



GLOSSARY OF CAVING TERMS

By Garry K. Smith (August 1998) Presented by Angus Macoun

This list of words and their definitions covers many of the common and colloquial terms used by the Australian speleological fraternity.

Many words have been introduced into the English language over the last hundred years. Some because there was a need to describe a new item or process which was discovered. Some examples are Karabiner, Piton and Wetsuit. On other occasions a new word or group of words may be used to describe an action or new sport. Examples which spring to mind are Chimneying, Cave Diving, Prusiking and Abseiling. There are the words which are spelt differently, depending on which school you went to. A classic example would be Karabiner or Carabiner. The need to formalise the spelling and exact definition was recognised many years ago when J. Jennings first compiled a list of "Cave Terminology" in 1960. This limited list of definitions was later published in the 1968 Speleo Handbook, edited by P. Matthews.

A greatly increased glossary of terms by J. Jennings with the assistance of others, was published in the 1985 Australian Karst Index. These authors must be commended on such a comprehensive list of definitions for words in use up to that period.

The on-going evolution of words in common usage among the speleological fraternity has continued since that time. There are presently a number of slang and colloquial caving terms which have been used widely for many years. The exact definition of these words remain open for interpretation, as there appears to be no recent listing of their correct meaning!. I would hope that the list of terms I present for publication in the conference proceedings will be thought provoking and set the wheels in motion toward having some additional words officially recognised in the Speleological fraternity. No doubt the selection of words and some meanings will be controversial, but I make no apology for this as I am prepared to wear the flack, if any is due.

Getting back to the glossary of terms and meanings which I have listed, and how they were derived. A large number of publications and articles were used to cross reference the meanings of words because it was found that many definitions varied between publications. In general the publications listed (at the end of the glossary) were used as the main references because it was felt that they contained the most acceptable meanings. In all there were probably 30 publications and articles used to a much lesser extent. These have not been acknowledged as their contribution to the overall listing was very minor.

Many words used among speleologists varied in meaning to that in the common English language dictionary. They included quite a few colloquial terms not listed at all in dictionaries, therefore I wrote a new meaning which hopefully best described it. In general, few definitions have been duplicated word for word from any source as it was often found that a combination of descriptions best suited the meaning of a word. As an interest point, the origin (history) has been included after some word definitions.

Much deliberation over definitions of closely related words such as; shaft, pit, chimney, grike, fissure and cleft, made the compiling of this list fairly difficult.

For instance I quote a few meanings from the World Book Dictionary which is typical of many descriptions given, bearing in mind that each of these words have many meanings which also don't relate to caving.



1. Chimneyed. - having a chimney or chimneys.
2. Chimney. - A crack or opening in the rock, mountain, volcano, or other natural fissure, Synonym - Cleft.
3. Cleft. - A space or opening made by splitting; a deep cleft in the rock. Synonym - fissure.
4. Fissure. - A long, narrow opening, split or crack in rock. Synonym - Cleft.
5. Pit. - A natural hole in the ground. An open hole or excavation made in digging for some mineral deposit; such as coal; a shaft.
6. Shaft. - A passage that is like a well; long narrow space, a deep passage sunk in the earth.
7. Grike. - A crevice or chink; A ravine on the side of a hill.
8. Crevice. - A fissure or crack on or through the surface of something; cleft; chink.

After looking through many dictionaries, I was certainly very confused as they all seemed to be cross referencing to each other. But this did not solve the problems when relating these terms to caving.

I started looking back through the history of terms and determined that a PIT was used to catch animals. In other words there was no way out for the captured animal. This led me to come up with a definition which described a PIT as a vertical or near vertical shaft, without passages or chambers leading from it.

The definition of a SHAFT was handled in a similar manner. A shaft was typically dug by miners to ventilate a mine. This meant that it connected with other passages. Therefore I wrote a definition which included a vertical cavity or passage which has at least one passage or chamber leading from it.

A number of dictionaries referred to a CHIMNEY as a hole or crack open to the surface, however cavers referred to it as being a near vertical passage, which a caver can climb by applying pressure with their body to opposite rock faces. Therefore a CHIMNEY could fit into the description of a SHAFT or a PIT, except that it is smaller in width and able to be climbed by the act of chimneying. In the definition I have deliberately omitted any mention of open to the surface as a person can chimney in a chimney not open to the surface.

This leads me to another point. If a person can CHIMNEY in a CHIMNEY, then I needed to start including the uses of these words in a similar manner to that in a dictionary. Therefore I have included the different ways in which a word could be used. ie. As a noun, verb or adjective. I had to draw the line somewhere so a further break-up of verbs into transitive and intransitive has not been included for simplicity sake.

This document is not the sort of article that a person will sit down and read from front to back, but it will hopefully act as a reference document. There is the added advantage that bold text words which are closely related or are used in a definition may be cross references to compare meanings.

In conclusion, the publication of this glossary of caving terms, marks the culmination of 11 years research into the definition of words used by speleological people in Australia.

This glossary of terms was first published in the "NEWCAVES CHRONICLES". Volume No. 11, July 1998, the official publication of the "Newcastle and Hunter Valley Speleological Society", then revised and additional words included during August 1998 for publication in the proceedings of the Australian Speleological Federation's 22nd Biennial Conference January 1999.

It should be noted that only a limited selection of biological and geological - lava cave term have been included in this glossary. For a comprehensive list of these terms refer to previously published articles by Arthur Clarke, Stefan Eberhart, and Ken Grimes.



GLOSSARY OF CAVING TERMS

Common terminology and colloquial terms used throughout the speleological fraternity.

Authors note - A large number of publications and articles were used to cross reference the meanings of words because it was found that many definitions varied between publications. In general the reference publications listed (at the end of this glossary) were used as the main references because it was felt that they contained the most acceptable meanings. There are also quite a few words used among speleologists which vary in meaning to that in the common English language dictionary. They included many colloquial terms not listed at all, therefore a new meaning was written by the author. In general, very few definitions have been duplicated word for word from any source as it was often found that a combination of descriptions best suited the meaning of a word. As an interest point, the origin (history) has been included after some word definitions. The publication of this glossary of terms, marks the culmination of 11 years of research on the definition of words used by speleological people in Australia.

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Abbreviations Uses:-

adj. Adjective

Biol. Biology.

cf. confer (compare) with the following term which is similar but not identical.

Geol. Geology

n. noun

Syn. synonym - a word having the same or almost the same meaning as another.

v. verb.

AA. *n.* A surface type of solidified lava, characterised by broken lumps of material or very sharp prickly fragments. The rough texture is caused by movement of a partly solidified surface layer, prior to complete solidification, thus causing the surface to break into sharp fragments. Surface texture grades from 'pahoehoe' to 'aa' lava. See lava cave.

ABSEIL. *v.* The act of lowering oneself down a cliff, pitch or steep slope on a fixed rope. The controlled descent is obtained by friction of rope on the body or passing the rope through a karabiner or other descending device. Derived from the German word 'abseilen'.

According to W. Hutton "History of Derby" (1801), Abseiling was developed in the Middle Ages by jugglers in Germany who use to descend from church steeples for money. One such demonstration by a man called Chapman occurred in Oct. 1732. The rope was fixed at the top of All Saints Steeple and the other end at the base of Saint Michaels. This formed a very steep incline over a horizontal distance of 80 yards (73 metres). Chapman then slid down balanced over a wooden breast plate with a groove to fit the rope. To execute this balancing feat, he lay on his belly with arms and legs extended. During this 6 to 7 second act he fired a pistol and blew a trumpet. Although successful on this occasion he lost his life shortly after at Shewsbury.



ABSEIL CLEAR. *n.* A call for the person who has just abseiled, indicating to others above, that the rope is clear for the next person to descend. *cf.* off-rope.

ABSEIL ROPE. *n.* A rope on which a person is abseiling or a rope set up for abseilers to use. See static rope.

ABSEILER. *n.* The person undertaking an abseil.

ABSEILING. *n.* A call from an abseiler to a belayer. Indicating that the abseiler is beginning to descend.

ACTIVE CAVE. *n.* A cave with a stream flowing in it. *cf.* live cave. Antonym. of dormant cave or dead cave.

ACETYLENE LAMP. *n.* See carbide lamp.

ACETYLENE. *n.* Is a colourless flammable hydrocarbon gas C_2H_2 . It is produced when water reacts with calcium carbide. Acetylene burnt in an oxygen deficient atmosphere has a smoky, but bright yellow flame. When burnt in a good air supply the flame is white. The by-products of combustion are carbon dioxide and water. See carbide Lamp.

AEOLIAN. (1) *adj.* Pertaining to or caused by the wind; wind-borne. (1) *n.* Landforms generated by the wind, or sediments transported by the wind. Derived from *Aeolus*, the Latin God of the wind.

AEOLIANITE. *n.* A rock formed from calcareous dune sand, a dune calcarenite.

AEOLIAN CALCARENITE. *n.* Calcareous fine sand size particles which have become air-borne due to wind and are deposited as dunes, later to undergo consolidation and diagenesis to form dune limestone. Also see calcarenite and Syngenetic Karst.

ANCHOR. *n.* A secure object used to attach a person while operating a safety line or for attaching equipment such as ropes or ladders. *Syn.* anchor point

ANCHOR BOLT. *n.* A bolt used as an anchor point. See bolt.

ANCHOR POINT. *n.* Same as anchor.

ANGLES WING. *n.* Colloquial term for curtain or shawl.

ANTHODITE. *n.* A speleothem composed of gypsum or aragonite and forming needle-like crystal clusters eg. gypsum flower.

ARAGONITE. *n.* The second most common polymorph of calcium carbonate $CaCO_3$. Usually recrystallised to a needle-like shape.

ARCH. *n.* A carved structure supported on both sides. In speleological terms, a rock structure over a large passage or cavity with two or more entrances in which a person is always within sight of daylight. (during daylight hours) *Syn.* natural arch.

ARCHAEOLOGY. *n.* Scientific study of history from the remains of early human cultures. Especially prehistoric man, mostly by systematic excavation and description of remains and artefacts.

ARMCHAIR CAVER. *n.* Colloquial term for an experienced caver who is now incapable of caving or a person still able to, but has lost the urge to actually go caving. On the other hand they may spend much of their time writing or reading caving books and hours may be spent reminiscing over photographs from past trips.

ASCENDER. *n.* A mechanical device which grips the rope (usually with a cam operation) and allows a person to ascend a rope. *cf.* prusik.

ASF. Acronym for the Australian Speleological Federation's.

AVEN. *n.* A shaft which rises from a passage, sometimes leading to a passage above, but not open to the surface.

BAT. *n.* A mammal able to fly. Classified as *Chiroptera*, meaning 'hand winged'. This order is further divided into two Suborders of *Microchiroptera* (meaning 'small hand wings') and *Megachiroptera*. (meaning 'large hand wings'). Many *Microchiropteras* are cave dwelling bats and have good eye sight which allows them to see in low light conditions, as well as sonar which allows them to navigate in total darkness. They can fly at great speed through tight twisted cave passages with astonishing accuracy. Most species roost in large colonies deep in caves during the day.



At dusk a mass exodus occurs as they leave the safety of the cave to feed on airborne insects during the night. The small cave dwelling bats should not be confused with their larger cousins, *Megachiroptera*, the fruit eating bats, otherwise known as flying foxes.

BED. *n.* A layer in a belt of sedimentary rock or unconsolidated sediment.

BEDDING-PLANE. *n.* The surface separating two beds of rock, often contains a layer of clay or shale between.

BEDDING-PLANE CAVE *n.* A cave developed along a bedding-plane, usually elongated in cross section.

BEDROCK. *n.* The solid mass of parent rock originally laid down - from which a cave or feature has been eroded by mechanical or chemical action. This term includes bedrock which has been transformed in crystalline structure due to heat (eg. marble) but does not include redeposited minerals (eg. speleothems).

BELAY. (1) *v.* To operate a safety line. (2) *v.* To secure (a person) at the end of a rope. (3) *v.* To secure (a rope) to a person or object. (4) *v.* To be made fast. (5) *n.* The set-up of a safety line through a belay device, secured to an anchor point. (6) *n.* The securing of a person or a safety rope to an anchor point.

BELAY BOLT. *n.* A bolt from which a belay is operated. *cf.* bolt and belay.

BELAYED. (1) *n.* The person being belayed. (2) *v.* Past tense of belay.

BELAYER. *n.* A person who is belaying.

BELAY-ROPE. *n.* The rope or safety line used to belay.

BELAYING. *v.* The act of one who or that which belays.

BELOW. *n.* A emergency call, warning of danger from falling object/s. Usually yelled by a person at top of the pitch to warn people below that an object has been dislodged and is falling toward them.

BLIND VALLEY. *n.* A valley which is closed abruptly at its lower end by a cliff or slope facing up the valley. There is usually a perennial or intermittent stream sink at its lower end, however it may be dry. *cf.* half blind valley.

BLOCK. *n.* A solid piece of stone larger than 3 metres across. *cf.* boulder.

BOOB TUBE. *n.* Colloquial term for a clear flexible tube about one metre long. Used like a straw to drink water from small crevices or inaccessible pools.

The original name was the *Super Syphon Sucker*, believed to be first utilised around 1973-74 by Jeffory Smith a Venturer Scout in the Kotara Unit (N.S.W.). Jeffory used it extensively on bushwalking, caving and cross-country skiing trips and the use of such a tube spread widely among outdoor enthusiasts from there. Several name changes occurred over the next few years, however during the last 10 to 15 years the name Boob Tube has been most widely used. Some sources suggest that long drinking tubes were in use by some bushwalkers prior to 1973, however these reports are still to be confirmed.

BOLT. *n.* A high tensile steel bolt used as an anchor point to attach rigging for descending or ascending or safety line. The bolt locks into a drilled hole by one of the following methods; expansion of a threaded holder, chemical bonding, or by hammering into a slightly smaller hole. The latter being the least reliable anchor method.

BOLTING. *v.* The act of placing anchor bolts to assist in a climb.

BOULDER. *n.* - A piece of rock larger than a cobble. *cf.* block.

BOULDER CHOKE. *n.* A collapse of rock from floor to roof which makes further progress difficult or dangerous.

BREAK BAR. *n.* A piton hinged on a karabiner or a round bar on a rappel rack used to apply friction to a rope for abseiling.

BREAKDOWN. (1) *v.* A fall of bedrock from cave roof or wall under its own weight. (2) *n.* A pile of broken bedrock.



BREATHING, (relating to cave) *v.* Movement of air in and out of a cave due to changes in atmospheric pressure and/or temperature changes on the surface.

BRECCIA. *n.* Angular fragments of rock and/or fossils, often, but not necessarily cemented together or with a matrix of finer sediment.

BRECCIA - BONE. *n.* Breccia containing many bone fragments.

CALCARENITE. *n.* Soils and sedimentary rock with a sandy texture, which has become hardened or cemented together and is composed largely of calcium carbonate fragments which have formed by the mechanical breakage or abrasion of the parent rock. ie dune limestone. See aeolian calcarenite.

CALCAREOUS. *adj.* Containing calcium carbonate. From the latin word 'calcaarius' meaning 'of lime'.

CALCAREOUS SEDIMENTS. *n.* Fragmented material, mainly composed of calcium carbonate, which has been deposited by water or air.

CALCIFY. *v.* To harden by the deposit of calcium salt. eg calcified animal remains or tree roots. *cf.* calcification.

CALCIFICATION. *n.* Process of becoming hard or calcified by being impregnated with calcium salts.

CALCITE. *n.* The most common polymorph of calcium carbonate (CaCO_3). The most common constituent of stalactites, stalagmites, flowstone etc. Limestone, marble and chalk consist largely of calcite.

CALCITE RAFT. *n.* A thin layer speleothem of calcite crystalline material which forms and floats on the surface of still cave-pools. Disturbance of the pool surface often sinks the rafts. This speleothem forms on the pool surface due to degassing of CO_2 from solution which causes saturation of solution and deposition of calcite at the surface. *cf.* floe calcite.

CALCIUM CARBONATE. *n.* The scientific name for a crystalline compound containing, calcium, carbon and oxygen in the proportions

of CaCO_3 . A primary mineral. Also see limestone, marble, chalk, calcite, aragonite, vaterite. *cf.* dolomite.

CALL. *n.* A specific verbal signal (usually yelled) by a caver to another, to indicate an action, intended action or possible danger. eg. below, abseiling, falling, on-belay, climbing, that's me, up-rope, slack, safe, off-rope, abseil clear.

CANYON. (1) *n.* A deep valley with steep to vertical sides. Frequently formed in karst by a river rising on impervious rocks outside the karst area.

(2) *n.* In caves - a deep, elongated cavity in the floor or roof of a cave formed by running water.

CARABINER. *n.* American spelling for karabiner.

CARBIDE. *n.* Calcium carbide, (CaC_2) is a grey substance prepared by heating lime. It was used extensively in early caving lamps. Water dripped onto the carbide pellets, reacts to produce acetylene gas which is burnt. The resulting naked flame emits a bright light.

CARBIDE LAMP. *n.* A type of cavers lamp, with a bright naked flame produced by burning acetylene gas. Also called acetylene lamp. See acetylene and carbide.

CARBONATE. (1) *n.* A salt of carbonic acid eg. calcium carbonate (CaCO_3). (2). *v.* To charge or impregnate with carbon dioxide.

CARBON DIOXIDE. *n.* (CO_2) A colourless, odourless and non-combustible gas which is 1.57 times denser (heavier) than air. A by-product of respiration and metabolism of living organisms. Normal air (above ground) contains approximately 0.03% CO_2 , however 'foul air' in caves has occasionally been known to contain lethal concentrations of up to 13.5% by volume.

CARBONIC ACID. *n.* (H_2CO_3) A weak acid produced when carbon dioxide, (CO_2) is dissolved in water. Usually present in ground water and is responsible for forming caves by dissolution of calcium carbonate rocks.



CAVE. *n.* A natural cavity in rock, large enough for a human to enter. The extent of a cave system which may have more than one entrance and consist of many chambers and passages. The term still applies if the cavity is totally filled with water.

If the cavity is filled with sediment or ice, (making it impenetrable), then qualification of the term is required.

cf. active cave, dead cave, dormant cave, fault cave, fissure cave, glacial cave, grot-hole, ice cave, lava cave, limestone cave and live cave.

CAVE CORAL *n.* Also called "coralloids". This type of speleothem has branching stems and nodular tips; often resembling marine coral. When cut in section, concentric growth rings can be seen. Location of the developing coralloids can considerably vary shape and size. They can form submersed in a pool (subaqueous) or high up on the cave wall or ceiling (subaerial).

CAVE ENTRANCE. *n.* The start of a cave, defined by the dripline or at a horizontal line across an entrance at the base of a doline. The starting point of a cave survey.

CAVE PEARL. *n.* A concentrically-banded concretion that usually form in shallow cave-pools. Cave pearls can be spherical, cylindrical, irregular, or even cubical. They can range in size from as small as a sand grain up to 15 cm in diameter or as big as a basket ball. A single pearl may sit in it's own "cup" or a group of pearls may congregate in a "nest". The nuclei around which the concentric rings of calcite crystals grow is generally foreign material such as a grain of sand. A cave pearl is sometimes incorrectly called an oolite or oolith (British). Refer to splash cup.

CAVE-PISOLITE. *n.* See pisolite. *cf.* cave pearl.

CAVE-POOL. *n.* (1) Any isolated body of water in a cave, although generally accepted as having a small surface area.

(2) A deep place in an underground stream, often formed by a rimstone dam. *cf.* rimstone pool, sump and lake.

CAVE SYSTEM. *n.* The whole known extent of interconnected caves and cavities underground, including those too small to enter, which have been proven to be atmospherically or hydrologically connected.

CAVER. *n.* A person who goes caving. (American, 'spelunker'). (British, 'Potholer') *Syn.* speleologist.

CAVERN. *n.* A very large chamber in a cave.

CAVERNOUS *adj.* (1) Full of caverns. (2) characteristic of a cavern.

CAVERNICOLE. *n.* An animal which normally lives in a cave for the whole or part of it's life cycle.

CAVERNICOLOUS. *v.* See cavernicole.

CAVES. *n.* Plural of cave. Usually implies two or more cave systems which don't have any known physical underground connection large enough for human passage.

CAVING. (1) *v.* The physical act of entering and exploring a cave or caves. (2) *n.* The sport of exploring caves and other aspects included in the term speleology. *Syn.* spelunking.

CHALK. *n.* A soft white limestone consisting of fossilised remains of very small water organisms.

CHAMBER. *n.* Any large cavity inside a cave system.

CHIMNEY. (1) *n.* The cavity between two relatively vertical and parallel faces of rock which can be climbed by a person applying pressure to the opposing rock surfaces. (2) *v.* To chimney - the act of climbing a chimney. - *Syn.* chimneying.

CHIMNEYING. *v.* The act of climbing two relatively vertical and parallel rock faces, by a person applying pressure with parts of their body to the opposing rock surfaces.

CHOCK-STONE. *n.* A stone which has become firmly wedged between two solid rock faces.



CHOKE. *n.* A blockage or constriction in a passage, usually of fallen boulders, clay, sand or surface vegetation washed into the cave.

CLAUSTROPHOBIA. *n.* A fear of being in enclosed or confined spaces.

CLEFT. *n.* A space, opening or passage made by the cracking or splitting of rock. *Syn.* fissure.

CLAY. *n.* See sediments.

CLIMB. (1) *v.* the act of climbing, to raise oneself - ascend. eg. ladder climb. (2) *v.* physically climbing on rock to ascend or descend. (3) *n.* a place where climbing is necessary to progress.

CLIMBER. *n.* A person who is descending or ascending a pitch either on a ladder or climbing a very steep incline or near vertical face. For safety reasons a safety line is generally used. Sometimes the term climber is used to describe a person prusiking up a rope.

CLIMBING. (1) *n.* A call yelled by a climber to a belayer that they are starting to ascend. (2) *v.* the act of climbing, to raise oneself - ascend. Can also include descending a steep rock face by means of physical contact of a persons limbs.

CLINOMETER. *n.* A surveying instrument used in caves to measure inclination angle of a leg in relation to the horizontal. Also used to measure the dip of a bedding-plane.

CLINT. *n.* Surface erosion forms of limestone with irregularly fretted shape. Characterised by criss-cross grooves. The French word *lapiez* is sometimes used for clints

CLOSED TRAVERSE. *n.* A traverse in which a series of survey legs are joined to form a loop traverse, thus reducing cumulative error in a cave survey.

COATING. *n.* A thin finely crystalline speleothem which covers another solid body or object.

COBBLE. *n.* - A piece of rock ranging in size from tennis ball to football. *cf.* pebble, boulder

COLLAPSE DOLINE. *n.* See doline - collapse.

COLUMN. *n.* A speleothem which joins from floor to ceiling, formed by the junction of a stalactite with its counterpart stalagmite. *cf.* travertine.

CONULITE. *n.* A speleothem resembling a hollow tube or cone formed in mud, sand or other soft material as the result of water dripping in the one spot. The drill-hole is gradually lined by the deposition of calcite from solution. Erosion of the surrounding soft material may leave the crystalline cone free standing.

CORAL. *n.* See cave coral.

CORALLOIDS. *n.* See cave coral.

COW'S TAIL. *n.* A short but strong length of rope used as a safety line when crossing a rebelay.

CRAWL. *n.* A low passage negotiated by stooping or crawling on hands and knees.

CRUST. *n.* A thin layer/s of crystalline speleothem covering a bedrock or soft material (eg. clay or sand) which can be easily removed from its underlying material with little mechanical effort. Similar to a coating but more granular and porous.

CRYSTAL POOL. *n.* A pool, usually with little or no overflow and containing calcium deposits of well formed crystals.

CURRENT MARKING. *n.* Shallow hollows formed by solution involving turbulent flowing water and typically covering walls of stream passages in karst caves.

CURTAIN. *n.* A speleothem in the form of a wavy or folded sheet hanging from the wall or roof of a cave, often translucent with various shades and colours of growth bands. See shawl and travertine.

DARK ZONE. *n.* The part of the cave system which daylight does not reach, no matter how faint. *cf.* twilight zone.

DAYLIGHT HOLE. *n.* An opening in the roof of a cave which allows light to enter from the surface.

DEAD CAVE. *n.* A cave without streams, pools or drips of water. A more correct term to use would be dormant cave.

DECORATION. *n.* A general term encompassing all types of Speleothem.



DESCENDER. *n.* A mechanical device used for controlled descent of a pitch or steep slope. It works on the principle of applying friction on a fixed rope to obtain controlled descent for the abseiler.

DIG. *n.* The site of past, present or future excavation, where cavers are hopeful of significantly increasing the known extent of a cave. Also a site of excavation to uncover archaeological artefacts or animal bones. See archaeology.

DIAGENESIS. *n.* Changes in the mineralogy, geochemistry, texture and fabric of a sediment after deposition.

DIKE. *n.* A mass of igneous rock intruded into a fissure in another rock. In some instances, igneous rock has entered pre-existing cave passages.

DIP. *n.* The angle of inclination of a bed of rock from the horizontal, measured in degrees. The true dip is the maximum angle of the bedding-plane at right angles to the strike. Lesser angles in other directions are apparent dips.

DIP, APPARENT. *n.* See dip.

DOG-TOOTH CRYSTAL or DOG-TOOTH SPAR. *n.* A variety of calcite crystals with acute shaped points.

DOLINE. *n.* A closed depression on the surface of a karst area, which drains run-off rain water to a single low point. A doline may or may not contain the entrance to a cave or pothole. The shape of the depression may vary considerably from one to another, however they often resemble the shape of a bowl, cone, cylinder or elongated shape, ranging in size from a few to many hundreds of metres.

DOLINE - COLLAPSE. *n.* A natural surface depression formed by the collapse of a cavity below.

DOLINE - SOLUTION. *n.* A natural surface depression formed by solution.

DOLOMITE. (1) *n.* A double carbonate mineral consisting of calcium and magnesium. $\text{CaMg}(\text{CO}_3)_2$.

(2) *n.* A rock consisting largely of dolomite. *cf.* magnesite.

DOME. *n.* A large hemispherical hollow in the roof of a cave formed by breakdown, often in mechanically weak rocks where bedding and/or joints play little, or no part in dominating the form.

DORMANT CAVE. *n.* A cave without streams, pools or drips of water. Antonym of active cave or live cave.

DRAPERY. *n.* A wavy or folded speleothem which hangs down from an inclined wall or ceiling and resembles a curtain.

DRIPHOLE. *n.* A hole in the cave floor, formed by dripping water.

DRIPLINE. *n.* A line on the ground at the cave entrance formed by water dripping from the rock above. A dripline defines the beginning of a cave survey. *ie.* start of cave.

DRIPSTONE. *n.* A general term for speleothems formed by falling drops. *eg.* stalagmites.

DUCK-UNDER. (1) *n.* A constriction in a passage where water is at or close to the cave roof for a short distance, which requires a caver to become (more or less) fully submersed for a brief period before continuing. (2) *v.* The act of going through a duck-under. Also see trap.

DUNE LIMESTONE. *n.* A limestone made from aeolianite.

DYNAMIC ROPE. *n.* A kernmantle rope manufactured with twisted core strands and has the ability to stretch sufficiently to break the fall of a rockclimber. Rarely used in caving.

EFFLUX. *n.* Point of outward drainage of water from a cave system or karst area. May or may not be large enough to allow passage of a caver. *cf.* outflow cave and resurgence.

ENTRANCE. *n.* See cave entrance.

ENTRANCE ZONE. *n.* The interface between the surface and subterranean (underground) environments leading into the twilight zone. Occurring in an entrance chamber.



ENTRANCE CHAMBER. *n.* A chamber which begins at the cave entrance or a chamber connected to the entrance by a short passage, but still within the twilight zone.

EOLIAN. *n.* Same as aeolian..

EPIPHREATIC. *n.* Referring to fast moving water in the top of the phreatic zone or in the zone liable to be subject to flood part of the time. *cf.* *nothephreatic*.

EROSION. *n.* The wearing away of bedrock or sediments, by mechanical and/or chemical action, usually facilitated by wind, running water or other moving agent.

ESCARPMENT. *n.* A long, cliff-like ridge of rock, commonly formed by faulting or fracturing of the earth's crust or down-cutting of streams. A steep slope or drop of a precipitous line of cliff, thus terminating high land abruptly.

FALLING. *n.* An emergency call yelled by a climber who has fallen, thus warning belayer to expect the safety rope to become taught with full weight of climber.

FALSE FLOOR. *n.* Sometimes called a "flowstone benche". Flowstone once deposited on sediments, but now eroded away, leaving a false floor which may span between passage walls or project to form ledges along a wall. Thickness may range from a centimetre or two, up to several metres.

FAULT. *n.* A fracture in a continuous body of rock where one side has displaced relative to the other. Movement has occurred along the fault plane.

FAULT CAVE. *n.* A cave developed along a fault, by preferential dissolution and may include abrasion by solid particles carried by water.

FAULT PLANE. *n.* A plane along which movement of a fault has occurred.

FISSURE. *n.* An open crack in rock or occasionally soil. Not formed by solution weathering. *cf.* *grike*. *Syn.* *cleft*.

FISSURE CAVE. *n.* A narrow vertical squeeze, formed by the splitting of rock often developed along a joint but not always so.

Mostly formed by solution however sometimes due to tension. Also see *cleft*.

FIXED LIGHTING. *n.* Electric lighting with permanent wiring, usually installed in show caves.

FLATTENER. *n.* A passage which is wide but very low, requiring a person to lay on their stomach to facilitate movement.

FLOE CALCITE. *n.* Thin flakes of calcite having originally formed on the surface of a pool. May either be floating as a calcite raft or have sunk to the bottom of pool, or laying across the base of a dry pool. *cf.* *pool deposit*

FLOWSTONE. *n.* A deposit of calcite formed by a thin film or trickle of calcium bearing water, flowing over walls or floors. *cf.* *travertine* and *speleothem*.

FLOWSTONE BENCH. *n.* See *false floor*.

FLUORESCEIN. *n.* A powerful but harmless organic dye used for water tracing. A reddish-yellow in colour which turns to a green fluorescence when added to water. It is detectable in very dilute solutions.

FLUOROMETER. *n.* The instrument used to measure the fluorescence in water when water tracing. *cf.* *fluorescein*.

FLUORESCENCE. *n.* The emission of visible light when exposed to radiation of different wave length. Often a fluorescent substance converts invisible, ultraviolet (UV) light into light of a visible colour. Fluorescence stops as soon as the incoming radiation causing it, is removed. In simplified terms the ultraviolet light is absorbed by the atoms of the fluorescent material and the electrons take on a higher energy level. The electrons then begin a spontaneous release of portion of this energy in the form of heat as the atoms collide with neighbouring atoms. The heat generated is not perceptible, however sufficient to reduce the level of energy which can be re-emitted as light. Since the emitted light has less energy it is transmitted at a longer wavelength than the original incoming ultraviolet.

Consequently the light produced may well be in the visible portion of the light spectrum. *cf.* *luminescence*.



FLUTE or FLUTING. *n.* See solution flute.

FORMATIONS. *n.* A colloquial term, incorrectly used to encompass all types of speleothem.

FOSSIL. *n.* The remains or traces of animals or plants preserved in rocks or sediments.

FOUL AIR. *n.* 'Foul Air', sometimes called 'Bad Air', is any atmosphere which has a noticeable abnormal physiological effect on humans. In limestone caves, 'foul air' can generally be described as containing greater than 0.5% carbon dioxide (CO₂) and/or lower than 18% oxygen (O₂) by volume. As a comparison, normal air (above ground) contains approximately 0.03% CO₂ and 21% O₂ by volume. However there are some isolated caves which contain atmospheres influenced by other gases such as:- methane, ammonia, hydrogen sulfide or carbon monoxide, but these gases are not common in limestone caves.

An elevated CO₂ concentration is usually the most life threatening foul air scenario found within limestone caves. This colourless, odourless and non-combustible gas is the body's regulator of the breathing function. Physiological signs of foul air include:- increased heart and breathing rate, headaches, clumsiness, dizziness, loss of energy, feeling hot and sweaty. (Note, that at high altitudes there is an increased physiological effect.)

Elevated concentration of CO₂ in limestone caves can be due to the mechanism by which carbonate deposition occurs and/or a by-product of micro-organism metabolism and/or respiration by fauna such as bats or humans.

FREE-CLIMB. *n.* (1) A very steep incline or near vertical rockface which a person is able to climb with relative ease without the need for climbing aids. (2) *v.* The act of climbing a near vertical face without the use of a safety line. This is a dangerous activity if the climber is high above the ground.

FREE-CLIMBING. *adj.* see free-climb.

FREE PITCH. *n.* A vertical pitch where the rope or ladder hangs away (free) from the wall for almost all of the pitch length. *cf.* Overhang.

FRIEND. *n.* A specific type of mechanical climbing device, used as an anchor point by wedging it into a crack or hole.

FROSTWORK. *n.* A speleothem consisting of fine needle like crystals in radiating clusters similar to a thistle plant or in its composite stalagmite form possessing spiny limbs like a fir tree. The term was first used by cave guides in Wind Cave, South Dakota USA, during the 1890's to describe speleothems which looked like ice (H₂O) frostwork.

GARDENING. Colloquial term. (1) *v.* The act of clearing loose rock or debris away from an abseil face or ladder climb for safety and in doing so reduce the risk of objects falling on other people. (2) *v.* Moving of loose material from a tight or awkward passage to increase accessibility.

GASTEROPOD. *n.* Same as gastropod.

GASTROPOD. *n.* One of a large class of aquatic and terrestrial molluscs including the snails, slugs, limpets and whelks etc., usually having a single piece spirally coiled shell (univalve) and a flattened muscular creeping organ which acts as a foot on which they move about. Sometimes spelt gasteropod.

GEOCHEMISTRY. *n.* The science dealing with the chemical composition and changes in composition of the earth, particularly the crust.

GEOLOGICAL TIME SCALE. *n.* An arbitrary chronological arrangement or sequence of geologic events. It is usually presented in the form of a chart showing the names of various time-stratigraphic, rock-stratigraphic or geological-time units, as currently understood. eg. The geologic time scales published by Holmes (1959), Kulp (1961) and Harland (1964).

GEOMORPHOLOGY. *n.* The scientific study of landforms and landscapes. The term usually applies to the origins and dynamic morphology (changing structure and form) of the earth's land surfaces, but it can also include the morphology of the seafloor. The science has developed in two distinctive ways that must be integrated in order for the whole picture of landscapes to emerge.



'Historical geomorphology' relies on various chronological analyses, notably those provided by stratigraphic studies of the last 2 million years. 'Process geomorphology' analyses contemporary dynamic processes at work in landscapes. The mechanisms involved weathering and erosion

GIBBS. *n.* A type of ascender which grips the rope with a cam operated by the weight of the caver.

GLACIAL CAVE. *n.* A cave formed within or beneath a glacier. *cf.* ice cave.

GOUR. *n.* Synonymous with rimstone dam. Derived from the French, the term 'gour' is now widely used in Europe. It should not be confused with the same word used for surface erosion features in deserts. *cf.* microgour.

GRADE. *n.* The level of accuracy of a cave survey and resulting map, based on the precision of instruments used in the survey. Survey standards range from Grade 1 (a sketch from memory) to the most accurate Grade 9 (precision theodolite survey).

GRAVEL. *n.* See sediments.

GRID NORTH. *n.* The direction in which each grid line points toward the top of a grided map. In a sense it is an artificial north adopted by map makers, but for practical purposes may be regarded as true north. Each grid line, in effect points to a north of its own, whereas all true north lines (meridians) if produced would meet at the north pole.

GRIKE. *n.* A deep, narrow, near vertical slot with almost parallel sides, in a rock outcrop caused by solution along a joint. *cf.* solution tube and fissure.

GROT-HOLE. *n.* Colloquial term for a small insignificant cave with no possible leads, often tight and difficult to manoeuvre oneself in.

GROTTO. (1) *n.* A small to moderate size cave chamber which is richly decorated with speleothems. (2) *n.* A term used by U.S. cavers to describe a local caving club.

GROUND-TROG. *v.* The systematic searching of surface ground for cave entrances. Also ground-trogging. *cf.* trog.

GROUND-WATER. *n.* Water below a watertable such as a waterlogged zone in permeable rocks or soil.

GUANO. *n.* A large accumulation of bat excrement which may also consist partly of decomposing animal skeletal material and small fragments of rock particles. To a lesser extent in caves it may consist of bird droppings.

GYPSUM. *n.* $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$; Hydrated calcium sulphate, the third most common cave mineral and the most common sulphate mineral in caves. Gypsum is a primary mineral.

GYPSUM FLOWER. *n.* A radiating cluster of gypsum crystals, simulating outward-curving flower petals. *cf.* anthodite.

HALF BLIND VALLEY. *n.* A blind valley which overflows to a surface stream when the flow of water entering the blind valley, exceeds the maximum capacity which the stream sink can accept. *cf.* blind valley.

HALL. *n.* A large chamber which is considerably longer than it is wider.

HANDLINE. *n.* A short strong rope used to assist cavers on an awkward or exposed climb or traverse (2).

HARNESS. *n.* An arrangement of webbing tape used to attach the lower body (seat harness) or upper body (chest harness) to ascender or descender.

HEAD LAMP. *n.* The main lighting source, mounted on a cavers helmet. In Australia this usually refers to an electric light source, with the location of the battery/s being irrelevant. In many other countries this term refers to a carbide lamp. *cf.* Head lamp - auxiliary.

HEAD LAMP - AUXILIARY. *n.* A secondary light source (usually a small torch) attached to a cavers helmet and used as a backup in the event of an emergency.

HELICTITE. *n.* A speleothem which often resembles the form of a twisted or worm-like shape and having appeared to defy gravity during its growth process.

HELIGMITE. *n.* A helictite that grows upward from the cave floor is sometimes called a "heligmite".



HELMET. *n.* A non metallic hat designed to protect the wearers head from bumps or impact from small objects dislodged from above. Miners helmets with chin strap and head lamp clip are often used, however other varieties with four point attachment are preferable.

HISTO. *n.* Abbreviation for Histoplasmosis.

HISTOPLASMOSIS. *n.* A fungal disease which initially affects human lungs and may spread to other organs if untreated. The fungus - *Histoplasma capulatum*, is an organism which grows in soil having a high nitrogen content, generally associated with guano of birds and bats. Spore is breathed in with airborne dust stirred up by the movement of cavers. The disease usually appears as a mild cold before complete recovery. Occasionally severe infections occur and if left untreated can lead to death.

Other names for this disease include:- "Histo", "cave disease", "cave fever", "Darling's disease", "Ohio Valley disease", "Tingo Maria fever", "reticuloendotheliosis" and "reticuloendothelial cytomycosis".

HORIZONTAL ANGLE. *n.* The difference in direction between two survey lines measured clockwise in a horizontal plane.

HUMIDITY. See relative humidity.

HYDROLOGY. *n.* The study of water and stream movements above and below ground.

HYDROSTATIC PRESSURE. *n.* Pressure due to a column (or head) of water.

HYPERTHERMIA. *n.* An extremely high body core temperature of 41°C (106°F) or above. Can result from a caver exposed to prolonged periods of over-exertion, combined with insufficient loss of generated body heat. In extreme cases may result in death.

HYPOTHERMIA. *n.* A dangerously low body core temperature - below 37°C. Commonly caused by prolonged immersion in cold water. May also be caused by cold air circulation past a caver wearing insufficient or damp clothing

from perspiration or in contact with wet or cold surfaces over a period of time. Death will occur at or around 30°C core temperature.

ICE CAVE. *n.* A cave containing permanent ice and/or seasonal ice. *cf.* glacial cave.

IGNEOUS ROCK. *n.* Aggregate of interlocking silicate minerals formed by cooling and solidification of magma.

INFLOW CAVE. *n.* A cave into which a stream enters or has been known to enter, but can't be followed downstream to the surface.

INORGANIC. *n.*(1) Not having the organised structure of animal or vegetable life; not living. (2) The chemistry of compounds lacking carbon or containing it only in the form of carbonates, carbides, and most cyanides.

INVERTEBRATE. *n.* An animal without a backbone or spinal column.

JOINT. *n.* A natural division or gently curving crack, which bisects a bedding-plane. Separating two parts of a once continuous rock without relative movement along the bedding-plane.

JOINT PLAIN CAVE. *n.* A cave developed along a joint. Typically high in relation to width.

JUG-HANDLE. *n.* A small loop of rock shaped like a handle, used as an anchor point or hand hold to aid climbing.

JUMAR. *n.* A single rope ascending device with a simple finger - operated safety catch. *cf.* ascender.

KARABINER. *n.* A metallic link which incorporates a spring loaded gate allowing a quick and secure coupling. Often used in conjunction with other equipment when rock-climbing and abseiling. Also see krab and carabiner. Origin:- Shortened from the German word 'Karabinerhaken' which means carbine hook, that is, one used to attach a carbine rifle to a belt.

KARREN. *n.* The minor forms of karst due to solution of rock on the surface or underground. eg. rillenkarrren, rundkarrren and spitzkarrren.



KARST. *n.* An area of terrain containing features which are formed by natural waters dissolving rock. In most cases these areas contain caves. Derived from the geographical name of a part of Slovenia. See solution.

KARST FEATURE. *n.* Any feature formed by natural waters dissolving rock above or below ground. eg cave and karren.

KARST HYDROLOGY. *n.* All scientific study of water chemistry and distribution, whether stationary or moving in a karst system, as well as the effects in relation to human activity.

KERNMANTLE ROPE. *n.* A generic term describing a type of synthetic rope with a plaited sheath surrounding a core. Approx. 70% of the ropes strength comes from the inner core, 30% comes from the outer protective sheath. Ropes have two classifications:- 'static' which have parallel strands in the core and 'dynamic' with twisted core strands. The word 'Kernmantle' is derived from the German word 'Kern' for a core and Old English word 'Mantle' for a sheath. The word 'Kernmantle' should not be confused with any particular brand of rope. Sometimes spelt 'Kernmantel' which may be linked to the Latin word '*mantellum*' or Old French word '*mantel*' meaning - loose sleeveless garment or cloak.

KEYHOLE. *n.*(1) A small passage or opening in a cave having a keyhole shaped cross section, round above and narrow below. (2) A short squeeze of generally oval shape, which is the only access to a large cave extension. Key-hole, implying unlocking of access to the rest of the cave.

KRAB. *n.* Colloquial term for karabiner. A steel or aluminium alloy snap-link used in rope work.

LABYRINTH. *n.* *Syn.* maze cave.

LADDER. *n.* The type used for caving is portable and flexible. They are usually consist of aluminium alloy rungs attached to galvanised steel or stainless steel wires.

LAKE. *n.* (1) A sizeable body of water above ground. (2) In caving terms, a deep body of relatively still water with a surface area upwards of several square metres. There may or may-not be underwater passages leading from the lake. *cf.* cave-pool and sump.

LAVA. (1) *n.* Molten rock that issues from an active volcano or through a fissure in the earth's crust. (2) *n.* Rock formed by the solidification of this substance. Lava surface types include 'pahoehoe' and 'aa'.

LAVA CAVE. *n.* A cave formed in lava, usually as a result of a flow of liquid lava through a solidification mass, or by roofing over of an open channel. Small lava caves may form as gas blisters.

LAY. *n.* The way in which strands of rope or cable are twisted. eg. left hand lay (also called 'S' twist) and right hand lay ('Z' twist). In caving this term is rarely used due to the overwhelming support of synthetic Kernmantle ropes.

LEAD. *n.* A cave passage noticed but not yet explored.

LEADER. *n.* In caving, the person directing activities of a caving party and held responsible for the group's safety.

LEG. *n.* Part of a survey traverse between two consecutive stations.

LIGHT-WATER *n.* Water aerated with bubbles making it less dense, thus providing less buoyancy to a person and their equipment. Light-water usually occurs at the bottom of waterfalls, rapids or cascades. Swimming in a light-water pool directly beneath a waterfall can be very dangerous, as reduced buoyancy and downward force of water can hold or snag a person underwater.

LIMESTONE. *n.* A sedimentary rock composed mainly of calcium carbonate (CaCO_3). (Containing more than 50% CaCO_3). It usually originates from the accumulation of calcareous remains of marine life.

LIMESTONE CAVE. *n.* A cave formed in limestone.

LIMESTONE-OOLITIC. *n.* Composed of small spherical grains bonded together by a cement composed of calcite.

LITHIFICATION. *n.* Process by which unconsolidated rock-forming materials are converted into a consolidated or coherent state.



LIVE CAVE. *n* A cave containing a stream and/or active speleothems. *cf.* active cave. Antonym of dormant cave and dead cave.

LONGITUDINAL (or LONG) SECTION. *n* A scale drawing of a cave elevation, sectioned along the length of a cave passage or chamber, or combination of these, or along a survey traverse.

LUMINESCENT. *adj.* Pertaining to luminescence.

LUMINESCENCE. *n* An emission of light. The glowing of an object due to an increased energy level of it's atoms and without perceptible heat. The atoms can be excited by radiation, such as light or by electricity and is re-emitted at any wavelength, but is most familiar as visible light. Two forms of luminescence are "fluorescence" and "phosphorescence".

MAGNESITE. *n.* $MgCO_3$. The mineral - magnesium carbonate. Magnesite karst areas are rare, however several sites exist in Tasmania, one being at Keith River. Magnesite can also occur as crusts and as moonmilk in caves in dolomite rock.

MAGNETIC NORTH. *n.* The direction in which the needle of a compass points, differing in most places from True North. *cf.* MN. and grid north.

MARBLE. *n.* Limestone which has been recrystallised after being subjected to high temperatures as may occur in nature from surrounding volcanic action. The resulting marble is much harder than limestone and is able to be polished, making it much sought after for sculptures and architecture. Also see metamorphism.

MAZE CAVE. *n.* A complex network of connecting cave passages, often on two or more levels, forming a three dimensional maze.

MEANDER. *n.* A bend or semi-circular curve in an underground stream bed which has the same origins and looks similar to a meander in a surface stream.

MEANDER NICHE. *n.* A hemispherical recess or depression in a cave roof, formed by a stream meander. A stream meander in the cave roof.

METAMORPHIC. *adj.* Of or pertaining to metamorphism.

METAMORPHISM. *n* The process whereby rocks undergo physical or chemical change or both to achieve equilibrium with conditions other than those under which they were originally formed. Factors which may cause metamorphism are heat, pressure and chemically active fluids. Weathering is usually excluded from the meaning. *eg.* When limestone comes into contact with molten lava it undergoes metamorphism to form marble upon cooling.

MICROBOD. *n.* A colloquial term used to describe a child or an adult caver of small build - able to fit through narrow passages and seemingly able to dislocate their joints to negotiate tight corners.

MICROCLIMATE. *n* The climate (*ie.* temperature, humidity, air movement, etc.) of a restricted area or space. *eg.* of a cave or on a lesser scale of the space beneath stones in a cave.

MICROGOUR. *n.* A miniature rimstone dam with associated tiny pool, approximately 10mm wide and deep. They commonly occur in flowstone.

MINERAL *n.-* PRIMARY. A natural occurring homogeneous solid, of definite chemical composition and crystal structure. (*eg.* calcium carbonate., quartz, gypsum). Rocks may be comprised of several minerals (*eg.* granite or basalt), others composed of a single mineral (*eg.* limestone or dolomite).

- **SECONDARY.** A mineral originating from another mineral as a result of chemical change caused by atmospheric oxidation, carbonic acid and water. *ie.* Speleothems consisting of calcite, aragonite or gypsum.

MN. *n.* Abbreviation on maps for Magnetic North.

MOONMILK. *n.* A term used to describe, finely crystalline substances of varying compositions. Texture, not composition is implied by the term "moonmilk".



Most commonly composed of calcite which forms a soft white powder when dry and feels like cream cheese or cotton candy when moist.

MORPHOLOGY .*n.* The study of form and structure. (1) *Geological* - The study of the physical form of land or region. *cf.* geomorphology (2) *Biological* - The study of the form and structure of animals and plants, without regard to function.

NAPPY. *n.* A colloquial term for an abseiling harness worn around the hips and thighs.

NATURAL ARCH. *n.* An arch of rock formed by weathering alone, - without human intervention. *Syn.* arch.

NATURAL BRIDGE. *n.* A bridge of rock which spans a ravine or valley and is formed by erosion.

NOTHEPHREATIC. Referring to water moving slowly through cavities in the phreatic zone. *cf.* epiphreatic.

OFF-ROPE. *n.* A call from an abseiler or belayed climber to indicate that they have disconnected from the rope. *cf.* abseil clear.

ON-BELAY. *n.* A call made by the belayer (to a climber) that the set-up has been checked and they are ready to operate the manual belay system.

OOLITE. *n.* A morphological term meaning a small spherical or subspherical, accretionary body consisting of two or more concentric rings. The overall size being smaller than 2 mm in diameter. Anything larger is called a *Pisolite*.

The body can be made of any material and not necessarily calcite. A rock may be said to possess an oolitic texture if it consists largely of oolites. In general the term oolite should not be used to describe a cave pearl.

British publications refer to a cave pearl as an "oolith" or if unpolished, included in the general term of "cave-pisolite" which covers all types of concretions formed of concentric layers. See cave pearl. *cf.* pisolite.

OUTFLOW CAVE. *n.* A cave from which a stream discharge flows or formerly did so, and which cannot be followed upstream to the surface. *cf.* efflux and resurgence.

OVERHANG. *n.* (1) A ledge or shelf of rock which projects past the rest of the rock face below. Includes a rock shelter or simple cave in which no part is in the dark zone. (2) *n.* part of an abseil (either above or below ground), where the abseiler is hanging free of the rock face. Specifically, once an abseiler has passed a projection of rock which makes it impossible for the abseiler's feet to touch the rock face without swinging on the rope. For a ladder climb the overhang is considered to be that section of a pitch where the ladder free hangs, clear of the rockface and for some distance.

PAHOEHOE. *n.* A type of lava in which the surface was relatively fluid just prior to complete solidifying and so formed smooth or porridge-like surfaces. Variants include wrinkled or 'ropy' surfaces, like thick flowing tar or pitch, and surfaces with small rounded knobs. Surface texture grades from 'pahoehoe' to 'aa' lava.

PALAEONTOLOGY. *n.* The study of bones and fossils.

PASSAGE. *n.* A cavity which is much longer than it is wide or high and may join larger cavities.

PEARL, CAVE. *n.* See cave pearl.

PEBBLE. *n.* - A rock between the approximate size of a golf ball and tennis ball. *cf.* sediments and cobble.

PENDANT. *n.* A smooth sculptured projection of bedrock suspended from the roof or wall of a cave. Formed by erosion, - not redeposited as a secondary mineral deposit. Not a speleothem.

PENDULITE. *n.* A kind of stalactite which is or has been partly submerged in cave water for some time and now has a growth of dog-tooth crystal over that part which was submerged, to give the appearance of a drumstick.

PERCOLATION WATER. *n.* Water which is moving downward through pores, cracks and tight fissures in the vadose zone. *Syn.* seepage water.

PERMEABLE. *adj.* having pores or openings that permit liquids or gases to pass through.



PERMEABILITY - PRIMARY. *n.* The property of rock or soil to allow passage of water or gas through the interconnecting pores in its grain structure.

PERMEABILITY - SECONDARY. *n.* The state of rock allowing water or gas to pass through joints and / or bedding-planes.

pH value. *n.* A scale of values, ranging from 0-14, indicating the acidity or alkalinity of a solution; 7 is neutral, lower values from 7 to 0, show increasing acidity, and alkalinity increases from 7 to 14.

PHOSPHORESCENCE. *n.* Similar to fluorescence, however the emission of visible light continues after the removal of the original radiation light source. Also see luminescence.

PHREATIC DEVELOPMENT. *n.* Enlargement of existing joints and bedding planes by movement of water under pressure (ie with no free airspace).

PHREATIC WATER. *n.* Water in the phreatic zone.

PHREATIC ZONE. *n.* The level in the strata which is below the watertable and all cavities in the rock are filled with water.

PILLAR. *n.* A column of bedrock reaching from floor to roof, remaining after surrounding rock has been eroded away.

PINNACLE KARST. *n.* A tropical karst of near vertical sided spires. *cf.* Spitzkarren.

PIPE. *n.* A tubular cavity in karst rock extending from its surface to a depth of a metre or more and often filled with sediments and/or breccia for some of its depth *cf.* solution tube, fissure and grike

PISOLITE. *n.* A morphological term meaning spherical or subspherical, accretionary body consisting of two or more concentric rings. The overall size being larger than 2 mm in diameter. The body can be made of any material and not necessarily calcite. *cf.* cave pearl and oolite.

PIT. *n.* A term used by cavers to describe a vertical or near vertical shaft and without passage or chamber leading from it. A pit often has a flat bottom of earth or rock fill. The entrance may be open to the surface or below ground in a cave. A pit is wider than a chimney. *cf.* shaft, chimney and pothole.

PITCH. *n.* A vertical or near vertical section of a cave where ladders or ropes are normally used for descent or ascent.

PITON. *n.* A metal peg hammered into cracks for an anchor. Although this was the original used, with environmental awareness of damage caused to the rock face, it's use as an anchor point has diminished considerably. These days it is used more as an abseiling device.

PLAN. *n.* A cave sketch or scaled map, showing details projected vertically onto a horizontal plane.

PLUNGE POOL. *n.* A pool, usually of large size and often containing light-water, occurring at the bottom of a waterfall or rapid. May be on the surface or underground. *cf.* swirlhole.

POLYMORPHS. *n.* A substance (such as calcite) which has the ability to assume several crystalline forms.

POOL. *n.* Any small isolated body of water or a deep place in a stream. *cf.* cave-pool.

POOL DEPOSIT. *n.* (1) Any sediment which accumulates in a cave-pool. (2) Any speleothem precipitated in a cave-pool although usually of crystalline shape as well as structure. *cf.* calcite raft, dog-tooth crystal and rimstone.

POROSITY. *n.* (1) The property of rock or soil with small voids which may or may not be permeable. (2) porosity due to fractures and joints in rock. (3) porosity of a karst system due to conduits. *cf.* permeability and percolation water.

POTHOLE. *n.* An English speleological term. (1) A vertical or almost vertical shaft or chimney, open to the surface and requires rigging to enter. (2) a cave system containing multiple pitches requires the use of ropes or ladders to enter. *cf.* pit.

PRIMARY MINERAL. *n.* see mineral - primary



PRUSIK KNOT. *n.* A friction knot which grips on the fixed ascending rope when weight is applied and runs free along the rope when weight is removed. Used to ascend ropes, however it's possible to descent but rarely used this way because the method is very slow. The knot was first described by Dr. Karl Prusik in an Austrian Mountaineering Journal of 1931. Possibly first introduced to caving in 1952 by Bill Cuddington of Virginia, when he successfully rappelled and prusiked a 40 foot pit in Haynes Saltpeter Cave, West Virginia U.S.A.

PRUSIK SLING. *n.* A loop of rope tied to another rope with a prusik knot.

PRUSIKING. *v.* The modern day term refers to either ascending on a rope using prusik knots or ascenders.

QUATERNARY. *adv.* Of or pertaining to the youngest geological period covering approximately 1.8 million years to the present. - *n.* The quaternary period.

RADON. *n.* The heaviest known gas which is colourless, odourless and radioactive, (atomic no. 86, atomic weight 222 -most stable isotope). Formed by the radioactive decay of radium-226, formerly called 'niton'. symbol (Rn). Radon-222 was discovered in 1900 by the German chemist Friedrich Ernst Dorn (1848-1916).

Radon has a half-life of 3.8 days, decaying by the emission of alpha particles into an isotope of the element polonium. Small quantities of radon, formed by decay of uranium minerals, are found in rock and soil. Concentration of the gas, can collect in some caves and is believed to be a potential health hazard.

RAPPEL *v.* *Syn* abseil.

RAPPEL RACK. *n.* A mechanical abseil device, able to be set with variable degrees of friction to suit the weight of the abseiler.

RAFT. See calcite raft.

REBELAY. *n.* Any additional attachment points (after the initial anchor point) on a rope down a pitch. Rebelays are placed to avoid rub or wear points on a rope or to split a long pitch. Also used as a redirection. *cf.* belay.

REDIRECTION. *n.* A rebelay used to redirect a rope so that cavers, either abseiling, prusiking or climbing, avoid a dangerous hazard such as a waterfall.

RELATIVE HUMIDITY. *n.* Is the amount of water vapour that air actually contains at a certain temperature compared with the maximum amount it could contain at that temperature. Changes in relative humidity of a cave air, correlate to variations in atmospheric pressure, ingress of ground-water and variation in cave temperature. Expressed as a percentage, the relative humidity of saturated air, such as fog or cloud is 100%. Most caves have a high humidity.

RESURGENCE. *n.* The point at which a stream resurfaces like a large spring. This occurs when water of a surface stream disappearing into a stream sink, where upon it flows underground for some distance. The resurfacing point of this stream is the resurgence. The underground water stream may also originate from a combination of many small surface streams and seepage in a cave system, before resurfacing at the resurgence. *cf.* spring.

RHIZOMORPH. *n.* A speleothem originally formed around tree or plant roots, which may have long since decayed, but the calcareous deposit has preserved their shape and form. *cf.* rootsicle.

RIFT. *n.* A long, narrow, high and straight cave passage with development controlled by a relatively straight weakness in the rock. (eg. formed along a fault or bedding plane).

RIGGING. (1) *v.* The setting up of descending or ascending equipment. The term also includes a belay if required. (2) *n.* The equipment in total, required for an ascent or descent.

RILL. *n.* A small solution groove on the surface of exposed karst rock. *cf.* rillenkarrren, rundkarrren, spitzkarrren, solution flute.

RILLENKARREN. *n.* Well developed solution flutes. Small linear hollows separated by narrow, sharp ribs, which run down the steepest line of slope on steeply inclined to vertical faces. Usually formed on the surface of karst bedrock exposed to the atmosphere.



cf. rundkarren, spitzkarren. *Syn.* solution flute.

RIMSTONE. *n.* A deposit precipitated from water flowing over the rim of a pool. *cf.* speleothem.

RIMSTONE DAM. *n.* A barrier of calcium carbonate or other precipitated deposit which obstructs a stream or pool. The ridge or dam formed is often curved convexly downstream. *Syn.* gour. *cf.* travertine.

RIMSTONE POOL. *n.* A cave-pool lined with a rimstone dam.

RISING. *n.* A natural flow of water from below ground, issuing from rock or soil, to the land surface or into a body of water. *Syn.* spring.

ROCK. *n.* A consolidated mass of mineral matter.

ROCK PENDANT. *n.* See pendant.

ROCK SHELTER. *n.* A rock overhang or simple cave which has been, or could be, used by humans for habitation or shelter from the elements.

ROCKHOLE. *n.* A hole in karst or non-karst surface rock, usually round in form and holding water after rain. Generally shallow if formed by weathering or chemical erosion, and can be deep if formed with the aid of running water.

ROCKPILE. *n.* A heap of rocks in a cave, usually conical or part-conical in shape and formed by local collapse or breakdown.

ROOF CRUST. *n.* A crust formed on the roof of a cave.

ROOF-SNIFFING. (1) *v.* Colloquial term for the act of edging oneself along a small water-filled passage, on your back with only sufficient airspace for eyes and nose. Also roof-sniff. (2) *n.* A place where a caver must roof-sniff.

ROOTSICLE. *n.* roots of trees or plants which grow into a cave cavity and become calcified. The roots and speleothem comprising the rootsicle. *cf.* rhizomorph.

RUNDKARREN. *n.* Surface karst solution feature consisting of rounded grooves, normally

formed under soil, heavy litter or moss. *cf.* spitzkarren and rillenkarren.

SAFE. *n.* A call made by a person who has finished climbing (ascending or descending) to a another person who has been belaying, - to indicate that they are safe and that the belay rope is no longer required.

SAFETY LINE. *n.* A safety rope attached to a caver climbing a ladder or undertaking a difficult manoeuvre, and belayed by another person either above or below. *Syn.* belay rope.

SAND. *n.* See sediments.

SATURATED. (1) *adj.* water logged (hydrology). (2) *adj.* The state of a solution which will hold no more solute (physical chemistry).

SCALING POLE. *n.* A lightweight pole, often constructed from short sections and assembled in situ to raise a ladder to a point inaccessible by climbing without the aid of anchor bolting.

SCALLOPS. *n.* See solution scallops.

SCROGGIN. *n.* An edible random mixture of nuts, dried fruit, rice crisps, unwrapped lollies, chocolate and edible seeds. The mixture is consumed by cavers, bushwalkers and other outdoor enthusiasts as a source of high energy food. It is made up to suit an individuals taste and requirements.

SEA CAVE. *n.* A cave in present-day or emerged sea cliffs, formed by wave action, or solution to sea water.

SECONDARY MINERAL. *n.* See mineral - secondary.

SECTION. *n.* A sketch or scale drawing of a cave in vertical plane, which shows floor, walls and roof, to represent the shape of cave passage or chamber at the section.

SEDIMENTS. *n.* Fragmentary material deposited by water or air.

Clay - The individual particles are too small to be seen with the naked eye. It becomes very sticky when wet. *cf.* terra rossa.

Silt - Very fine grit but the particles can be seen with the naked eye.

Sand - About beach size sand. (Approx. 1 - 2mm diameter).



Gravel - Rocks generally the size of small blue metal chips (smaller than a pebble), however may contain a mixture of smaller sediments. For descriptions of larger rock material which may fall into the category of sediments see: pebble, cobble, boulder and block.

SEDIMENTARY ROCK. *n.* Rock formed from accumulation of sediment, which may consist of rock fragments of various sizes, remains or products of animal or plants, production of chemical action or of evaporation, or mixture of these. Stratification is the single most characteristic feature of sedimentary rocks.

SEEPAGE WATER. *n.* *Syn.* percolation water.

SELENITE. *n.* A coarsely-crystalline, transparent variety of gypsum; colourless when pure, but sometimes tinted brown or grey by impurities.

SELF-GUIDED CAVE. *n.* A show cave which is set up in a manner which allows visitors to guide themselves around marked tracks. Usually with explanatory literature and/or recorded messages and fixed lighting.

SHAFT. *n.* A vertical cavity or passage with approximately equal horizontal dimensions and much larger vertical dimension. A shaft has at least one passage or chamber leading from it. The entrance may be open to the surface or below ground in a cave. A shaft is wider than a chimney. *cf.* pit and pothole.

SHAWL. *n.* A triangular shaped curtain. Type of speleothem.

SHOW CAVE. *n.* A cave open to the public for guided or self-guided tours. Often with formed tracks and fixed lighting.

SINK. *n.* A place where a stream sinks. See stream sink.

SINKHOLE. *n.* A natural drainage hole or cavity in rock, worn by the action of water usually along a joint or fault. Often formed in a doline. (A word of American origin.)

SILT. *n.* See sediments.

SIPHON. *n.* A waterfilled passage of inverted 'U' profile. Water flows out of the siphon whenever the head of water feeding into the

upstream side of the trap rises above that of the siphon passage.

SLACK. *n.* A call made by a person being belayed, to the person belaying. A request for extra slack in the belay line.

SLING. *n.* A loop of rope or tape.

SOLUTION. *n.* A homogeneous mixture formed by dissolving one or more substances, whether solid, liquid or gaseous, in another substance.

In karst areas, water containing carbon dioxide or other dilute acid in solution causes the chemical erosion of carbonate rock. The acidic water, erodes the bedrock (eg. limestone) when its ions go directly into solution without transformation and are carried away.

SOLUTION DOLINE. *n.* A doline formed by solution in karst rock and not modified by collapse.

SOLUTION FLUTE. *n.* A solution hollow running down the maximum slope of the rock, of uniform fingertip width and depth, with sharp ribs between each groove. Usually found on surface limestone due to weathering. *Syn.* rillenkarren.

SOLUTION PAN. *n.* A dish-shaped depression on flattish rock. Its sides may overhang and carry solution flutes. The bottom of the pan may have a cover of organic remains, silt, clay or rock fragments.

SOLUTION PIPE. *n.* See pipe.

SOLUTION RUNNEL. *n.* A solution hollow larger than a solution flute, running down the maximum slope of the rock and increasing in depth and width over its length. Thick ribs between neighbouring runnels may be sharp and carry solution flutes.

SOLUTION TUBE. *n.* A hole or small tunnel, formed in calcium carbonate or other material which has been created by the chemical action of water. Orientation is irrelevant. Larger in size and more round than a grike.

SOLUTION SCALLOPS. *n.* Current markings that intersect to form points and are due to the action of swirling water.



These shallow depressions in the rockface are most commonly found in solid bedrock.

SPELEOGEN. *n.* A karst cave feature formed in rock by solution or erosion. eg. pendant and current markings.

SPELEOLOGIST. *n.* A person who studies caves in any of the scientific aspects. *cf.* speleology.

SPELEOLOGY. *n.* The exploration, mapping, photography, description and scientific study of caves, subterranean environments and phenomena relating to karst terrains. Includes:- hydrology, geology, mineralogy, palaeontology etc. The term is often extended to include ground-trogging. *adj.* speleological.

SPELEOTHEM. *n.* A secondary mineral deposit formed within a cave, most commonly calcite. However may be aragonite or vaterite or other secondary mineral. The formal definition of the word "speleothem" as introduced by Moore (1954) and widely accepted (Greek *speleon*, a cave; *them*, deposit), does not exclude stalactites and stalagmites of ice and lava.

SPELUNKER. *n.* American name for a caver.

SPELUNKING. *v., n.* *Syn.* caving. *cf.* spelunker.

SPITZKARREN. *n.* Solution spikes. A karst feature which has developed in conjunction with bedding grikes, and due to erosion, sharp fluted spikes have formed on the upper faces. This feature usually develops in steep to vertically dipping beds. Height may vary from 0.5 to 3 metres depending on limestone composition and climate. *cf.* Pinnacle karst, rillenkarrren and rundkarrren.

SPLASH CUP. (1) *n.* A shallow cavity in the top of a stalagmite caused by dripping water. (2) *n.* Any shallow depression caused by dripping water. *Syn.* conulite. *cf.* driphole.

SPONGEWORK. *n.* A complex of irregular, inter-connecting cavities intricately perforating the rock. Cavities may range in size from a few centimetres to more than a metre across.

SPRING. *n.* The natural source of ground water flowing upwards from rock or soil onto the land surface to form a small pool and/or stream. *cf.* resurgence.

SQUEEZE. (1) *n.* A small opening in a cave which is passable with effort. Also see:- crawl and flattener. (2) *v.* To wriggle or push through a small passage.

SRT. Acronym for 'Single Rope Technique' - includes abseiling and prusiking.

STALACTITE. *n.* A secondary mineral deposit (speleothem), hanging from the roof of a cave and often shaped like an icicle. Most commonly consisting of calcium carbonate which forms by seeping or dripping water depositing calcium carbonate out of solution. Travertine is the form of limestone which makes up this type of speleothem. However the term "stalactite" also includes formations of ice, lava and other deposited cave minerals.

STALACTITE STRAW. *n.* See straw.

STALAGMITE. *n.* A secondary mineral deposit (speleothem), which grows upward from the floor of a cave. Most commonly consisting of calcium carbonate which forms by dripping water depositing calcium carbonate out of solution. Travertine is the form of limestone which makes up this type of speleothem. However the term "stalagmite" also includes formations of ice, lava and other deposited cave minerals.

STATIC ROPE. *n.* A kernmantle rope manufactured with parallel core strands and has little stretch with the weight of a person abseiling or prusiking. This type of rope is not suitable for rockclimbing as the small amount of stretch would induce high shock loading on a person, when arresting a fall. Static ropes are mainly used by cavers. *cf.* dynamic ropes.

STATION. *n.* A main survey reference point, usually in a chain of such points used to survey a cave or surface feature.

STRAW. *n.* A hollow thin-walled stalactite, uniform in diameter over its whole length. Usually less than 7mm in diameter. Also see speleothem

STREAMBED. *n.* The ground over which a stream or flow of water is running or once did. The lowest path of a valley or cave passage formed or altered by water.



STREAM SINK *n.* A point at which a surface stream disappears into an underground drainage system, usually into an obvious karst feature. Often a depression containing a hole or number of holes into which the stream flows. May also percolate down through streambed sediments. See sink and resurgence.

STRIKE. *n.* The direction of a horizontal line through a bedding-plane in rocks inclined to the horizontal. On level ground it is along the direction in which inclined beds of rock outcrop. At right angles to the dip.

STROMATOLITE. *n.* A mound like structure of calcareous sediments, formed by fine layers of inorganic debris (eg sand grains) deposited on successive gum like mats produced by Cyanobacteria (formally known as Blue-Green Algae). Stromatolite fossils date back to the Archaean and Proterozoic eras, and their presence suggest the process of photosynthesis began at an early age in the development of life on earth. Excellent examples can be found in the limestone deposits of Brachina Gorge - Flinders Ranges South Australia. Also see stromatolitic stalagmite.

STROMATOLITIC STALAGMITES. *n.* A type of stalagmite found only near the entrance and twilight zones of some caves. This type of speleothem may have a lobster or crayback appearance which can be contributed to the growth of algae (often Cyanobacteria more commonly known as Blue-Green Algae) which has preferentially enhanced deposition of calcite on the light facing side of the stalagmite. In some locations such as through arches, the deposition of calcite on the stalagmites may be influenced by a constant air flow as well as algae. Thus the stalagmite is elongated in section and oriented toward the cave entrance. This type of stalagmite can be classed as both speleothem and stromatolite. Also see stromatolite.

SUBTERRANEAN. *n.* Pertaining to underground environments (in karst).

SUMP. (1) *n.* A pool of water completely filling a submerged passage as in a water trap. (2) *n.* The lowest point in part of a cave system, where water collects in a pool before draining or seeping away slowly. *cf.* cave-pool and lake.

SUPERSATURATED. *n.* Referring to water that has more calcium carbonate or other karst rock mineral in solution than the maximum corresponding to normal conditions.

SURVEY (cave). *n.* The measurement of distances and direction (compass bearing) between survey points (station) and noting of prominent cave features. Usually for the purpose of producing scaled drawings of cave plans and sections (cave map) from the measurements.

SURVEYING. (1) *n.* a branch of applied mathematics that teaches the art of accurately determining distances, direction and area of any portion (eg. cave) and delineating the whole on paper. (2). *v.* The act of doing a survey.

SWIRLHOLE. *n.* A more or less circular hole in rock of a present or past streambed, eroded by eddying water with or without the mechanical action of sediments up to the size of a cobble.

SYNGENETIC KARST. *n.* Karst developed in aeolian calcarenite when the development of karst features has taken place at the same time as the lithification of calcareous dune sand.

TAG. *n.* A small marker with a cave number marked on it. Usually made of corrosion resistant sheet metal (25mm square), with the number stamped on the face.

TAGGING. *v.* The act of fixing a tag (bearing the cave number) to the solid rock, tree or structure, near the entrance of a cave.

TAPE. (1) *n.* A flat or tubular webbing tape, usually made of nylon. Used to make harnesses and slings.

(2) *n.* A graduated tape measure, used in surveying. Tape materials presently available include; steel, plastic, wire-reinforced cloth, fiberglass and carbon fibre (kevlar).

TERRA ROSSA. *n.* Reddish clay soil developed on or around limestone.

TERRACE. *n.* A gently sloping series of rimstone dams.



THAT'S ME. *n.* A call from a climber to a belayer who is taking up the slack in the rope - indicating that the belayer is feeling the weight of the climber with no slack in the rope.

THEODOLITE. *n.* An accurate instrument used to measure horizontal and vertical angles by means of a small telescope. Used in cave surveying for Grades 7 to 9.

THROUGH CAVE. *n.* A cave which may be followed from entrance to exit along a stream course or passage which formerly carried a stream.

TOURI. *n.* A colloquial term used to describe a group of tourists at a commercially developed caving area. In other words those people who go on guided or self-guided cave tours where fixed lighting is provided to view the caves.

"Stay out of sight of the tourists (touri)", is usually one of the conditions attached to a caving permit, where the permit cave is in the vicinity of a commercial tour cave.

TOWERKARST. *n.* Residual limestone outcrops with very steep to overhanging lower slopes. Between the towers there may be alluvial plains or flat-floored depressions.

TRACE. *n.* A short length of woven wire fitted with interlocking rings fitted at each end and used to attach a flexible ladder or rope to an anchor point.

TRACER. (1). *n.* A substance introduced into surface or underground water. It is used to determine drainage connections and travel time.

(2). *n.* A material introduced into cave air to determine interconnecting chambers and tunnels.

TRAP. *n.* A place where a cave passage becomes completely full of water to the roof (usually for some distance) before rising above water to a siphon. *cf.* duck-under and sump.

TRAVERSE. (1). *n.* The commonest form of cave survey in which distance, direction and vertical angle between successive points are measured. A series of legs between stations.

(2). *n.* A way along ledges above the floor of a cave.

(3). *v.* To move along such a route.

TRAVERTINE. *n.* A form of dense, closely compacted limestone consisting mainly of banded layers. It is often coloured white or cream and consists mostly of CaCO_3 which is deposited from spring, river or lake water. *cf.* Tufa.

Specifically in caves, any flowstone or dripstone deposit consisting mostly of CaCO_3 . *ie.* Stalactite and stalagmite.

The word travertine comes from an old Roman name *Tiburinus* of Tibur (now Tivoli), a town in Italy where large deposits of travertine occur.

TROG. (1) *n.* Colloquial term for caver. Abbreviation for troglodyte. (2) *v.* Systematically searching the surface ground for cave entrances. - Same as ground-trog.

TROG-UP. *v.* Colloquial term. To get changed into suitable clothing and necessary equipment in readiness to go underground.

TROGGED-UP *n.* Past tense of trog-up. Attired in caving gear in readiness to go underground.

TROGLOBITE. *n.* An animal (cavernicole) living permanently in the dark zone of a cave and unable to live outside the cave environment.

TROGLODYTE. *n.* A human cave dweller.

TRUE NORTH. *n.* The direction to the geographical north pole from the position of the observer. *cf.* grid north and magnetic north.

TUBE. *n.* A smooth cave passage of nearly circular or elliptical section.

TUFA. *n.* A porous, light yellow crystalline limestone often with a spongy like appearance, deposited in solution from spring or surface water. Calcium carbonate which is deposited over twigs, dead leaves, moss and earth, builds up mounds or terraces in the above ground streams. Over time the vegetation decays, leaving the calcium carbonate with a spongy appearance. *cf.* travertine.



TUNNEL. (1) *n.* A nearly horizontal cave open to the surface at both ends, fairly straight and uniform in cross-section. Not necessarily in sight of daylight *cf.* arch. (2) *n.* A spacious cave passage, fairly straight and uniform in cross-section. (Not open to the surface.)

TWILIGHT ZONE. *n.* The outer part of a cave where daylight penetrates and gradually diminishes to zero light, Between the entrance zone and dark zone.

VADOSE DEVELOPMENT. *n.* The down-cutting action of a cave stream having a free airspace. Cave development due to water (vadose water) which descends freely and is not under hydrostatic pressure. The fast moving water carries rocks and grit which also cause mechanical erosion of the bedrock. A tell-tail sign of 'vadose development' is scallop markings in the bedrock, caused by running water.

VADOSE FLOW. *n.* Water flowing in a free surface stream, thus having no hydrostatic pressure.

VADOSE SEEPAGE. *n.* Syn. percolation water.

VADOSE WATER. *n.* Water in the vadose zone.

VADOSE ZONE. *n.* The zone where rock cavities are partly filled with air and through which water descends under gravity.

VATERITE. *n.* The least common form of calcium carbonate found in caves.

WALK-THROUGH. *n.* A passage with plenty of headroom where a caver can walk through without stooping or crawling.

WATER SINK. *n.* Either above or below ground. A place where flowing water sinks into an impassable passage.

WATERTABLE. *n.* The upper limit of the phreatic zone, or the level of saturation of the strata, (usually very localised in limestone terrain).

WATER TRACING. *n.* Determining the water connection point of a stream sink and its reappearance at the efflux or resurgence. See Tracer.

WATER TRAP. *n.* See TRAP.

WEATHERING. *n.* The processes of physical disintegration and/or chemical decomposition of solid rock materials at or near the earth's surface. Physical weathering breaks up rock without altering its composition, and chemical weathering decomposes rock by slowly altering its constituent minerals.

Weathering may alter the colour, texture, composition, or physical shape of rocks.

WET CAVE. *n.* A cave containing a lake/s and/or active stream with deep pool/s, which require wading or swimming to progress through the cave. The caver can expect to become very wet and possibly cold. The wearing of wetsuits may be advisable. This term also includes caves where inflatable rafts are used to cross a deep section of water.

WHALETAIL. *n.* A mechanical descender made from an aluminium block, designed to apply varying degrees of friction depending on the number of slots the abseil rope is passed through.

WINDOW. *n.* An irregular shaped hole through a thin rock wall, between cave passages or chambers.

ZONE, DARK. *n.* See dark zone.

ZONE ENTRANCE. *n.* See entrance zone.

ZONE, PHREATIC. *n.* See phreatic zone.

ZONE, TWILIGHT. *n.* See twilight zone.

ZONE, VADOSE. *n.* See vadose zone



Main References

- Hill, C.A. and Forti, P. (1986, 1997) Glossary in 'Cave Minerals of the World', 1st & 2nd editions. Pages. 355-365. Published by National Speleological Society Inc. 2813 Cave Ave, Huntsville, Alabama, 35810, USA.
- Jennings. J. N., (1979), Cave & Karst Terminology, published in ASF Newsletter No 83 P.3-21 and revised list in the ASF 'Australian Karst Index' (1985), edited by Matthews. P.
- Smith. G.K., (1995), Definitions and Colloquial Terms, published in the 'Australian Caver'. No. 138, P. 17. The official newsletter of the Australian Speleological Federation.
- Smith. G. K., (1998), Glossary of Caving Terms, published in 'Newcaves Chronicles', No. 11, July 1998, P. 68-75. The official publication of the 'Newcastle and Hunter Valley Speleological Society'. ISSN 1325-0930
- Glossary in 'British Caving' (2nd edition 1962) An introduction to speleology. Edited by Cullingford. C., Published by Routledge & Kegan Paul Limited Broadway House, 68-74 Carter Lane, London.
- Glossary in 'Minerals of the World' (1986). Re-published (1990), with revised text by Dud'a, R., and Rejl, L., Pages 509-511. Publisher - Spring Books, Michelin House, 81 Fulham Rd, London SW3 6RB. ISBN 0-517-68030-0.
- Glossary in "Physical Geology" (1990), eighth edition, Judson, S. and Kauffman M. E., Pages 497-512. Publisher - Prentic-Hall, Inc. a division of Simon & Schuster, Englewood Cliffs, New Jersey 07632. ISBN 0-13-666405-9.



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Unknown Cave