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SPECIAL ISSUE

SPIDER CAVE, JENOLAN

Sydney University Speleological Society

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SPIDER CAVE, J 174

JENOLAN, NSW

INTRODUCTION

This issue of the SUSS Bulletin is devoted to Spider Cave, the most recent discovery to be made at Jenolan. It is of particular significance since it has given access to the underground course of the Jenolan River between Mammoth and Imperial Caves (the "Hairy Diprotodon"). The breakthrough to the river in Spider Cave was made only a few weeks after the very successful Easter diving trip in Imperial, and in fact the downstream end of the Spider Cave riverway is only a short distance upstream of the divers' extension to Imperial.

Many of the formations in the cave are of outstanding beauty, and to protect these the cave has been gated. The key is, of course, available on the same terms as apply to other gated caves at Jenolan. Groups visiting the cave are asked to take particular care to follow the track markings, since boots and overalls become very muddy in Spider Cave!

SURVEY AND STATISTICS

Guy Cox

The "Old Cave" - as far as the Bus Stop - was surveyed with forestry compass and tape to ASF grade 6,4. Most of the remainder of the cave was surveyed with Suunto compass and clinometer, and fibreglass tape, to ASF grade 5,3 or 5,2. The Eyrie section was surveyed with Forestry compass, but because of the circumstances of the survey only grade 5,3 is claimed. The riverway upstream of Sump 1 was surveyed with Suunto compass and pacing to ASF grade 3,1.

The total surveyed length is 1077 m; many known side passages have not yet been surveyed, and hence are not included in that figure. The depth from the entrance to the downstream rockpile is 58 m. Total vertical range would therefore be around 60m.

DISCOVERY AND EXPLORATION

Bruce Welch

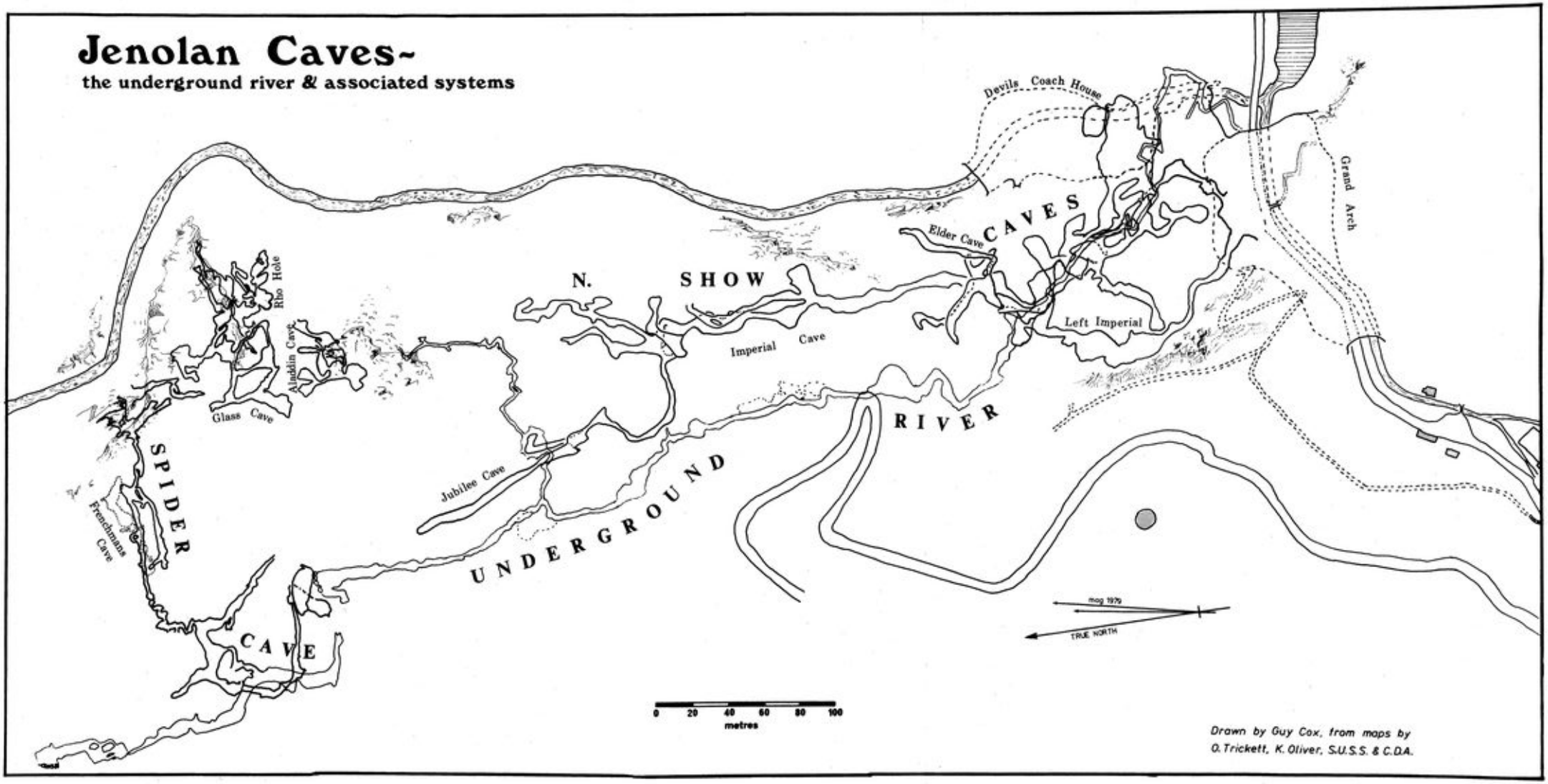
The entrance to Spider Cave was discovered by Bruce Welch, a member of Sydney University Speleological Society, on 15th May 1975. At this time the Society was carrying out an intensive and detailed study of the limestone north of Caves House in an effort fully to document every cave in the area. The work culminated in the publication of The Caves of Jenolan 2; The Northern Limestone, a book which has been well received both at Jenolan and within speleological circles. The entrance to the cave is small and unobvious, and the lack of any signs of previous entry leads us to believe that the cave was not previously known.

When discovered the cave was only 130m in length and ended in a tight constriction of the passage which was subsequently called Dingo Dig. The part of the cave so far entered was surveyed, and work commenced on enlarging Dingo Dig. This proved to be a difficult task, with members working long hours in the confined passage; however, a draught of air was noted and this helped to maintain enthusiasm.

By 21st December, after several trips, the passage was enlarged sufficiently for members to enter Frustration Chamber, which unfortunately ended in another tight constriction of the passage. Further digging was carried out and a new section of the cave, including Helictite Chamber, was entered on 14th June 1976, just over a year after the discovery of the cave.

Exploration work, surveying and digging was carried out in the ensuing months. The upper level to Helictite Chamber was discovered, and a map of Spider Cave including these new discoveries was published in SUSS Bull. 16(5), December 1976.

After some months of hard digging the constriction at the end of Helictite Chamber was passed by Bruce Welch in December 1976, but because he was the only person able to get through the squeeze the rockpile beyond was only explored cursorily. The exploration of this rockpile had to wait until 16th June 1979, when Mike Lake and Bruce Welch,


Jenolan Caves~
the underground river & associated systems
Devils Coach House
Grand Arch
Elder Cave
CAVES
N. SHOW
Left Imperial
Imperial Cave
Rho Hole
Aladdin Cave
Glass Cave
RIVER
SPIDER
Jubilee Cave
UNDERGROUND
Frenchmans Cave
CAVE
mag 1979
TRUE NORTH
0 20 40 60 80 100
metres
Drawn by Guy Cox, from maps by
O. Trickett, K. Oliver, S.U.S.S. & C.D.A.

being the only two small enough to get through Pirates Delight (as the squeeze was then called), made a determined assault on it. Their determination and perseverance were rewarded, for after several hours of exploring, squeezing and digging, they managed to find a route through the rockpile via the Irreducible Minimum and broke into large virgin passage.

After quickly exploring the Khan Passage the northerly passage was entered. The two explorers broke into a run when they heard the magic sound of the Jenolan Underground River - the Hairy Diprotodon had been found at last !

The riverway was visited briefly before the two made their way back to their anxious friends on the other side of Pirates Delight. The next day, after considerable digging, a large party was able to get into this new section of cave and further explore the riverway.

The excitement and enthusiasm created by this important breakthrough resulted in frequent trips by SUSS to Spider Cave. During these trips the cave was surveyed and photographed, track markings were installed in some sections, and many avens, tight passages and rockpiles were explored. On 14th July Ross Franklin braved Terror Traverse and with Mike Lake discovered 80m of well decorated passage - the Eyrie. The upstream sump was passed by Guy Cox, and with Bruce Welch he explored another 80m of streamway. During a trip on 6th & 7th October, divers Alan Grundy and Ron Allum explored the holes from which the river wells up and reported that they went vertically down for a distance of some 15 metres before reaching a constriction of the passage.

Future prospects lie in the continued exploration and digging of the downstream rockpile, which will eventually lead to the Divers Extension of Imperial Cave; the entering of a high-level passage visible in the Mausoleum; and continued exploration beyond the upstream sump.

ENTRANCE SECTION, MAIN CHAMBER & FRUSTRATION CHAMBER

Bruce Welch

The cave entrance is a low solution-tube crawl which leads to a small drop into a medium-sized chamber. The east wall of this chamber displays the strike of the limestone, while the south wall is the plane of the Spider Cave fault and is a direct continuation of the cliff face above. The solution-tube crawl which runs north from here becomes too tight after some 8m. Fossils can be seen in the limestone along this passage.

A series of small drops leads from this chamber to a large cavern, Main Chamber, which contains some good flowstone, cave coral and moonmilk. There are also some brownish helictites and gours. This chamber is littered with the bones of wombats, wallaby and dingo, and their grim fate is revealed by the scratch marks that can be seen throughout the cave. An inspection of the bones was carried out by members of the Australian Museum, who reported that the remains were fairly recent.

The southern end of Main Chamber displays an old false floor with some dirty gours. An exposed, hair-raising climb to the left of these gours leads to a small, flat-floored alcove at about the same level as the cave entrance. An exposed traverse to the right leads to a short passage called the Jail, which contains some delicate straws. It is possible for a small caver to get past these straws but the passage narrows down and ends only a couple of metres beyond.

It appears that the Main Chamber was once substantially filled with sediments which have since been removed by a stream which now flows only when McKeowns Creek flows outside the cave. The stream bed enters Main Chamber from the east, runs under some flowstone, then descends into Dingo Dig. The passage then goes up on the other side of the dig to a level about the same as that of the Main Chamber. At this point it opens out into Frustration Chamber. This chamber has a small expanse of flowstone, at the top of which is a crystal pool containing a wombat skull completely covered in calcite crystal.

HELICTITE CHAMBER

Bruce Welch

From the end of Frustration Chamber the Z-Squeeze leads to a passage containing unusual growths on the walls. This passage drops into a large chamber, Helictite Chamber, which continues for about 60 metres to the site of the next dig, Pirates Delight. The only major side passage runs off above the beginning of this chamber and continues upwards past some exquisite aragonite growths and crystal-white flowstone to a high rift.

This rift has been climbed and leads up a sloping flattener to a small chamber containing flowstone and pool crystals. This chamber terminates in a wall of calcite-covered pebble fill. Digging of the fill would be vandalistic and there are no other possible leads. Since this passage has been totally explored and surveyed it is hoped that parties will not attempt to visit it as a great deal of damage to speleothems could result.

THE ROCKPILE

Guy Cox

Pirates Delight (so called because everyone who goes through gets a sunken chest) is a typical phreatic loop. The base of the loop is the silted constriction which required so much digging, and it is followed by a classic "ramp" structure up which the water flowed. This opens into a circular chamber, the Bus Stop, beyond which is a chaotic jumble of boulders. The most obvious route onwards is up and to the right. This leads to a meandering, narrow vadose canyon, the Serpentinious Passage, partly in bedrock, partly boulder-obstructed. An easier route is straight ahead, where an un-obvious but comfortable crawl through the boulders leads to a 3m drop into a chamber. The Serpentinious Passage skirts around this chamber, and joins it on the left; the direct connection is too constricted, but a window in the wall ahead leads into it , at a feature called the Map of England (a rock flake, formerly attached to the wall). Here the two routes join. The original route on was a very tight squeeze between boulders - the Irreducible Minimum - but a more spacious alternative route - the Expandable Minimum -

has since been excavated. From here a steep, but boulder obstructed, slope leads down to a small dry streamway. Many side passages in this area form traps for the careless navigator. The way on was once rather constricted, but is now enlarged to an easy crawl, following the stream bed to the large passages of the new section.

KHAN PASSAGE — Michael Lake

Exiting from the rockpile into Glop Hole Gallery, a left turn, across deep squishy mud, leads to the beginning of Khan Passage. This passage is in fact the natural continuation of Glop Hole Gallery, but its different appearance and morphology justifies the different name. Here the mud ends, and one must clean ones boots before proceeding. The marked path passes a mud slope on the right which leads up to an aven, with massive boulders jammed in it. It has not yet been climbed.

Development of mud formations has occurred in small areas. Forests of pointed, vertically rilled, cones, a few centimetres high, and small glop holes are formed in a thin mud layer overlaying white flowstone. The bones and decaying viscera of a small, possum-like animal lie undisturbed on the bank of a small stream channel. Extensive cascades of superbly white flowstone and numerous speleothems decorate both sides of the marked path.

Proceeding onwards, to the south, one is confronted by the Little Khan - a dominating, white stalagmite standing 3 metres high, with a thin, crooked straw uniting it to the roof. Beyong the Little Khan an incredible proliferation of straws, some over one metre in length, decorates the passage. One straw has formed a column whilst another, having broken from the roof, now sticks out with a slight lean from the mud in the floor. Long, twisting helictites extend along the opposite wall, forming a vast expanse of fascinating convolutions. Unfortunately, many fine helictites and straws are muddy from the occasional flood.

Beyond this, some beautifully white and active flowstone constricts the passage. A small aven above this flowstone

seems to be the source of a small stream, usually dry, and a small permanent pool of water. The stream has incised a channel one to two decimetres deep in the floor. Beyond the aven is a small gravelly passage with no floor channel, leading to a muddy flowstone impasse.

GLOP HOLE GALLERY — Richard Mackay

After the strenuous muscle wrenching involved in negotiating the Rockpile, Glop Hole Gallery comes as a welcome relief. Emerging from the rockpile the caver passes a small wallaby skeleton, as is then confronted by the Tomb of the Unknown Cave Mann. This unique monument, sculptured in cave mud by Mark Twigg, is a lifelike representation of a well-known SUSS identity. Beyond it lies an obvious hole in the floor which leads to a short, blind phreatic passage.

From this area a marked trail can be followed to the right, over a large mudbank, down to the beginning of the streamway which leads to the main river. This mud bank contains some excellent examples of the glop holes which give this area of the cave its name. They are formed by drips from the roof carving out holes in the mud; some of the patterns formed by this action are amazingly beautiful and the sounds made are like a weird form of music. In some places stones have preserved the mud beneath from erosion, forming 'toadstools'. To conserve the mud formations it is essential that the marked track is kept to.

Beyond the streamway turnoff another mudbank rises, beyond which a rockpile begins. Pushing upward it is possible to penetrate about 25 metres, but no way on has yet been found. Numerous small squeezes lead off in most directions, so that persistence in this area could well lead to further cave.
A small chamber, a short distance into the rockpile, contains some of the best crystal decoration in the cave. Large triangular crystals are evident in all the speleothems in this chamber, while pyramid shaped crystals occur in groups where the ever-present mud has been washed away. The shawls here are most spectacular; they resemble thinly sliced lemon. There are also some very large helictites growing in a cluster on one wall.

THE EYRIE

Michael Lake

Proceeding up the mud slope, on the left side of the northern part of Glop Hole Gallery, one enters an essentially horizontal passage called the Whales Throat. A pitch on the left is presumed to connect with the boulder-blocked aven on the main route to the streamway, but has not been descended. The Whales Throat is some 6m wide, but narrows down eventually to a small squeeze almost blocked by stalactites. This leads to Terror Traverse, high on the northern side of the Mausoleum, 14.6m above the talus slope. Probably in the past the traverse was a small stream passage, which was exposed when the Mausoleum formed. Now it is a muddy ledge, gently sloping outwards. The bones of a small mammal or bird lie on the mud; they have presumably been washed in from one of the avens in the Eyrie. A large hole, and several smaller ones, in the floor lead down and exit from the wall of the Mausoleum.

The passage onwards displays a stream canyon incised through sandy sediment banks. Layering in the sediments, and cross-sections of glop holes, can be observed. The Maelstrom Pit is a 1m deep, vertical walled, depression in the sand, possibly formed by turbulence when the cave has flooded. After a small climb over rocks a speleothem constriction is reached, which leads via a small antechamber to the chamber containing the Eagles Wing, a sparkling, white-edged shawl over 7m long.

The visitor should here remove the mud from his boots before proceeding further. The way on is via a shawl squeeze to the sloping rift and Human Glophole. A joint, along which some movement seems to have occurred, intersects this cavern. This region is dominated by extensive shawl development. The Sharks Fin is a wide, translucent shawl banded with iron oxide, while a dozen Singing Shawls, some over 7m long, resonate at a high-pitched note when one sings a low note in close proximity to them.

Up the inclined rift and through a short rockpile leads to a rocky cavern and muddy boulder choke. Numerous dry stream passages, too narrow to enter, can be seen if the boulder choke is 'pushed'. Above the Singing Shawls, and

accessible by a climb and a squeeze between two fractured shawls, is a low, flat chamber, Caverna Alba. Gour pools filled with calcite crystals pave the floor, while straight rows of stalactites and straws hang from the roof. Shawls with curling helictites growing from them line the walls. Holes leading downward give a voice connection to the Eagles Wing chamber below. To the south, sharp fractured rockpile leads up to a small aven, above which is a boulder chamber. this is 25m above the level of Terror Traverse, and may possibly be a way on.

THE ROUTE TO THE RIVER — Guy Cox

Two streamways converge in Glop Hole Gallery. One runs from Khan Passage, and disappears into a crawlway in the west wall of the gallery. The other runs from the Rockpile, and runs under the east wall before crossing the passage and joining the Khan Passage stream. The two unite into a narrow, steeply dropping vadose canyon which runs into the river passage. Halfway along is an aven; it is choked at the top by large boulders, but is believed to connect with the pitch from Whales Throat. Just below the boulder choke, however, a climb down a parallel shaft leads into a small dry tributary streamway and thence to the river passage again.

THE HAIRY DIPROTODON — Geoff Innes

The underground course of the Jenolan River is entered about 5m upstream of the Mausoleum, where a mud bank occupies the left hand side of the passage. The stream flows on the left hand side of the Mausoleum, while a large boulder slope occupies the right hand side of the tall chamber. Near-vertical bedding planes can be seen in the roof and have assisted in the general breakdown of the passage.

Further downstream the roof lowers suddenly, but rises again to reveal well-developed bedding planes. The riverway closely follows the strike of the limestone until a major joint is encountered. Here the river bifurcates; the right hand branch disappears down a hole in bedrock,

while the major left hand branch follows the joint direction for approximately 20m then enters an extensive loose rockpile as the passage size decreases. An aven 10m or more in height also follows the major joint above the passage where the river divides.

The upstream part of the riverway also follows closely the strike of the near-vertical bedding, except where joint development interferes. At Pike Lake the river becomes a large, slow-moving pool approximately 1m deep. The upstream end of the lake is formed by a dyke cutting across the bedding of the limestone and following the joint direction. Beyond the dyke the passage continues to follow the strike. Another large lake is encountered, which eventually sumps - Sump 1.

DOWNSTREAM ROCKPILE — Bruce Welch

At its downstream end the river enters a large rockpile. Several attempts at pushing a way through revealed both that the rockpile was unstable and that it lacked any negotiable gaps between the boulders. After some rather hair-raising removal of rocks just above stream level Bryan Cleaver managed to get back down to the riverway. This has now been followed for some 20 m., involving some rather wet squeezing and a small duck under two large boulders. At various points along the route rocks have been removed, and further such work is required before more progress can be made.

ABOVE SUMP 1 — Guy Cox

The sump at the upstream end of the original Spider Cave riverway is approached by a progressively decreasing airspace in deepening water. At the end of the passage the water is more than 2m deep and the airspace is around 10 cm. Confusingly, the actual sump is in the right-hand wall, and seems to coincide with a thicker than average shale parting. The sump itself is no more than a metre long, and the contrast on emerging upstream is startling. One surfaces directly in a large lake chamber with a high roof. The river flows into the chamber from a low passage on the right.

Two dry passages, straight ahead, separated only by a thin shale band, lead into another chamber with a steeply sloping boulder floor and the river on the right hand side. This route avoids a low section of riverway. The whole of this section of the cave is very strongly strike controlled, and almost all passage walls are bedding plane surfaces, often marked by shale partings.

Continuing upstream, the river meanders within a spacious passage for a disappointingly short 17 metres to a big boulder-choke chamber where a major fault intersects the passage. This is presumably the Spider Cave fault again, and runs almost exactly east-west. The stream emerges from a constricted rift following the fault (and a dyke which appears to have intruded along the fault). 3m along this rift the water wells up from a deep blue hole.

The divers dived this hole, and reported that the rift opens out underwater, and continues down for 13m vertically, where the river emerges from a sand-obstructed slit. The frighteningly sharp and new-looking boulders of the choke can be passed for at least 13m, after some digging by Tony White. En route is a large pool communicating with the underwater rift and providing an easier diving site.

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Richard Mackay, 16 Northcote Rd., Lindfield. 46 1740

FUTURE EVENTS

1st - 2nd December. JENOLAN - Spider Cave (of course) and elsewhere. Contact - Mike Lake, 524 5229

Thursday December 6th. SUSS General Meeting. Last meeting of the year. Last chance to arrange those summer trips (no meeting in January). Common Room, Holme Building, 7.30

15th - 16th December. JENOLAN - yet again. There is still plenty to do ! Contact - Mike Lake, 524 5229

15th - 16th December. TUGLOW - the beautiful alternative. Contact - Ian Mann, 631 4321

27th December - 15th Jan. NEW ZEALAND - Nettlebed Cave. The NZSS Summer Expedition - 974m depth potential. Contact - Guy Cox, 818 1896

27th December - 1st Jan. COOLEMAN PLAIN. Will the Murray Cave Sump be open ? Help with the New Year Cave survey. Contact - Peter Winglee, 713 1980

Mid- January. JENOLAN. Contact - Bruce Welch, 61 7479 (w)

Tuesday 29th January. SUSS Committee Meeting.

Thursday 7th February. SUSS General Meeting. Holme Bldg, 7.30

February 18th - 22nd. ORIENTATION WEEK. Volunteers needed !

SPIDER CAVE J174
Jenolan, NSW

A.S.F. Grade 6,4/5,2/3,1

SURVEYED & DRAWN BY
P.Toomer, B.Welch, G.Cox,
G.Innes, R.King, B.Clapovec
M.Lake and others.

SYDNEY UNIVERSITY SPELEOLOGICAL SOCIETY, 1975, 1976 & 1979

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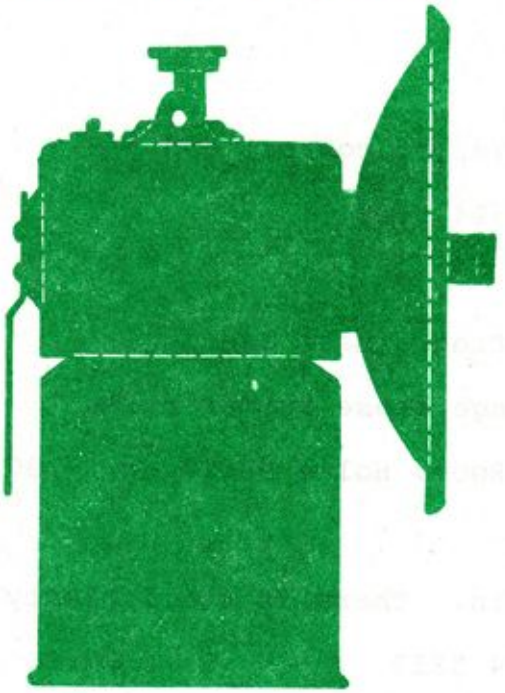
Lumen in Tenebris



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