point. To locate the surface entrance, a survey party carried a traverse up Marble Hill to the vicinity of Big Tree Pot. A fissure approximately 50 feet long and 10 feet wide was located within 100 feet of

the position indicated by the underground survey. A strong draught was issuing forth from the siffure and stones fell for seven seconds though bouncing several times. Exploration of the fissure will confirm the strong suggestion that this is the shaft above Mini Martin.

Should a connection be made with Exit Cave a new Australian depth record of between 600 and 700 feet will be established.

The above report is reprinted almost verbatim from a concise progress report published in the T.C.C. magazine SPELEO SPEIL. Any article which is of sufficient interest to Cavers all over Australia, is assured of republication —Ed.

The surface connection of 'Mini Martin' is undoubtedly a triumph for the surveyors of Exit Cave as the survey involves some 70 underground stations and 172 surface stations — Ed.

West Coast, Mt. Anne.

A disappointing report on the Mt. Anne area means that the proposed expedition may be cancelled. Four members of T.C.S. spent three days in the area in freezing weather. Two of the major dolines were entered and both contained caves. The first cave became too narrow for further exploration after 120 feet of horizontal passages. The second proved more promising, requiring 140 feet of ladders on two pitches. An extension of the cave did not continue.

UNIVERSITY OF N.S.W. SPELEOLOGICAL SOCIETY AND METROPOLITAN SPELEOLOGICAL SOCIETY

These two societies are now operating under a common trip programme. The Highland Cave Group has also been invited to join in.

Wyanbene and Marble Arch

Two trips have been made here. The major trip lasted two weeks and was concerned mainly with the exploration and surveying of caves in both areas.

A thirty hour Meteorological study was carried out in the Wyanbene Cave and consisted of a manned cave station recording: pressure, temperature, humidity and "wind" velocity and an automatic recording surface station. The old tourist section of Wyanbene Cave was surveyed to CRG grade 3 and grade 4 sketches of caves at Marble Arch made.

Jenolan

Trips to the Alladin and Glass Caves for restoration work and surveying and photographic trip to the Red Cave.

.

CONTENTS

EDITORIAL, NOTICES	1
BIBLIOGRAPHY OF AUSTRALIAN CAVES Bud Frank	
CONSERVATION ACTION	
Mt. Etna Caves, Rockhampton, Qld. M. Graham	3
SEARCH AND RESCUE PRACTICE	
1967 Search and Rescue Practice at Cliefden, N.S.W.	5
PHYSIOLOGY OF FOUL AIR	
Effects of CO ₂ levels on human performance Dr. A. Sefton	6
OTHER COMMENTS ON FOUL AIR	
The Karathometer CO ₂ Meter and Table of Flame Test for CO ₂	8
LAVA CAVES IN WESTERN VICTORIA	9
ABSTRACTS AND REVIEWS	10
MISCELLANEOUS NOTES	
Scouting at Mole River Caves, QLD	10
DOWN UNDER ALL OVER	
News from around the societies	11

.