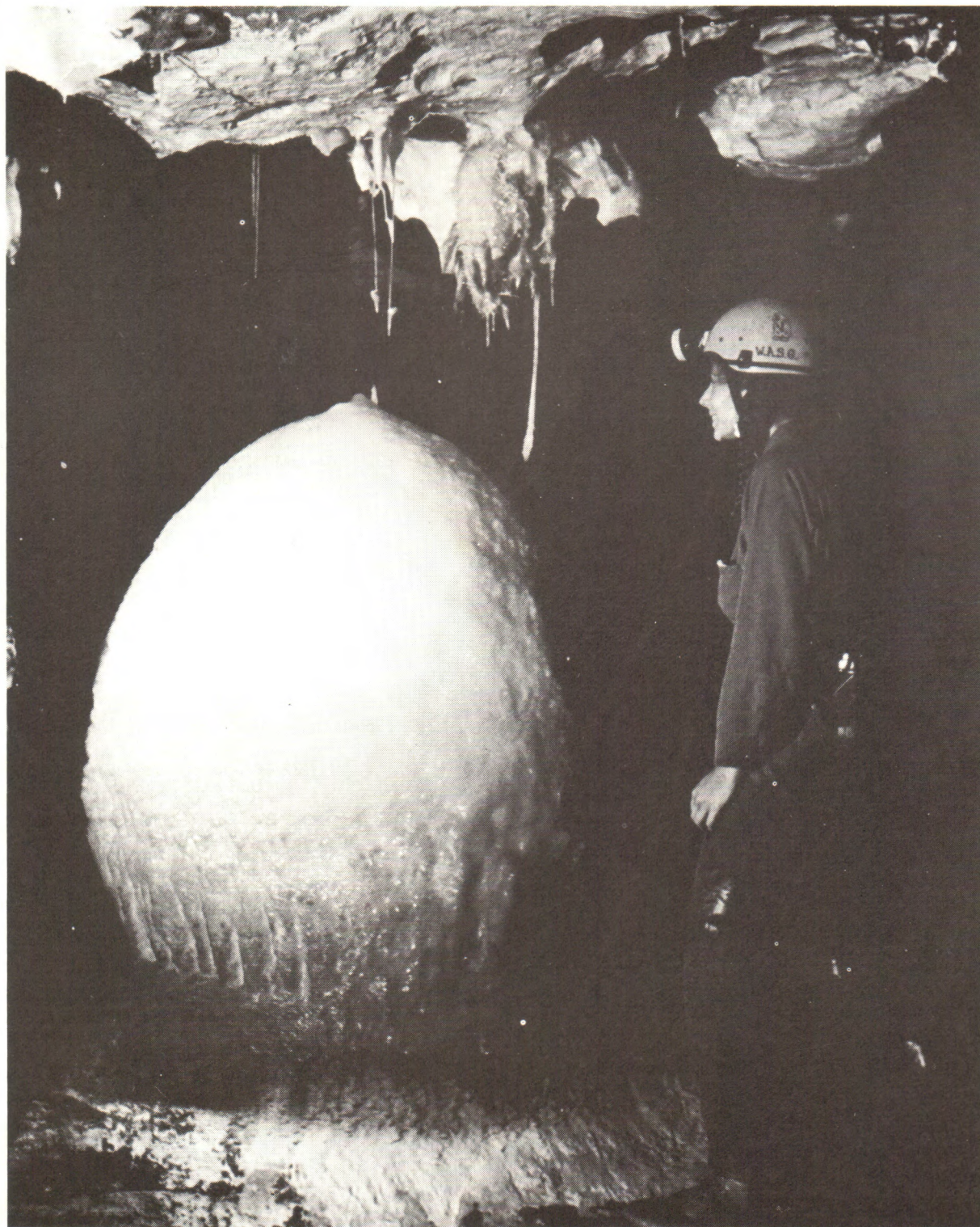


# ASF

# NEWSLETTER

Autumn, 1979, No. 83



## THE AUSTRALIAN SPELEOLOGICAL QUARTERLY

Ev Tulp contemplating "The Lemon", in Easter Cave, Augusta, W.A.  
Photo by Glen Pure.

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AUSTRALIAN SPELEOLOGICAL FEDERATION

P.O. BOX 388

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**50c**

Recommended

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# ASF NEWSLETTER

NUMBER 83, AUTUMN 1979.

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## EDITORIAL

WACCON was well attended, considering the trek across the continent. Some of the papers presented at the Conference may well be an indicator to the direction of Speleology within Australia in the 1980's, namely that while the number of caving areas in Australia is limited, (by a sad trick of geological fate), the ASF affiliated clubs' members are only "the tip of the iceberg" of those numbers "going caving". This has been caused by the explosion of outdoor recreation in the past ten years.

The problem for ASF and Australian Speleology in the 1980's as I see it is twofold, to wit:

- More people want to cave, (as opposed to being speleologists), without being connected with the ASF. Steven Bunton suggests that ASF societies should go more to the public. This could be a difficulty. ASF is pledged to protect caves, and many caves cannot cope with heavy visitor traffic, no matter how fine their caving ethics.
- As more and more areas become restricted access, traffic is directed to the 'open areas', with the resultant pleas that these areas must become restricted areas. Caves with bats are very much at risk here, as they are not gated, (Well, I hope they are not gated, as studies have shown in the U.S. that bats fly out of their caves by memory, not by radar.). This policy could well be self defeating. Heavy traffic is directed to the very place one wishes to be avoided.

Australia may well be an 'open area' compared with overseas areas, but here is another point. Is this 'restriction' in keeping with the 'Australian character' as seen by the powers that be? Public relations will be a big factor.

Will these problems come to naught anyway? Public mobility, (and cavers!) will be lessened by petrol rationing. The week-end trip may well be a thing of the past.

I would like to add that the opinions expressed here are those of the editor, and not necessarily those of the Federation.

I will leave you with a quote - "I'm suspicious of someone who doesn't want to go caving with an ASF affiliated club.", followed in almost the same breath by, "It's morally wrong to deny the public an almost open go on caving areas." This was from someone who has been caving for more than ten years. It's good the problems are being discussed. Tell your delegate to the Committee meeting what your opinions are on the topic.

Rosie Shannon.

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## DEADLINES FOR NEXT ISSUES

Nos. 83, 84 and 85 are 31st. July, 30th. September and 30th. November respectively.

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## NOTICES & NEWS

### ASF COMMITTEE MEETING-1980.

Date: Australia Day Long Weekend. Venue: Buchan, Victoria.

Notices have supposedly been sent to all clubs and office bearers of the Australian Speleological Federation. The notice asked for a response to indicate numbers of possible, (not definite) delegates. Only one response has come so far, from S.R.G.W.A. Perhaps the notices have not been received, or your club has not considered the matter yet. If you have not received notification, please write to the address below.

If you are coming, or even mildly interested, please notify Lloyd, so he can plan for accommodation and catering. This is especially important, if delegates intend bringing family or friends. Unexpected delegates and families may find there is no accommodation.

Lloyd Mill,  
c/- 21 Carlyle St.,  
Ashwood, Vic., 3147.

\*\*\* - \* - \* - \*\*\*

### EDIE SMITH AWARD

In 1978, this award was given to Ben Nurse, of Sydney, (SSS).

### CAVING EQUIPMENT AWARD

These awards were presented at WACCON, for

- (a) Best Map. "Never to be seen again" Cave, (WJ 131), by J. Brush and Gordon Taylor. Look for it in "The Very Latest", Vol. 9(2).
- (b) Humour. "Notes on the Exploration of the Antipodes", by Prof. G. Grimsley and his lady, Louisa. "Down Under", Vol. 16 (5), pp. 129-133.

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### CAVING IN CHINA ?

"In a few hours I saw from the moving train more cave entrances, large and small, than I have been into in my whole life."

(Joe Jennings describing his tour of caves and karst of China in 1975.)

The most exciting cave and karst area in the world is now open. As advised at the last Committee Meeting, a tour of China is being organized on behalf of the Federation, concentrating on the great karst regions of the south-west of the country, where there is over 600,000 square kilometres of karst. Some highlights of the proposed itinerary are:

KWEILIN- Boat trip on the Li River past massive tower karst to Yangshuo. Tourist caves near

Kweilin e.g. Reed Flute and Seven Stars Caves.

KUNMING- Stone Forest of Lunan, underground dams and power station, several caves.

KWANGCHOW -Side trip to Chaoching-Lion Ridge, Rice, Lake and Two Sources Caves.

LIUCHOW- Tule Rock Cave, Tian Dung Cave.

PEKING- Choukoutien Caves, Great Wall etc.

The tour will probably run from 29th. December, 1979 to the 19th. January, 1980. Expected cost is about \$1500 to \$1800. There are one or two vacancies remaining, and a waiting list is being opened.

A deposit of \$50 is required to secure a place on the list of 'starters'. Cheques should be made payable to "SPELEOTOURS AUSTRALIA", and forwarded to John Dunkley at 3 Stops Place, Chifley, ACT. 2606. Applications will be listed in strict order of receipt. John Dunkley will be pleased to forward further information.

SEE CHINA AND ITS CAVES WITH FELLOW SPELEOS !

\*\*\* - \* - \* - \*\*\*

### NEWS FROM JENOLAN

SUSS reports that a section of underground river has been found. It was found by pushing through Spider Cave. My informant mentions over six hundred metres of passage, including one hundred and forty metres of river passage, averaging five to ten metres wide, six metres high, with avents rising perhaps fifty metres. This section is not connected with the sections found by diving. This is probably the greatest discovery in one day at Jenolan for over 75 years—even Wiburds and Barralong did not yield six hundred and fifty metres in one day.

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**Australian Speleological Federation**

**CAVE & KARST**

**TERMINOLOGY**

Published July, 1979

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P.O. Box 388

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# CAVE AND KARST TERMINOLOGY

J.N. Jennings

This list of terms is substantially longer than that included in the First Edition of the Speleo Handbook (1968). The increase reflects the greater depth and breadth of interest of Australian speleologists in caves and their surroundings. It remains a highly selective list of terms recommended for use in particular ways by Australians and it does not purport to gather comprehensively actual usage, good, bad and indifferent. For more complete collections of terms the following publications are the most useful:-

- W.H. Monroe 1970 A Glossary of Karst Terminology. U.S. Geological Survey Water Supply Paper 1899K.
- H. Trimmel 1965 Speläologisches Fachwörterbuch. Third International Speleological Congress. Vol. C.
- P. Fénelon 1968 Vocabulaire français des phénomènes karstiques. Mémoires et Documents du Centre Documentaire Cartographique et Géographique, 4, 193-282.
- C.A. Hill 1976 Cave Minerals. National Speleological Society, Huntsville.

English equivalents of foreign terms have been preferred except where the latter have long-established and agreed usage or where there is no precise counterpart in English. Amongst English words, simple Anglo-Saxon words are preferred to new inventions from Greek and Latin roots. Some terms which have markedly conflicting and confusing usages either within Australia or abroad or between Australia and abroad are omitted as the best deterrent to their further employment here. A very few terms not yet in common use have been introduced where these offer the opportunity of avoiding conflicting usages of other words which need to be retained despite this. A preliminary list was circulated to the A.S.F. clubs and to a number of individuals for comment. The final list reflects very much suggestions from and discussions with the following:-

E.G. ANDERSON, W.J. COUNSELL, J.R. DUNKLEY, JULIA M. JAMES, G.S. HUNT, D.C. LOWRY, P. MATTHEWS, N. MONTGOMERY, G.J. MIDDLETON, A. PAVEY, AOLA M. RICHARDS, T.M. WIGLEY, and the National University Caving Club.

It must not be thought, however, that these helpers agree with the composition of the list or with every definition. Nor in a sense do I since I have allowed my own opinion to be overruled in many cases, though I have dug my toes in over some. No selection will please everybody, still less the meanings given to those chosen, but to assemble all terms and usages would not only result in a volume to itself but might confuse more cavers than it would assist.

Published 1979

Replaces list in ASF Speleo Handbook (ed. P. Matthews) 1968

Australian Speleological Federation  
P.O. Box 388, Broadway, NSW 2007



ABBREVIATIONS AND CONVENTIONS

Syn. = synonym (word with same meaning)

Cf. = confer (compare) with the following term which is not identical but related to it.

n. = noun

v. = verb

A word in brackets in the left-hand column is commonly used in conjunction with the preceding word without altering the meaning.

A word in *italic* is defined elsewhere in this list.

Square brackets enclose statements not part of the definition but for special reasons included in the list.

ABNEY LEVEL	A type of <i>clinometer</i> with a bubble tube used in cave survey to determine <i>vertical angles</i> .
ABSEIL (n.)	A controlled descent of a rope using friction obtained by (1) wrapping the rope around the body in a particular way or (2) passing the rope through a <i>karabiner</i> or (3) passing the rope through a <i>descender</i> .
ABSEIL (v.)	To do an abseil.
ACCIDENTAL (n.)	An animal accidentally living in a cave.
ACETYLENE	An inflammable hydrocarbon gas, $C_2H_2$ , produced by water reacting with calcium <i>carbide</i> . When burnt, yields carbon dioxide as well as light.
ACTIVE CAVE	A cave which has a stream flowing in it. Cf. <i>live cave</i> .
ADAPTATION	As inherited character of an organism in structure, function or behaviour which makes it better able to survive and reproduce in a particular environment. Lengthening of appendages, loss of pigment and modification of eyes are considered adaptations to the <i>dark zone</i> of caves.
AGGRESSIVE	Referring to water which is still capable of dissolving more <i>limestone</i> , other <i>karst rock</i> , or <i>speleothems</i> .
ANASTOMOSIS	A mesh of <i>tubes</i> or <i>half-tubes</i> .
ANCHOR	A fixed object used to secure a man whilst operating a safety rope or for attaching equipment such as ladders or ropes.
ARAGONITE	A less common crystalline form of calcium carbonate than <i>calcite</i> , denser and orthorhombic.
ARTEFACT	A product of human manufacture or art, e.g. tools of bone, stone, etc., paintings, engravings. In caves tools are often buried in <i>sediment</i> . [Scientific attention should be drawn to the finding of artefacts in caves.]
ARTHROPODS	The most common group of animals inhabiting caves, including insects, crustaceans, spiders, millipedes, etc. They have jointed limbs and external skeletons.



ASCENDER	A mechanical device for ascending ropes.
ASSOCIATION	A relatively stable community of different species living in a characteristic habitat.
AZIMUTH	The true bearing of a survey line, determined by measurement from an accurate survey or by observations of sun or stars.
BARE KARST	<i>Karst</i> with much exposed bedrock.
BAT	A member of the order Chiroptera, the only mammals capable of true flight as they have membranes between the toes of their forefeet.
BATHYPHREATIC	Referring to water moving with some speed through downward looping passages in the <i>phreatic zone</i> .
BEARING	The angle measured clockwise that a line makes with the north line. True, magnetic and grid bearings are measured respectively from true, magnetic and grid north.
BED	A depositional layer of sedimentary bedrock or unconsolidated sediment.
BEDDING-GRIKE	A narrow, rectilinear slot in a karst rock outcrop due to solution along a <i>bedding-plane</i> .
BEDDING-PLANE	A surface separating two <i>beds</i> , usually planar.
BEDDING-PLANE CAVE	A cavity developed along a <i>bedding-plane</i> and elongate in <i>cross-section</i> as a result.
BELAY	(1) To attach to an <i>anchor</i> . (2) To operate a <i>safety line</i> .
BIOSPELEOLOGY	The scientific study of organisms living in caves.
BLIND SHAFT	A vertical extension upwards from part of a cave but not reaching the surface; small in area in relation to its height.
BLIND VALLEY	A valley that is closed abruptly at its lower end by a cliff or slope facing up the valley. It may have a perennial or intermittent stream which sinks at its lower end or it may be a <i>dry valley</i> .
BLOWHOLE	(1) A hole to the surface in the roof of a <i>sea cave</i> through which waves force air and water. (2) A hole in the ground through which air blows in and out strongly, sometimes audibly; common in the Nullarbor Plain.
BOLT	A high tensile steel bolt used as an <i>anchor</i> ; either a conical bolt screwed into a metal holder in a hole drilled in rock, causing expansion for grip, or a bolt with partially filed thread hammered into a slightly smaller hole.
BONE BRECCIA	A <i>breccia</i> containing many bone fragments. [Scientific attention should be drawn to the finding of such in caves.]
BRAKE BAR	A round bar hinged to a <i>karabiner</i> or <i>rappel rack</i> used for abseiling.
BRANCHWORK	A dendritic system of underground streams or passages wherein branches join successively to form a major stream or passage.



BREAKDOWN	Fall of rock from roof or wall of a cave.
BRECCIA	Angular fragments of rock and/or fossils cemented together or with a matrix of finer sediment. Cf. <i>bone breccia</i> .
BRUNTON COMPASS	A type of <i>compass</i> , with a hinged mirror, which can be held in the hand or mounted on a tripod and which includes a <i>clinometer</i> . Designed also for measuring rock dip and strike.
CALCITE	The commonest calcium carbonate ( $\text{CaCO}_3$ ) mineral and the main constituent of <i>limestone</i> , with different crystal forms in the rhombohedral subsystem.
CANOPY	A compound <i>speleothem</i> consisting of a <i>flowstone</i> cover of a bedrock projection and of a fringe of <i>stalactites</i> or <i>shawls</i> on the outer edge.
CANYON	(1) A deep valley with steep to vertical walls; in <i>karst</i> frequently formed by a river rising on impervious rocks outside the karst area. (2) A deep, elongated cavity cut by running water in the roof or floor of a cave or forming a cave passage.
CARBIDE	Calcium carbide, $\text{CaC}_2$ , used with water to make <i>acetylene</i> in lamps.
CAVE	A natural cavity in rock large enough to be entered by man. It may be water-filled. If it becomes full of ice or sediment and is impenetrable, the term applies but will need qualification.
CAVE BLISTER	An almost perfect hemisphere of egg-shell calcite.
CAVE BREATHING	(1) Movement of air in and out of a cave entrance at intervals. (2) The associated air currents within the cave.
CAVE CORAL	Very small <i>speleothems</i> consisting of short stalks with bulbous ends, usually occurring in numbers in patches.
CAVE EARTH	Clay, silt, fine sand and/or humus deposited in a cave.
CAVE ECOLOGY	The study of the interaction between cave organisms and their environment, e.g. energy input from surface, climatic influences.
CAVE FILL	Transported materials such as silt, clay, sand and gravel which cover the bedrock floor or partially or wholly block some part of a cave.
CAVE FLOWER	Syn. <i>gypsum flower</i> .
CAVE PEARL	A smooth, polished and rounded <i>speleothem</i> found in shallow hollows into which water drips. Internally has concentric layers around a nucleus.
CAVE POSTULE	A white, hemispherical wall and roof deposit of calcite.
CAVE SPRING	A natural flow of water from rock or sediment inside a cave.
CAVE SYSTEM	A collection of caves interconnected by enterable <i>passages</i> or linked hydrologically or a cave with an extensive complex of chambers and passages.
CAVERNICOLE	An animal which normally lives in <i>caves</i> for the whole or part of its life cycle.



CAVING	The entering and exploration of caves.
CAVERN	A very large <i>chamber</i> within a cave.
CENOTE	A partly water-filled, wall-sided <i>doline</i> .
CHAMBER	The largest order of cavity in a cave, with considerable width and length but not necessarily great height.
CHERT	A light grey to black or red rock, which fractures irregularly, composed of extremely fine crystalline silica and often occurring as nodules or layers in limestone.
CHIMNEY	A vertical or nearly vertical opening in a cave, narrow enough to be climbed by <i>chimneying</i> .
CHIMNEYING	Ascending or descending by means of opposed body and/or limb pressures against two facing walls.
CHOCK	A block of metal for use as a <i>chockstone</i> .
CHOCKSTONE	A rock wedged between two fixed rock surfaces.
CHOKE	Rock debris or cave fill blocking part of a cave.
CLAUSTROPHOBIA	An irrational fear of being in a closed space.
CLINOMETER	An instrument for measuring <i>vertical angles</i> or angles of <i>dip</i> .
CLOGGER	A type of ascender without a handle; used with a <i>karabiner</i> to keep it securely on the rope.
CLOSED TRAVERSE	A <i>traverse</i> which begins and ends at survey points with known coordinates and <i>orientation</i> or at the same point.
COCKPIT KARST	<i>Conekarst</i> in which the residual hills are chiefly hemispheroidal and the closed depressions often lobate.
COLUMN	A <i>speleothem</i> from floor to ceiling, formed by the growth of a <i>stalactite</i> and a <i>stalagmite</i> to join, or by the growth of either to meet bedrock.
COMPASS	An instrument with a magnetic needle which is free to point to <i>magnetic north</i> . For survey the needle is either attached to a graduated card or can be read against a graduated circle to measure the angle in degrees from the north clockwise.
CONEKARST	Karst, usually tropical, dominated by its projecting residual relief rather than by its closed depressions.
CONDUIT	An underground stream course completely filled with water and under <i>hydrostatic pressure</i> or a circular or elliptical passage inferred to have been such a stream course.
COPROLITE	Fossilised large excrement of animals, sometimes found in caves, especially those used as lairs.
COPHROPHAGE	A <i>scavenger</i> which feeds on animal dung, including <i>guano</i> .
CORRASION	The wearing away of bedrock or loose sediment by mechanical action of moving agents, especially water.
CORROSION	Syn. <i>solution</i> .
COVERED KARST	Karst where the bedrock is mainly concealed by soil or superficial deposits.



CRAWL (WAY)	A <i>passage</i> which must be negotiated on hands and knees. Cf. <i>flattener</i> .
CROSS-SECTION	A <i>section</i> of a cave passage or a chamber across its width.
CRYPTOZOA	The assemblage of small terrestrial animals found living in darkness beneath stones, logs, bark, etc. Potential colonisers of caves.
CRYSTAL POOL	A cave pool generally with little or no overflow, containing well-formed crystals.
CURRENT MARKING	Shallow asymmetrical hollows formed by solution by turbulent waterflow and distributed regularly over karst rock surfaces. Cf. <i>scallop</i> .
CURTAIN	A <i>speleothem</i> in the form of a wavy or folded sheet hanging from the roof or wall of a cave, often translucent and resonant.
DARK ZONE	The part of a cave which daylight does not reach.
DARK ADAPTATION	A change in the retina of the eye sensitising it to dim light (the eye 'becomes accustomed to the dark'). Loss of sensitivity on re-exposure to brighter light is 'light adaptation'.
DAYLIGHT HOLE	An opening to the surface in the roof of a cave.
DEAD CAVE	A cave without streams or drips of water.
DECLINATION	The angle from <i>true</i> (or <i>grid</i> ) <i>north</i> to <i>magnetic north</i> for a given time and place.
DECOMPOSERS	Living things, chiefly bacteria and fungi, that live by extracting energy from tissues of dead animals and plants.
DECORATION	Cave features due to secondary mineral precipitation, usually of calcite. Syn. <i>speleothem</i> .
DESCENDER	A mechanical device for descending ropes.
DEVELOPED SECTION	The result of straightening out a <i>section</i> composed of several parts with differing directions into one common plane. Usually the plane is vertical and the length of the section equals the plan lengths of the passages and chambers comprising it.
DIG	An excavation made (1) to discover or extend a cave or (2) to uncover artefacts or animal bones.
DIP	The angle at which beds are inclined from the horizontal. The true dip is the maximum angle of the <i>bedding planes</i> at right angles to the <i>strike</i> . Lesser angles in other directions are apparent dips.
DOG-TOOTH SPAR	A variety of <i>calcite</i> with acute-pointed crystals.
DOLINE	A closed depression draining underground in karst, of simple but variable form, e.g. cylindrical, conical, bowl- or dish-shaped. From a few to many hundreds of metres in dimensions.
DOLINE KARST	Karst dominated by closed depressions, chiefly <i>dolines</i> , perforating a simple surface.



DOLOMITE	(1) A mineral consisting of the double carbonate of magnesium and calcium, $\text{CaMg}(\text{CO}_3)_2$ . (2) A rock made chiefly of dolomite mineral.
DOMAIN	A biological region of the earth's crust.
DOME	A large hemispheroidal hollow in the roof of a cave, formed by <i>breakdown</i> and/or <i>salt weathering</i> , generally in mechanically weak rocks, which prevents bedding and joints dominating the form.
DONGA	In the Nullarbor Plain a shallow, closed depression, several metres deep and hundreds of metres across, with a flat clay-loam floor and very gentle slopes.
DRIPHOLE	A hole formed by water dripping onto the cave floor.
DRIPLINE	A line on the ground at a cave entrance formed by drips from the rock above. Useful in cave survey to define the beginning of the cave.
DRIPSTONE	A deposit formed from drops falling from cave roofs or walls, usually of <i>calcite</i> .
DRY CAVE	A cave without a running stream. Cf. <i>dead cave</i> .
DRY VALLEY	A valley without a surface stream channel.
DUCK (-UNDER)	A place where water is at or close to the cave roof for a short distance so that it can only be passed by submersion.
DUNE LIMESTONE	Syn. <i>eolian calcarenite</i> .
DYE GAUGING	Determining stream discharge by inserting a known quantity of dye and measuring its concentration after mixing.
DYNAMIC PHREAS	A <i>phreatic zone</i> or part of a <i>phreatic zone</i> where water moves fast with turbulence under <i>hydrostatic pressure</i> .
EASTING	(1) The distance of a point east of the point of origin of the <i>grid</i> of a map or some abbreviation of it. (2) The west-east component of a survey <i>leg</i> , or of a series of legs or of a complete <i>traverse</i> ; east is positive and west is negative.
ECCENTRIC	A <i>speleothem</i> of abnormal shape or attitude. Cf. <i>helictite</i> .
ENDOGEAN	Pertaining to the <i>domain</i> immediately beneath the ground surface, i.e. in the soil or plant litter.
EOLIAN CALCARENITE	A limestone formed on land by solution and redeposition of calcium carbonate in coastal dune sands containing a large proportion of calcareous sand from mollusc shells and other organic remains.
EPIGEAN	Pertaining to the biological <i>domain</i> at the surface or above it.
EPIPHREATIC	Referring to water moving with some speed in the top of the <i>phreatic zone</i> or in the zone liable to be temporarily in flood time part of the <i>phreatic zone</i> .
EROSION	The wearing away of bedrock or sediment by mechanical and chemical actions of all moving agents such as rivers, wind and glaciers at the surface or in caves.



EXSURGENCE	A <i>spring</i> fed only by <i>percolation</i> water.
FAULT	A fracture separating two parts of a once continuous rock body with relative movement along the <i>fault plane</i> .
FAULT CAVE	A cave developed along a <i>fault</i> or fault zone, either by movement of the fault or by preferential solution along it.
FAULT PLANE	A plane along which movement of a fault has taken place.
FISSURE	An open crack in rock or soil.
FISSURE CAVE	A narrow, vertical cave passage, often developed along a joint but not necessarily so. Usually due to solution but sometimes to tension.
FLATTENER	A <i>passage</i> , which, though wide, is so low that movement is only possible in a prone position.
FLOE CALCITE	Very thin flakes of <i>calcite</i> floating on the surface of a cave pool or previously formed in this way.
FLOWSTONE	A deposit formed from thin films or trickles of water over floors or walls, usually of <i>calcite</i> . Cf. <i>travertine</i> .
FLUORESCEIN	A reddish-yellow organic dye which gives a green fluorescence to water. Detectable in very dilute solutions so used in <i>water tracing</i> and <i>dye gauging</i> in the form of the salt, sodium fluorescein.
FLUOROMETER	An instrument for measuring the fluorescence of water; used in <i>water tracing</i> and <i>dye gauging</i> .
FORESTRY COMPASS	A lightweight, compact instrument to be mounted on a tripod, which functions as a <i>compass</i> and a <i>clinometer</i> , and has a telescopic sight. Some types facilitate measurement of horizontal angles as well as <i>bearings</i> .
FOSSIL	The remains or traces of animals or plants preserved in rocks or sediments.
FREE PITCH	Where a rope or ladder hangs vertically and free of the walls.
FREE-SURFACE STREAM	A cave stream which does not normally fill its passage to the roof.
GARDENING	Clearing stones or other loose material from a route, usually a pitch, which might otherwise be dangerous to a caver continuing.
GIBBS	An <i>ascender</i> with its cam operated by the weight of the caver.
GLACIER CAVE	A cave formed within or beneath a glacier.
GOUR	Syn. <i>rimstone dam</i> .
GRADE	The class of a cave survey on the basis of the precision of the instruments and the accuracy of the methods.
GRID	A system of squares on a map formed by straight lines which represent progressive distances east and north of a fixed point of origin.
GRID NORTH	The direction of a north-south grid line on a map. Except for the north-south grid line through the point of origin of the <i>grid</i> , it will differ slightly from <i>true north</i> .



GRIKE	A deep, narrow, vertical or steeply inclined, rectilinear slot in a rock outcrop due to solution along a joint.
GROTTO	A room in a cave of moderate dimensions but richly decorated.
GROUNDWATER	Syn. <i>phreatic water</i> .
GUANO	Large accumulations of dung, often partly mineralised, including rock fragments, animal skeletal material and products of reactions between excretions and rock. In caves, derived from bats and to a lesser extent from birds.
GUANOBIAS	An animal association feeding on guano. Not considered true <i>cavernicoles</i> as guano is not confined to caves.
GYPSUM	The mineral hydrated calcium sulphate, $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ .
GYPSUM FLOWER	An elongated and curving deposit of gypsum on a cave surface.
HALF-BLIND VALLEY	A blind valley which overflows its threshold when the stream sink cannot accept all the water at a time of flood.
HALF TUBE	A semi-cylindrical, elongate recess in a cave surface, often meandering or <i>anastomosing</i> .
HALITE	The sodium chloride mineral, $\text{NaCl}$ , in the cubic crystalline system.
HALL	A lofty chamber considerably longer than it is wide.
HARNESS	An arrangement of tape for attaching the lower body (seat harness) or the upper (chest harness) to <i>ascenders</i> or <i>descenders</i> .
HELICITITE	A <i>speleothem</i> , which at one or more stages of its growth changes its axis from the vertical to give a curving or angular form.
HELMET	A miner's, climber's or other kind of non-metallic, protective helmet used in caving.
HISTOPLASMOSIS	A lung disease which may be caught from the guano of some caves, caused by a fungus, <i>Histoplasmosis capsulatum</i> . Usually mild in effect, it can be fatal in rare cases.
HORIZONTAL ANGLE	The difference in direction of two survey lines measured clockwise in a horizontal plane.
HYDROSTATIC PRESSURE	The pressure due to a column of water.
HYPOGEAN	Pertaining to the domain below the endogean, including the dark zone of caves.
ICE CAVE	A cave with perennial ice in it.
INFLOW CAVE	A cave into which a stream enters or is known to have entered formerly but which cannot be followed downstream to the surface.
INTERSTITIAL MEDIUM	Spaces between grains of sand or fine gravel filled with water which contains <i>phreatobia</i> .
INVERTED SIPHON	A siphon of U-profile.



JOINT	A planar or gently-curving crack separating two parts of once continuous rock without relative movement along its plane.
JOINT-PLANE CAVE	A cavity developed along a joint and elongate in cross-section.
JUMAR	An <i>ascender</i> with a simple finger-operated safety catch, a handle and several attachment points.
KANKAR	(pronounced kunkar) A deposit, often nodular, of calcium carbonate formed in soils of semi-arid regions. Sometimes forms cave roofs.
KARABINER	A steel or other alloy, oval- or D-shaped link with a spring-loaded gate on one side to admit a rope or to clip to a ladder, piton, etc.
KARREN	The minor forms of karst due to solution of rock on the surface or underground.
KARST	Terrain with special landforms and drainage characteristics due to greater solubility of certain rocks in natural waters than is common. Derived from the geographical name of part of Slovenia.
KARST WINDOW	A closed depression, not a polje, which has a stream flowing across its bottom.
KERNMANTEL ROPE	A rope with a plaited sheath around a core of parallel or twisted stands.
KEYHOLE (PASSAGE)	A small passage or opening in a cave, which is round above and narrow below.
KRAB	Colloquial abbreviation of <i>karabiner</i> .
LADDER	In caving, a flexible, lightweight ladder of galvanised or stainless steel wires and aluminium alloy rungs.
LAKE	In caving, a body of standing water in a cave, but used for what would be called a pond or pool on the surface.
LAVA-CAVE	A cave in a lava flow; usually a tube or tunnel formed by flow of liquid lava through a solidified mass, or by roofing of an open channel of flowing lava. Small caves in lava also form as gas blisters.
LAY	The way in which strands of a rope or cable are twisted.
LEAD	A passage noticed but as yet unexplored.
LEAD-ACID CELL	A rechargeable acid battery for use with an electric cap lamp.
LEADER	In caving the person directing the activities of a caving party, especially with regard to safety.
LEG	A part of a survey <i>traverse</i> between two successive <i>stations</i> .
LEUCOPHOR	A colourless water <i>tracer</i> , which fluoresces blue.
LIMESTONE	A sedimentary rock consisting mainly of calcium carbonate, $\text{CaCO}_3$ .
LINTEL LINE	A line on the ground at a cave entrance perpendicularly beneath the outer edge of the rock above; may or may not coincide with the <i>dripline</i> .



LIQUID MEDIUM	Contains the aquatic <i>cavernicoles</i> .
LIVE CAVE	A cave containing a stream or active <i>speleothems</i> .
LONGITUDINAL (or LONG) SECTION	A <i>section</i> along the length of a cave passage or chamber or combination of these, or along a survey <i>traverse</i> in a cave.
MAGNETIC NORTH	The direction to the north magnetic pole at a given place and time. This differs from the direction towards which the north end of a <i>compass</i> points by a small individual compass error and by the effect of any local magnetic attraction.
MARBLE	<i>Limestone</i> recrystallised and hardened by pressure and heat.
MAZE	Syn. <i>network</i> .
MEANDER	An arcuate curve in a river course due to a stream eroding sideways.
MEANDER NICHE	A hemispherically-roofed part of a cave formed by a stream meandering and cutting down at the same time.
MICROCLIMATE	The climate (i.e. temperature, humidity, air movements, etc.) of a restricted area or space, e.g. of a cave or on a lesser scale of the space beneath stones in a cave.
MICROGOUR	Miniature <i>rimstone dams</i> with associated tiny pools of the order of 1 cm wide and deep on <i>flowstone</i> .
MOONMILK	Syn. <i>Rockmilk</i> . A soft, white plastic <i>speleothem</i> consisting of <i>calcite</i> , <i>hydrocalcite</i> , <i>hydromagnesite</i> or <i>huntite</i> .
MUD PENDULITE	A <i>pendulite</i> with the knob coated in mud.
NATURAL ARCH	An arch of rock formed by weathering.
NATURAL BRIDGE	A bridge of rock spanning a ravine or valley and formed by erosive agents.
NECROPHAGE	A <i>scavenger</i> feeding on animal carcasses (not prey).
NETWORK	A complex pattern of repeatedly connecting passages in a cave.
NIFE CELL	A rechargeable alkaline battery for use with an electric cap lamp.
NORTHING	(1) The distance of a point north of the point of origin of the <i>grid</i> of a map, or some abbreviation of it. (2) The south-north component of a survey <i>leg</i> , or of a series of legs, or of a complete traverse; north is positive and south is negative.
NOTHEPHREATIC	Referring to water moving slowly in cavities in the <i>phreatic zone</i> .
NUMBERING	Assigning an alphanumeric index to a cave entrance.
OPEN TRAVERSE	A traverse which does not close onto a survey point of known coordinates and orientation or onto itself.
ORIENTATION	The relationship of a survey line to <i>true grid</i> or <i>magnetic north</i> .



OUTFLOW CAVE	A cave from which a stream flows or formerly did so and which cannot be followed upstream to the surface.
PASSAGE	A cavity which is much longer than it is wide or high and may join larger cavities.
PARIETAL (ASSOCIATION)	Animals found on walls around cave entrances.
PENDANT	Syn. <i>rock pendant</i> .
PENDULITE	A kind of stalactite which has been partly submerged and the submerged part covered with dog-tooth spar to give the appearance of a drumstick.
PERCOLATION WATER	Water moving mainly downwards through pores, cracks and tight fissures in the <i>vadose zone</i> .
PERMEABILITY	The property of rock or soil permitting water to pass through it. Primary permeability depends on interconnecting pores between the grains of the material. Secondary permeability depends on solutional widening of <i>joints</i> and <i>bedding planes</i> and on other solution cavities in the rock.
PHREAS	Syn. <i>phreatic zone</i> .
PHREATIC WATER	Water below the level at which all voids in the rock are completely filled with water.
PHREATIC ZONE	Zone where voids in the rock are completely filled with water.
PHREATOBIA	An animal association found in water separating grains of sand or fine gravel.
PILLAR	A bedrock column from roof to floor left by removal of surrounding rock.
PIPE	A tubular cavity projecting as much as several metres down from the surface into karst rocks and often filled with earth, sand, gravel, <i>breccia</i> , etc.
PITCH	A vertical or nearly vertical part of a cave for which ladders or ropes are normally used for descent or ascent.
PITON	A solid or folded metal spike, of steel or other alloy, to be driven into a crack in the rock to form an <i>anchor</i> .
PLAN	A plot of the shape and details of a cave projected vertically onto a horizontal plane at a reduced scale.
PLUNGE POOL	A <i>swirlhole</i> , generally of large size, occurring at the foot of a waterfall or rapid, on the surface or underground.
POLJE	A large closed depression draining underground, with a flat floor across which there may be an intermittent or perennial stream and which may be liable to flood and become a lake. The floor makes a sharp break with parts of surrounding slopes.
POLYGONAL KARST	Karst completely pitted by closed depressions so that divides between them form a crudely polygonal network.
POOL DEPOSIT	(1) Any sediment which accumulated in a pool in a cave. (2) Crystalline deposits precipitated in a cave pool, usually of crystalline shape as well as structure.



POPULATION	Individuals of a species in a given locality which potentially form a single interbreeding group separated by physical barriers from other such populations (e.g. populations of the same species in two quite separate caves).
POROSITY	The property of rock or soil of having small voids between the constituent particles. The voids may not interconnect.
POT (-HOLE)	A vertical or nearly vertical <i>shaft</i> or <i>chimney</i> open to the surface.
PREDATOR	An animal which captures other animals for its food.
PRISMATIC COMPASS	A <i>compass</i> with a prism attached so that the compass card can be read at the same time as the compass is directed into the line of sight to a distant point.
PROJECTED SECTION	The result of projecting a <i>section</i> composed of several parts with differing directions onto a single plane. Usually the plane is vertical along the general trend of the cave. The horizontal distance apart of points is not correct, only the vertical, so that slopes are distorted.
PRUSIK KNOT	A friction knot which will slide along the rope when no weight is applied but grips it when a pull is exerted on it. Used for ascending ropes.
PRUSIK SLING	A sling fastened by a <i>prusik knot</i> to the rope.
PRUSIKING	Ascent on a rope using <i>prusik knots</i> or <i>ascenders</i> .
PSEUDOKARST	Terrain with landforms which resemble those of karst but which are not the product of karst processes.
RAPPEL	Syn. <i>abseil</i> .
RAPPEL RACK	A <i>descender</i> consisting of a frame mounting 5 or 6 <i>brake bars</i> .
RESURGENCE	A <i>spring</i> where a stream, which has a course on the surface higher up, reappears at the surface.
RHODAMINE	A red organic dye which gives a red fluorescence to water. Detectable in very dilute solutions so used in <i>water tracing</i> and <i>dye gauging</i> .
RIFT	A long, narrow, high and straight cave <i>passage</i> controlled by planes of weakness in the rock. Cf. <i>fissure</i> .
RIMSTONE	A deposit formed by precipitation from water flowing over the rim of a pool.
RIMSTONE DAM	A ridge or rib of <i>rimstone</i> , often curved convexly downstream.
RIMSTONE POOL	A pool held up by a <i>rimstone dam</i> .
RISING	Syn. <i>spring</i> .
ROCK PENDANT	A smooth-surfaced projection from the roof of a cave due to solution. Usually in groups.
ROCK SHELTER	A cave with a more or less level floor reaching only a short way into a hillside or under a fallen block so that no part is beyond daylight.



ROCKHOLE	A shallow, small hole in rock outcrops, often rounded in form and holding water after rains. Well known on the Nullarbor Plain.
ROCKPILE	A heap of blocks in a cave, roughly conical or part-conical in shape.
ROOF CRUST	Thin <i>speleothem</i> on cave precipitated from water films exuding from pores or cracks.
ROOM	A wider part of a cave than a <i>passage</i> but not as large as a <i>chamber</i> .
ROPE PROTECTOR	A length of heavy fabric or plastic hose placed around a rope where it may rub against rock.
SAFETY LINE	A safety rope attached to a caver climbing on a ladder or negotiating a difficult situation and held by a man above.
SALT WEATHERING	Detachment of particles of various sizes from a rock surface by the growth of crystals from salt solutions. Forms substantial features in Nullarbor Plain caves.
SAPROPHAGE	A <i>scavenger</i> feeding on decaying organic material.
SATURATED	(1) Referring to rock with water-filled voids. (2) Referring to water which has dissolved as much limestone or other karst rock as it can under normal conditions.
SCALE	The ratio of the length between any two points on a map, <i>plan</i> or <i>section</i> to the actual distance between the same points on the ground or in a cave.
SCALING POLE	A lightweight metal alloy pole, in short sections for transport and fastened together where used, to raise a ladder to points inaccessible by climbing.
SCALLOPS	<i>Current markings</i> that intersect to form points which are directed downstream.
SCAVENGER	An animal that eats dead remains and wastes of other animals and plants (cf. <i>cophrophage</i> , <i>necrophage</i> , <i>saphrophage</i> ).
SEA CAVE	A cave in present-day or emerged sea cliffs, formed by wave attack or solution.
SECTION	A plot of the shape and details of a cave in a particular intersecting plane, called the section plane which is usually vertical.
SEDIMENT	Material recently deposited by water, ice or wind, or precipitated from water.
SEEPAGE WATER	Syn. <i>percolation water</i> .
SELENITE	A crystalline form of <i>gypsum</i> .
SHAFT	A vertical cavity roughly equal in horizontal dimensions but much deeper than broad. Wider than a <i>chimney</i> .
SHAWL	A simple triangular shaped <i>curtain</i> .
SHOW CAVE	A cave that has been made accessible to the public for guided visits.
SINGLE ROPE TECHNIQUE	The practice of climbing up and down ropes with the help of <i>ascenders</i> and <i>descenders</i> . Abb. = SRT.



SIPHON	A waterfilled passage of inverted U-profile which delivers a flow of water whenever the head of water upstream rises above the top of the inverted U.
SLING	A joined loop of rope or tape.
SOLUTION	In karst study, the change of bedrock from the solid state to the liquid state by combination with water. In physical solution the ions of the rock go directly into solution without transformation. In chemical solution acids take part, especially the weak acid formed by carbon dioxide (CO <sub>2</sub> ).
SOLUTION FLUTE	A solution hollow running down the maximum slope of the rock of uniform fingertip width and depth, with sharp ribs between it and its neighbours.
SOLUTION PAN	A dish-shaped depression on flattish rock; its sides may overhang and carry <i>solution flutes</i> . Its bottom may have a cover of organic remains, silt, clay or rock fragments.
SOLUTION RUNNEL	A solution hollow running down the maximum slope of the rock, larger than a <i>solution flute</i> and increasing in depth and width down its length. Thick ribs between neighbouring runnels may be sharp and carry solution flutes.
SPECIES	A group of actually or potentially interbreeding populations which is reproductively isolated from other such groups by their biology, not simply by physical barriers.
SPELEOGEN	A cave feature formed erosionally or by weathering in cave enlargement such as <i>current markings</i> or <i>rock pendants</i> .
SPELEOLOGY	The exploration, description and scientific study of caves and related phenomena.
SPELEOTHEM	A secondary mineral deposit formed in caves, most commonly <i>calcite</i> .
SPLASH CUP	A shallow cavity in the top of a <i>stalagmite</i> .
SPONGEWORK	A complex of irregular, inter-connecting cavities intricately perforating the rock. The cavities may range from a few centimetres to more than a metre across.
SPRING	A natural flow of water from rock or soil onto the land surface or into a body of surface water.
SQUEEZE	An opening in a cave only passable with effort because of its small dimensions. Cf. <i>flattener</i> , <i>crawl (way)</i> .
STALACTITE	A <i>speleothem</i> hanging downwards from a roof or wall, of cylindrical or conical form, usually with a central hollow tube.
STALAGMITE	A <i>speleothem</i> projecting vertically upwards from a cave floor and formed by precipitation from drips.
STATION	A survey point in a chain of such points in a survey.
STEEPHEAD	A steep-sided valley in karst, generally short, ending abruptly upstream where a stream emerges or formerly did so.
STRAW (STALACTITE)	A long, thin-walled tubular <i>stalactite</i> less than about 1cm in diameter.



STREAMSINK	A point at which a surface stream disappears underground.
STRIKE	The direction of a horizontal line in a <i>bedding plane</i> in rocks inclined from the horizontal. On level ground it is the direction of outcrop of inclined <i>beds</i> .
STYLOLITE	Suture in rock formed where pressure solution has taken place, often leaving a thin lamina of insoluble material along it.
SUBJACENT KARST	Karst developed in soluble beds underlying other rock formations; the surface may or may not be affected by the karst development.
SUMP	A point in a cave passage when the water meets the roof.
SUPERSATURATED	Referring to water that has more limestone or other karst rock in solution than the maximum corresponding to normal conditions.
SURVEY	In caving, the measurement of directions and distances between survey points and of cave details from them and the plotting of cave plans and sections from these measurements either graphically or after computation of coordinates.
SUUNTO CLINOMETER	A small, handheld pendulum clinometer commonly used in cave survey.
SUUNTO COMPASS	A small, handheld sighting compass commonly used in cave survey.
SWIRLHOLE	A hole in rock in a streambed eroded by eddying water, with or without sand or pebble tools.
SYNGENETIC KARST	Karst developed in <i>eolian calcarenite</i> when the development of karst features has taken place at the same time as the lithification of dune sand.
TAGGING	Affixing a metal tag bearing a cave number near its entrance, normally by means of rock drill and a small nail.
TAFONI	Roughly hemispherical hollows weathered in rock either at the surface or in caves.
TAPE	(a) In survey, a graduated tape of steel, plastic, wire-reinforced cloth, or fibreglass, used for measuring distance. (b) Strips of woven synthetic fibre used for <i>slings</i> and waist bands.
TERRA ROSSA	Reddish residual clay soil developed on limestone.
THRESHOLD	(1) That part of a cave near the entrance where surface climatic conditions rapidly grade into cave climatic conditions. Not necessary identical with <i>twilight zone</i> . (2) Slope or cliff facing up a <i>blind</i> or <i>half-blind valley</i> below a present or former <i>streamsink</i> .
THROUGH CAVE	A cave which may be followed from entrance to exit along a stream course or along a passage which formerly carried a stream.
TOWERKARST	Conekarst in which the residual hills have very steep to overhanging lower slopes. There may be alluvial plains between the towers and flat-floored depressions within them.



TRACE	A short length of wire with fasteners used for attaching ladders and ropes to an anchor.
TRACER	(1) A material introduced into surface or underground water where it disappears or into soil to determine drainage interconnections and travel time. (2) A material introduced into cave air to determine cave interconnections.
TRAVERSE	(1) The commonest form of cave survey in which direction, distance and vertical angle between successive points are measured. (2) A way along ledges above the floor of a cave. (3) To move along such a way.
TRAVERTINE	Compact calcium carbonate deposit, often banded, precipitated from spring, river or lake water. Cf. <i>tufa</i> .
TROGLOBITE	A <i>cavernicole</i> unable to live outside the cave environment.
TROGLODYTE	A human cave dweller.
TROGLOPHILE	A <i>cavernicole</i> which frequently completes its life cycle in caves but is not confined to this habitat.
TROGLOXENE	A <i>cavernicole</i> which spends only part of its life cycle in caves and returns periodically to the <i>epigean domain</i> for food.
TRUE NORTH	The direction of the geographical north pole at a place.
TUBE	A cave passage of smooth surface and elliptical or nearly circular in cross-section.
TUFA	Spongy or vesicular calcium carbonate deposited from <i>spring</i> , river or lake waters. Cf. <i>travertine</i> .
TUNNEL	A nearly horizontal cave open at both ends, fairly straight and uniform in cross-section.
TWILIGHT ZONE	The part of a cave to which daylight penetrates.
UVALA	A complex closed depression with several lesser depressions within its rim.
VADOSE FLOW	Water flowing in <i>free-surface streams</i> in caves.
VADOSE SEEPAGE	Syn. <i>percolation water</i> .
VADOSE WATER	Water in the <i>vadose zone</i> .
VADOSE ZONE	The zone where voids in the rock are partly filled with air and through which water descends under gravity.
VAUCLUSIAN SPRING	A <i>spring</i> rising up a deep, steeply-inclined, water-filled passage into a small surface pool.
VERMICULATION	Pattern of thin, worm-shaped coatings of clay or silt on cave surfaces.
VERTICAL ANGLE	The angle in a vertical plane between a line of sight and the horizontal, positive above the horizontal and negative below.
WATER TRACING	Determination of water connection between points of stream disappearance or of soil water seepage and points of reappearance on the surface or underground.



WATERTABLE	The surface between <i>phreatic water</i> which completely fills voids in the rock and ground air which partially fills higher voids.
WATERTRAP	A place where a cave roof dips under water but lifts above it farther on. Cf. <i>duck (-under)</i> .
WELL	A deep rounded hole in a cave floor or on the surface in <i>karst</i> .
WET SUIT	A diving garment of foam neoprene designed to insulate the diver from the cold but which allows a thin film of water to penetrate between the suit and the body.
WHALETAIL	A <i>descender</i> consisting of an aluminium block with slots, knobs and a safety gate.
WINDOW	An irregular opening through a thin rock wall in a cave.



## DOWN UNDER ALL OVER

- CSS : Gordon Taylor reports that the Christmas period saw an ebb in the club's activities. Things have now returned to a more acceptable level of activity. Of the trips held recently, the one to the newly discovered limestone area near the Duea River, proved the most interesting. A surveying trip was taken to the Red Paradise section of the Imperial-Jubilee system of Jenolan. Bungonia has also been visited.
- NUCC : NUCC has begun another years caving. Inevitably for a University club, this means publicity stunts, membership drives, Freshers' trips and total chaos. Some trips were made to Wyanbene during the holidays.
- OSS : Ray Rowney reports that the local television station, in conjunction with CBN/CWN 6/8/9, made a six minute colour film for "Focus", a weekly programme in the area. Two outings were necessary for the filming in 16mm. The final edited version was placed on video tape. Main Cave at Cliefden was used for interior shots. The gating of caves is continuing at Cliefden, and general repair work has been done on the cottage. Canamodine, twenty kilometres west of Orange, has been gated to protect large bone deposits, (diprotodon), and delicate formation. Entry is restricted until further excavation has been carried out by palaeontologists from Macquarie University. Four members attended WACCON, and enjoyed hospitality and caving in W.A. Other areas visited by the club, in the last year, are Jenolan, Abercrombie, Tuglow, Colong, Bungonia and Yarrongabilly, with regular visits to local areas.
- ISS : ISS now have several stream gauges in Wyanbene Main Cave, and one in Cliefden Main Cave, with more to be installed in the near future. The club also intends to install a few in the Kimberleys, on the trip mooted for May. Good numbers are expected for this trip, mostly from ISS and SSS.
- TCC : In January, Ev Tulp and Rauleigh Webb, from WASG, Gordon Taylor, from NUCC, and TCC's Bruce McIntosh, did some valuable survey work in Exit Cave. The results of this work proved sufficiently interesting to inspire Bruce to start co-ordinating further survey work in the cave. Ev and Rauleigh also took part in a rather longer than expected Khazad-dum trip, when a storm flooded the stream while the party was underground. Details later. Ian Gothord's Franklin River trip proved to be very successful. The caves and limestone found have prompted plans for another trip later in the year. In the Cracroft area around Judd's Cavern, Bill Nicholson has been busy extending caves in that area, both horizontally and vertically. The A.G.M. in late March, produced a Committee with several "new faces". Also at the A.G.M., that great stalwart of caving and provider of assistance at Maydena, Max Jeffries, was elected an honorary life member of TCC. Cavers who have met Max will heartily endorse his election. A proposed S and R exercise, (June or July), in Kubla Khan, from Cairn Hall out to the bottom entrance, should provide all involved with valuable experience in casualty movement in difficult conditions.
- WASG : From September '78 to March '79, most Western Australian cavers were occupied with WACCON activities, and not a great deal of caving went on. A resume follows, but a few notes about WACCON field trips. These ranged from Eneabba to Nambung to the South-West. During the trips, four cave surveys were completed: River Cave (E22), Golgotha Cave (Wi 13), Mordang Dar (Wi 17), and Terry's Cave (Wi 47/42/43/105). The final Gondolin mapping strip in Easter Cave was done in September. More recently, a mapping trip past the first duck, saw the two halves of the survey finally connected. On the same trip, water flow experiments registered a positive flow in the Epstein Lake. Two aboriginal hand stencils and two artifacts have been found in Old Kadarup Cave, near Augusta. The first of these were found on a beginners trip. At Witchcliffe, the relocating of three long lost solution pipes, (Wi 18, 19, 20, .), was quite an event, as many trips had been made to find them. In December a new cave, (named Budjur Mar Cave), was found by a party looking at another entrance. Budjur Mar is quite amazing for a Western Australian Cave, as it contains a 17 metre pitch, and then a 10 metre pitch, inside the cave! The cave was high in CO<sub>2</sub>, as the entrance was newly formed in the previous six months. A very successful rescue practice was conducted from Calgardup Cave, (Wi 49). This was our first practice involving a vertical lift, but everything went smoothly. December also saw the erection of the new Boranup hut. Thank you to all those who helped. The caves in the Cowaramup have received some attention, especially from Kerry Williamson, who is drawing up a management plan for the Leeuwin-Naturaliste ridge. A quick trip to Eneabba, saw 812 metres of highly detailed map produced for Weelawadji Cave, (E24), in two days mapping. A great trip, especially as it was in mid-week. On the Nullarbor, Peter Bell's trip to Koonalda Cave, was quite a success, as his stereo photos show. The party also visited other caves, and joined in the post-WACCON field trips. Ev Tulp and Rauleigh Webb went to Tasmania in January. They had an epic twelve hour stay at the bottom of Khazad-dum after a freak thunderstorm had swollen the stream so it was impossible to get up the first 'wet' pitch from the bottom. A twenty-seven and



DOWN UNDER ALL OVER Cont;

WASG Cont; : a half hour trip resulted. Not to be stopped, they then visited Exit Cave for two days surveying.

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## BOOK REVIEWS

KEEPING DOWN WITH THE BIG ONES -Three recent books on some of the world's biggest caves.

"The Longest Cave", Roger W. Brucker & Richard A. Watson, Knopf, New York, 1976. xx plus 316 pp., numerous photos and maps.  
 "The Jewel Cave Adventure", Herb & Jan Conn. Zephyrus Press, New Jersey, 1976. 240 pp., numerous photos and maps.  
 "Caves of Mulu", edited by D.B. Brook & A.C. Waltham, Royal Geographical Society, London, 1978. 44pp.

"Mt. Everest is the highest mountain, Flint-Mammoth is the longest known cave. But what cave is really the longest? No-one knows. It is hidden underground where exploration never ends."

On 9 September, 1972, Flint Ridge Cave System was finally linked with Mammoth Cave, and the world's longest known cave had 236 kilometres surveyed. Since then, it has steadily grown to over three hundred kilometres, probably more than all the caves in Australia combined.

Although parallels with the Everest problem are drawn, "The Longest Cave" cannot be approached like a mountaineering book. The reader is effectively warned in the rambling preface: "A mountain is in view and presents a precise goal: the peak...the routes in a cave are hidden...you can never be sure that the cave does not go on...what lures explorers to big caves is the possibility of discovering many miles of passages no human being has ever been before...". Then again, a route map superimposed on a photograph of a mountain face is sufficient to enable the armchair mountaineer to follow progress, but somehow the armchair caver does not obtain the same involvement from a cave map. Somehow, I envisaged miles and miles of railway sized tunnel passages stretching out from Flint Ridge towards Mammoth Cave. In fact, much of it is thoroughly unpleasant: tight, muddy and enervating squeezes. While the closest entrance of the Flint Ridge system is barely two kilometres from Mammoth passages, a round trip of no less than twenty-five kilometres was necessary before connection, to get to the frontiers of exploration. In one place, (The Tight Spot), the passage is so narrow that portly cavers still cannot make the connection.

Through the long years of work, one senses in this book the same waves of activity and inactivity optimism and pessimism which characterize Australian caving too. And the cycles of PR with cave management authorities!

The writing is lucid, competent and authoritative, even if drawn out. The authors are both fellows of the National Speleological Society, and have been associated with the Cave Research Foundation for many years. Unlike so many, "The Longest Cave" is not written solely for the caving enthusiast. Throughout it is illustrated with sketches, photographs and diagrams to bring meaning to crawling, climbing, surveying and digging.

Much of Flint-Mammoth is underground wilderness, seldom visited by man. Hopefully, there will be the opportunity to see some of it for those of us visiting Kentucky for the international meeting in 1981.

Jewel Cave, South Dakota, is the fourth longest in the world, with over ninety kilometres surveyed by 1976. Nearly all of this, incredibly, lies in a block of limestone 2 km. by 1.5 km. by 130 metres deep. Nearly all of it has been discovered since 1958, mostly by only a handful of cavers led by the two authors, who have each had 569 trips into the cave in seventeen years.

Somehow, this book is not nearly as absorbing as the Flint-Mammoth saga. The cave isn't as long there's only one entrance, it's a three dimensional maze, making the map hard to follow, and of course Jewel does not have the 'charisma' of a Flint-Mammoth Cave. Still, it's an interesting book and deserves as much a place on a caver's bookshelf as would a book on one of the lesser mountains on a mountaineer's.

Well, what can one write about the "Caves of Mulu", other than 'rave rave slobber slobber'. This expedition explored and surveyed more than fifty kilometres of cave in one three month trip, to a remote part of Sarawak. If a cave of twenty-five kilometres isn't enough, how about one with an entrance 175 metres wide and 130 metres high? Described as possibly the largest cave passage in the world, Deer Cave bores straight through a hill for 1.7 kilometres with a main passage nowhere less than 100 metres high and wide! Nearly all in daylight ("...which is an immense help in navigating through it.") (!)

Perhaps because the expedition was financed and the book published by the Royal Geographical Society, there is no sensationalism in "Caves of Mulu". The raving and slobbering is done by the reader. There are many black and white photographs, none of which captures the immense size of the caves, and there are excellent maps.

As I said, 'rave rave slobber slobber'.

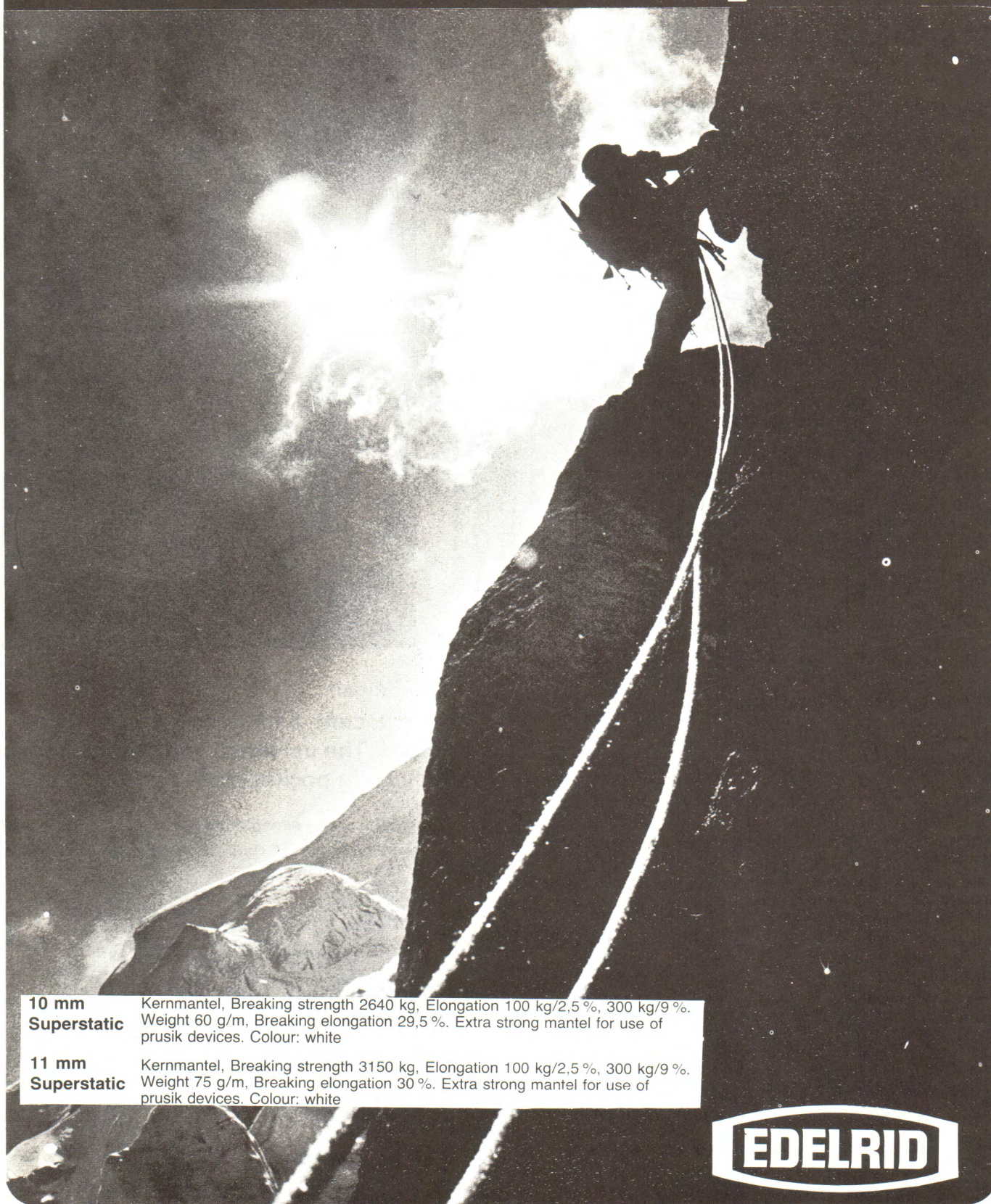
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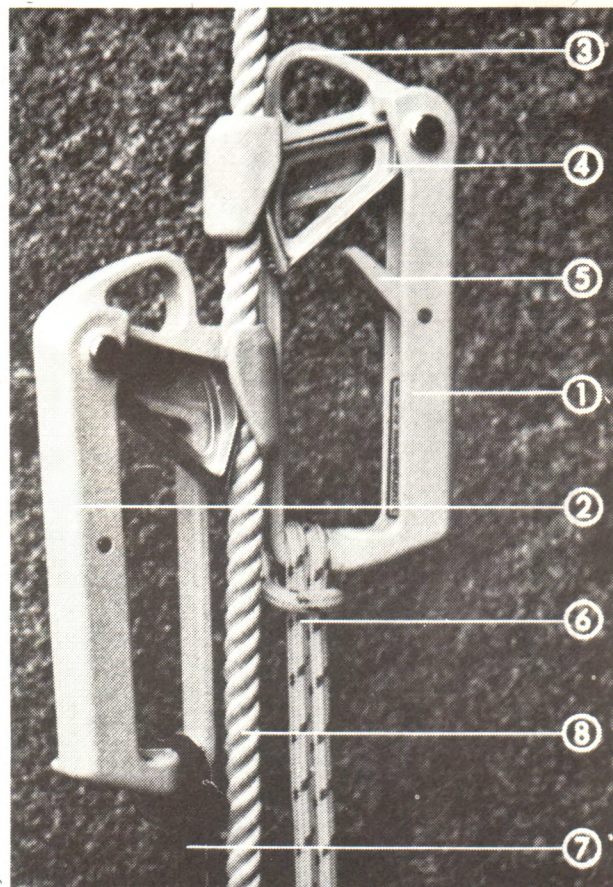
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