# SOUTHERN CAVER

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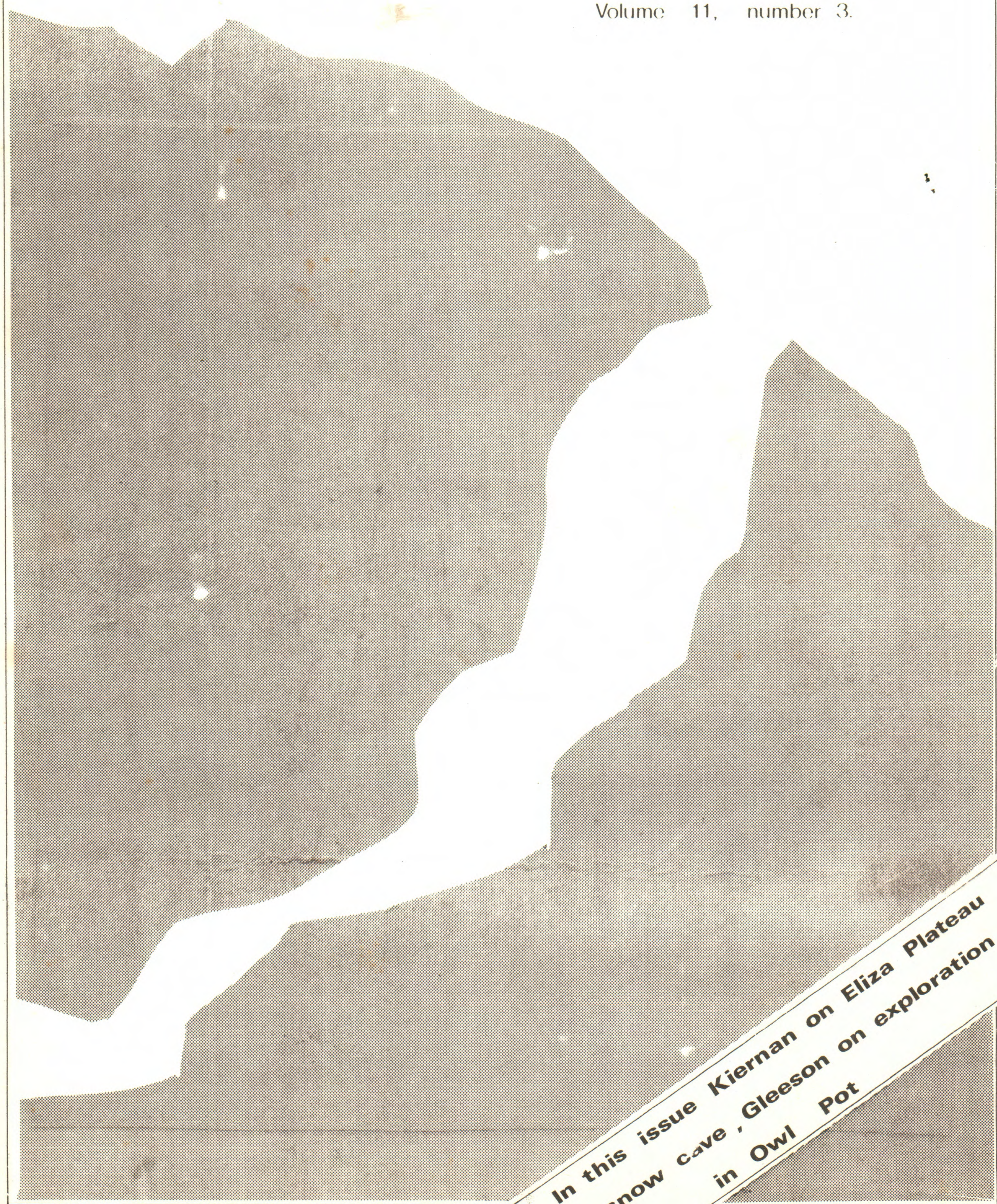

In this issue Kiernan on Eliza Plateau snow cave, Gleeson on exploration in Owl Pot

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# SOUTHERN CAVER

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# A MELTWATER-CAVE ON THE ELIZA PLATEAU, SOUTH WESTERN TASMANIA

Kevin Kiernan.

Although the lack of permanent snow in Australia precludes the possibility of glacier caves as developed in alpine areas of New Zealand and elsewhere, caves in residual snow-banks have been reported from the Snowy Mts., in N.S.W., while the potential for similar features in Tasmania has gone untested.

The N.S.W. cave reported by Halbert and Halbert (1972) occurred near Blue Lake and was 45m. long, 1-1.5m high with a gradient of some 30° and a pronounced wall scallopping. Other bergschrund like entrances in the same area were not explored. More recently, a small system with three entrances was found in the same area in 1975, while in 1979 a cave 40m. long, and 1m. high was discovered at Perisher Valley, others around Blue Lake, and a cave 4-6m. in diameter on the south-eastern side of Mt. Carruthers (Halbert pers. comm.) Other snow caves have been observed in Tasmania by the writer, related to variations in ablation rate due to preferential heating of darker coloured dolerite boulders adjacent to the snow.

## Snow Cave Development

Caves developed in temporary snow deposits are characterised by the short time available for their development and consequently often comparatively small size. Speleogenesis may result from flow of meltwater flow of the host material or biogenic agencies (Kiernan 1978), with enlargement resulting from continuation of these processes and the initiation of air circulation through the developing voids, the latter of which may be responsible for the initiation of cavities located peripherally to the snow-pack. Meltwater may be generated by atmospheric heating processes, or enhanced geothermal ablation, and for present purposes can be taken to include precipitation arriving at the snow or adjacent ground surface in liquid form.

Caves may also result from movement of the host material itself, as in bergschrund development due to settling or sub-nivial cavitation, the burial of bergschrunds or talus by snowfall or snow slumping, or by snow glide, a cavity of such origin being illustrated by Perla and Martinelli (1976 p57). The burrowing activities of man and other animals may also develop caves, and the differential heating of darker coloured materials such as valley walls, talus, and rocks fallen onto the snow surface may also be significant through enhanced ablation and initiation of voids which may be elaborated by other agents. In reality sharp divisions do not exist and there is considerable interplay between agents.

A further speleogenetic possibility lies in metamorphism occurring within the snow-pack which may produce small cavities in their own right or at least planes of discontinuty which provide less permeable strata deflecting and concentrating meltwater, air circulation and biogenic agents. This may be only briefly extant, but could be significant in speleogenesis, and perhaps condition subsequent passage enlargement to a degree.

These changes are of three fundamental types. Equitemperature (destructive) metamorphism results from the tendency of snow crystals to consolidate into a tighter, stronger texture, and involves sublimation whereby the extremities of the freshly fallen dendrite diminish and the grain becomes more rounded while interlocking necks form between the grains stabilising the snow-pack. As a temperature gradient is established in the snow, temperature gradient (constructive) metamorphism may occur, involving complex vapour flows whereby the grains grow while the necks remain essentially the same size, destabilising the snow-pack. The large grains formed are known as depth hoar. Aitchison (1979) notes that in North America the loose, sugary strata so produced may provide easy tunnelling terrain enabling small chioneuphoric mammals such as voles to move about through the snow-pack. Both equitemperature and temperature gradient metamorphism may occur at different points in the snow-pack at different times (Perla and Martinelli opcit).

Melt-freeze metamorphism is a different process related to frequent, often diurnal freeze-thaw cycles, and may produce large rounded clusters of ice grains. Other factors leading to discontinuities in the snow-pack include dusty or dirty layers which may be differentially heated, and the burial of surface hoar, which consists of flat leaf-like crystals produced by sublimation of moisture from the air onto the snow surface when the top of the snow is colder than the air above, as on clear nights when outgoing radiation from the snow can produce big temperature differences Deposition of snow on lee slopes in windy conditions may mechanically damage dendrites in a layer subsequently buried, also providing a discontinuity.

To date we know little of the role of such discontinuities in speleogenesis, but can be certain at least that the ground surface itself provides a very significant one, where speleogenesis is enhanced by the warmer temperatures beneath the snow-pack, and water may remain unfrozen much of the time. Solifluction - like processes reported from under some glaciers (W. R. Halliday, pers. comm.) may also have relevance under snow banks in some situations.

## A Tasmanian Meltwater Cave

A meltwater cave beneath a residual snow-bank on the Eliza Plateau in south-western Tasmania was examined by the writer on 25th October, 1979 and again on 3rd November and 17th November, 1979.

The Eliza Plateau is abroad and sloping surface of Jurassic dolerite and Paleozoic materials at an elevation of around 1240 m. above sea level at longitude 146° 49' and latitude 42° 58'. forming part of the rugged Mt. Anne massif. Although permanent snow is no longer present the area has been subject to at least two glacial episodes in the Pleistocene, the older attested by deeply weathered dolerite in moranic deposits cut by the Scotts Peak road a few kilometres to the west, and a subsequent more restricted event leaving fresh dolerite in a moraine on the plateau itself. This activity, and perhaps earlier episodes, depositional evidence of which has been obliterated, has left a spectacularly ice-moulded landscape of cirques and deep glacial lakes and sharp arretes, with further adornment by periglacial processes producing felsenmeer and talus slopes. Periglacial processes remain operative to a reduced extent today with frost heaving, the reactivation of small calibre screes where vegetation is absent, and what appear, without excavation, to be turf banked terraces.

One cirque, on the southern rim of the plateau overlooking Lake Judd is subject to nivation processes along its northern and western rims and is bounded on the southern side by fresh moraine. Its present form is that of a broad bowl, some 300m long and 150m wide elongate at about 70°. It is fairly flat-floored and at the western end a pool 60m long, 15m wide and with a maximum depth of less than 20cm collects meltwater from the remnant snow-banks. The remainder of the basin floor and walls free of nivation are cloaked in low alpine vegetation such as cushion plants and Astelia alpina. The readily sun-warmed pool is drained from the western end where meltwater has cut through the moraine, and subsequently turns to a flow at 195° for 200m at a mean gradient of perhaps 10° before cascading 600m off the plateau edge towards Lake Judd.

(i) Cave description:

On 25th October, 1979 the stream was found to encounter a further residual snow deposit lying on the west bank and barely covering the thalweg, where it sank into an entrance 2.5m wide and 1,5m high about 15m from the pool.

The cave continued generally 2-2.5m wide with the ceiling height averaging 1m, but reaching a maximum width of 3.5m and height of 2m near a small waterfall. Towards the downstream end the passage became more constricted and sanity interceded to halt a naked exploratory crawl up the outflow after only a short distance. Roof thickness varied between 1 and 3 metres, with the tunnel lying 1-4 metres inside the perimeter of the snow-bank. (See fig. 1)

The walls and ceiling were adorned by large scale scalloping, the passage cross section being flattened hemispherical. However this profile appeared more irregular where more dense strata in the snow-packs offered greater resistance to removal. Subsequent examination proved these strata to comprise sequences of rounded, strongly bonded crystals frequently in excess of 1mm in diameter, typical of melt-freeze metamorphism. Snow stratigraphy was readily observable within the cave, with some thin lines of darker coloured snow probably representing dust and other material present in the atmosphere during snowfall or blown across the snow surface and buried subsequently.

Overall the passage appeared to broaden where the stream bed broadened and with one exception to be highest where the stream gradient was steep, accentuating air flows and splashing of the water. A particularly noteworthy feature was the warmth of the water entering the cave from the sun warmed pool, the air in the upstream portion of the cave being humid and steamy. Further downstream however both air and water were considerably colder, although the cave was only 30m long. Towards the upper end the stream was bordered with grassy vegetation on shelves generally less than 50cm wide, while at the downstream entrance the stream occupied almost all the floor. In the upstream section the cave roof was dripping somewhat but not profusely, despite the warm sunny conditions outside, while the dripping was almost non-existant in the cooler downstream section.

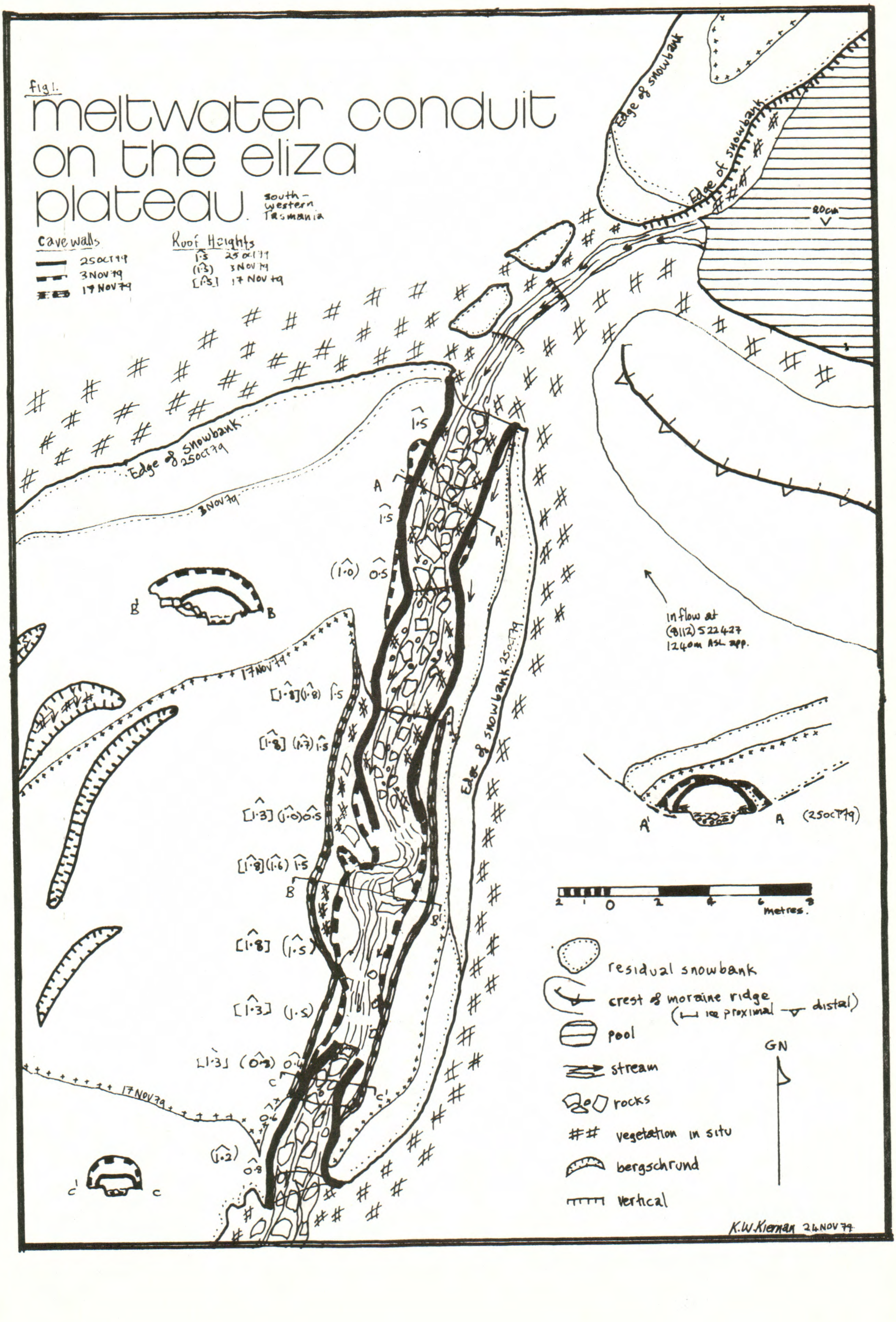


fig 1.
meltwater conduit on the eliza plateau
south-western Tasmania
Cave walls
25 OCT 79
3 NOV 79
17 NOV 79
Roof Heights
1·5 25 OCT 79
(1·3) 3 NOV 79
[1·5] 17 NOV 79
Edge of snowbank
Edge of snowbank
Edge of snowbank 25 OCT 79
3 NOV 79
17 NOV 79
17 NOV 79
Edge of snowbank 25 OCT 79
80cm
Inflow at (8112) 522427 1240m ASL app.
A
A'
B
B'
C
C'
(25 OCT 79)
metres
residual snowbank
crest of moraine ridge
(ice proximal distal)
pool
stream
rocks
vegetation in situ
bergschrund
vertical
GN
K.W. Kiernan 24 NOV 79

Cave enlargement was clearly being accentuated by the warmth of the stream, with the cooling of both air and water responsible for the narrower dimensions downstream.

(ii) Temperature data:

On a subsequent visit 9 days later the snow-bank was found to have receeded somewhat, the cave broadened slightly but more significantly increased in height, most substantially towards the downstream end where it was up to 50cm higher and exploration was easy right through the cave. The roof was thinner near the inflow end where the surface gradient of the snow was gentler and ablation was thereby enhanced. On this visit air and water temperature profiles were established, the uppermost station being near the downstream end of the pool; the next at the cave entrance; one record only from about halfway through the cave; then further records from the cave outflow; and finally at a point some 30m further downstream. With the exception of the shallow, fast flowing outflow site, water temperatures were measured at about half depth in 20cm of moving water. Air temperatures inside the cave varied markedly depending upon proximity to the walls and ceiling, recordings being taken in the centre of the passage at about half height. Five profiles were recorded over 4½ hours from the middle of the day to the late afternoon and are recorded in Fig. 2.

Weather conditions on this occasion were fairly similar to those on the earlier visit but more cloudy. Some low level cloud cloaked the plateau early but lifted later in the morning after which high level cloud cover varied considerably although only brief breezes were evident on the plateau. Air temperature responded quickly to this changing cloud cover although the pool temperature increased steadily a total of 6.2° C over the recording period. Air and water temperature variation at the stations is recorded in Fig. 3.

Between the pool and the cave entrance sites the air temperature declined a mean of 1.3°C (variation 2.4°C). Through the cave it declined a further 2.3°C (1.5°C) and at the downstream site 30m beyond the outflow was warmer by 3°C (1.9°C) of 0.6°C cooler than at the pool site. Water temperatures generally showed a steeper overall gradient, declining in mean terms 1.3°C (variation 0.4°C) between the pool and the entrance; 5°C (2.2°C) through the cave itself, and warming 0.6°C (1.1°C) by the downstream site.

Aspect and topography account for the principal differences in air temperature between the pool and downstream sites. The reduction in water temperatures between the pool and inflow entrance is the product of the lower temperatures of the shaded narrow channel banks and bed and flow of the water.

(iii) Airflow and cave enlargement:

Once inside, cooling of the air is rapid but moderated by the warmer water. The air temperature differential existing between the ceiling and adjacent to the stream leads to convection and outflow of the comparatively warm but nonetheless chilled air from the upper entrance accounting for much of the reduction in air temperature between the pool and inflow sites. The upstream portion of the cave tended to become steamy at times particularly with a person inside and occasionally blew steam up to 3m from the upstream entrance.

As cooling occurs the air is less effective in passage enlargement and hence conduit diameter tapers downstream. However cooling is in large degree a function of the proximity of the cold walls and ceiling, and the air is more agressive towards the snow nearer the stream. Hence as the passage enlarges warmer air and water is able to penetrate more deeply into the cave such that enlargement of the upstream section slows while that downstream is expedited, leading to the preferential development of the downstream section of cave noted between the first and second visits. The higher temperatures evident beyond the outflow entrance result from its flowing across sun-warmed rocks in a broad and shallow stretch of the creek bed.

An attempt to measure airflow in the cave using a vane anemometer was not successful due to difficulties in avoiding interference by the recorder, and the low magnitude connective circulation being complicated by unpredictable, short sharp breezes blowing down the cirque to the inflow or up the stream into the outflow.

However the wall scalloping, while confused towards the downstream end, indicated clearly the outwards flow nearer the upper entrance, already described as being generated by processes occurring within the cave itself. Typically the scallops were 30cm long with a depth of perhaps 10cm and considerable width, sometimes nested in larger scallops covering almost the full width of the passage. As the surface of the snowpack was lowered by the affects of insolation and wind, and the ceiling was raised, the roof was eventually breached in places by the scallops, to produce a row of tiny sinkholes over the cave. Scallops were also formed at ground level on the walls where they intersected minor interfacial voids.

## (iv) Third visit:

The cave was still present when the plateau was visited on 17th November, 25 days after the initial entry. The upstream entrance lay 10m beyond the initial inflow site, and the outflow entrance had retreated over 4m upstream. The collapsed upper section had been only thinly roofed on the previous visit, and the remainder was roofed by generally less than 1m of snow on the third visit, when the maximum thickness was just under 2m. The passage had broadened somewhat in the central section but with little increase in height. However the final few metres to the outflow were more than double their original height.

The snowpatch had receded substantially from its previous position, retreating vertically by perhaps 1.5m.

With the cave now more open to external winds, wall and ceiling scallop-ping had become more confused, particularly towards the downstream end.

A wall pocket from which a small trickle had issued promising a small side passage on the previous visit, had vanished due to broadening of the main passage, revealing the source of the water to be the burrow of a yabby or freshwater crayfish Parastacoides. The water was fountain-ing up to a height of 5cm under pressure, indicating another possible mechanism for void development at the base of the snowpack.

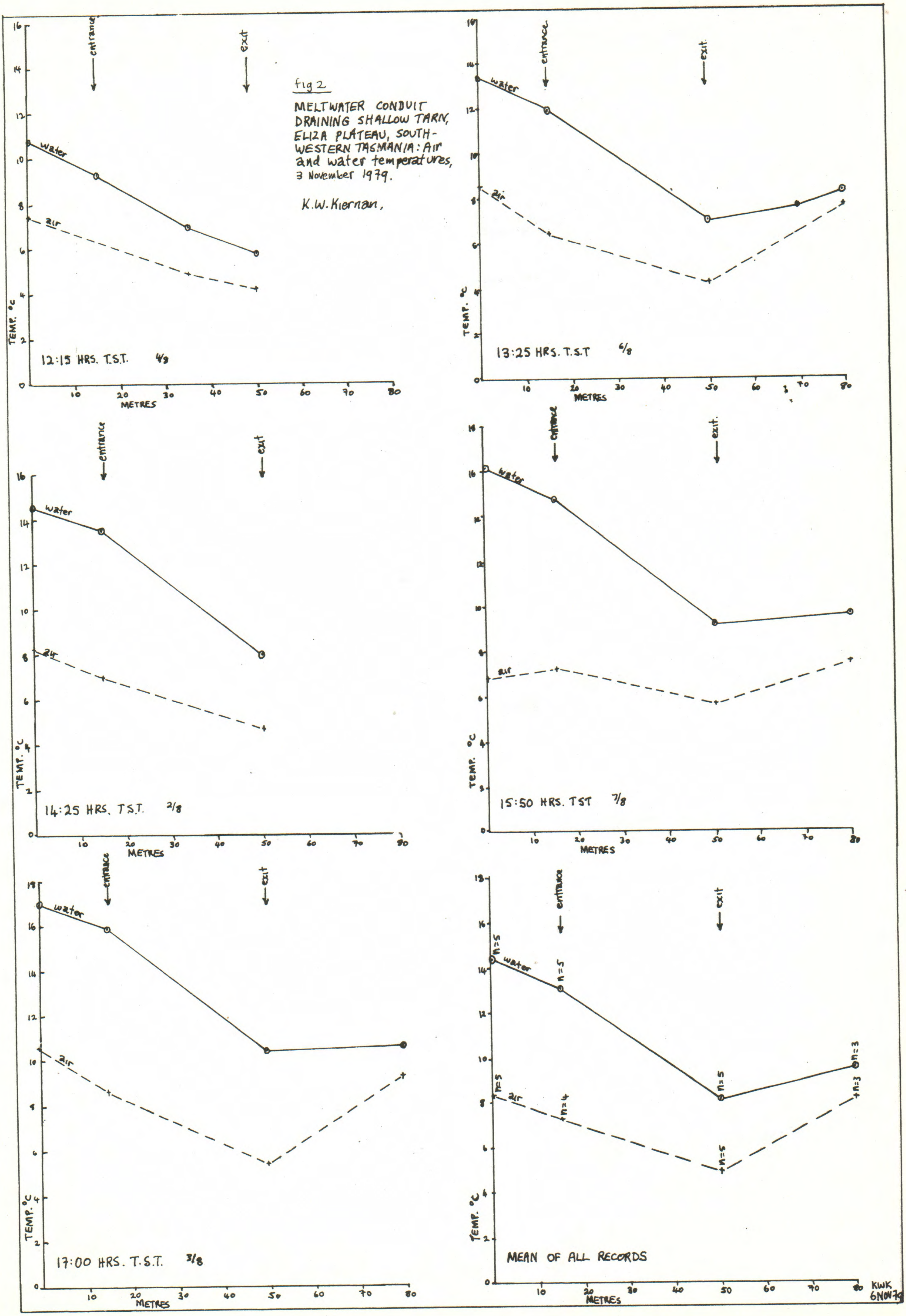


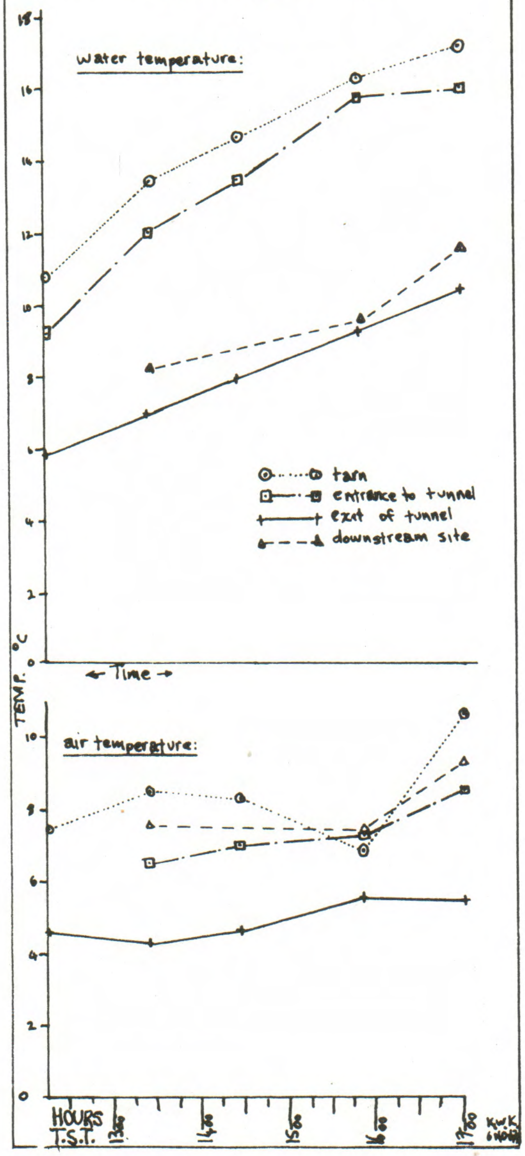

fig 2

MELTWATER CONDUIT DRAINING SHALLOW TARN, ELIZA PLATEAU, SOUTH-WESTERN TASMANIA: Air and water temperatures, 3 November 1979.

K.W. Kiernan.

fig. 3

Temperature fluctuations at recording sites over recording period, 3 November 1979



(v) Light intensity:

No accurate quantitative measurement of light penetrating through the snow was obtained, although photographic information may help convey the general situation. Photographs on 64 ASA film required moderate aperture settings at $^1/60$th second under about 1m of snow with some light reflecting from the entrance. Even under more than 2m of snow and overcast conditions it was still possible to read the thermometer scale without difficulty. Approximations were made by facing a Pentax Spotmatic camera upwards at the snow surface 10cm from the ceilings. At $^1/250$th second a reading of f16 was obtained under approximately 15cm of snow declining to f11 under 20cm and f2.8 under a roof 1m thick. Under slightly less than 2m of snow a reading of f2 at $^1/60$th second was obtained. Cloudless conditions prevailed.

One noteworthy feature of this and indeed most snow caves was the striking refractive effects, the walls and ceiling being coloured a beautiful aqua colour, darkening to a deep blue light which seemed to fill all the cave as the roof thickness increased. In addition light from the upstream entrance area cast on some scallop rims a soft orangy-pink colour reminiscent of the alpenglow cast on mountains at sunrise and sunset. Coupled with the beautiful sculpted form of the roof and walls this made for one of the most exquisitely beautiful caves imaginable and a lot of time was spent just sitting in the warm water (in the upstream section at least!) entranced by it all. However refractive affects were not particularly strong in the much diminished cave on the third visit.

(vi) Fauna:

The pool contains a substantial population of syncarid crustaceans (Anaspides?) which are also found in the cave. On the first visit substantial spider webs were present in the upstream portion, large black spiders and a profileration of flying insects settling in the cave towards the late afternoon becoming evident on the second visit. The protective effect of riming and insulating snow cover on alpine vegetation is well recorded: one is left to wonder what ecological function snow caves might fill for invertebrate fauna. In this instance night time temperatures were doubtless moderated by the stream, but more generally snow caves may provide protection from extremes of temperature on the snow surface.

(vii) Concluding comments:

The extent to which glaciers are diminished by internal and basal processes through karst-like degradation has received inadequate attention, but the same may be even more emphatically stated for snow banks. Discontinuities in the snow stratigraphy, the ground surface and darker coloured materials may all be significant speleogenetic sites. To a degree the sun warmed pool makes this particular atmospheric ablation cave unusual, but if it develops again it may provide useful access to the snow/ground interface which is likely to be a profitable site for future attention. Although Perla & Martinelli (1975) note that absorbtion of incoming solar radiation occurs primarily in the top metre of the snowpack it is probably some penetrates a deal further - in photographing this cave natural light was sufficient even beneath considerably more than a metre of snow. What is the role of such radiation reaching the ground surface, of vegetation meltwater pressure at the base of the snowpack, heat stored in the ground itself prior to the first snowfall of the season and inter-granular air and water circulation in initiating voids to be later elaborated by meltwater and air currents? Whatever its origin a void in this situation is very common and fundamental to cave development.

The extrordinary beauty of this particular cave; the development of an internally generated air circulation even within such a short length of passage and its effect on cave morphology; and the questions remaining with respect to speleogenesis and enlargement all demonstrate the worth of glacio-speleological activity even in Tasmania.

Due to the topography of the site with its fairly substantial catchment area, cave development there is likely to be a fairly regular seasonal occurrence. The 1979 winter was one of comparatively warm temperatures and limited snowfall. It is probable that under conditions of heavier snow-fall, deeper snow banks and longer snow lie, and therefore longer period available for conduit enlargement, the meltwater cave developed at this site could attain even larger dimensions.

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## EXPLORATION BREAKTHROUGH - OWL POT (JF221)

Leigh Gleeson

The dry valley systems in the vicinity of Tassy Pot in the Florentine foothills have always been regarded as offering the opportunity for the exploration of deep vertical caves. Renewed activity in this area by the Society has once again drawn attention to this potential.

Earlier this year a survey team (A. Terauds, S. Street, and myself) showed the present depth of Three Falls Cave to be 84 metres, with some likelihood of further extension in the main stream passage. More recently, an exploration team consisting of Alex Terauds and myself made a concerted bid to break through the base of the extensive talus chamber in Owl Pot, near Three Falls Cave. Our efforts were soon to pay dividends, when after negotiating a mere 10 metres of tightly locked talus blocks we emerged in a well defined dry rift passage which proceeded virtually unobstructed for 150m (a little unusual for this part of the Florentine). While traversing along this rift, our excitement was further heightened by the sounds of a major stream passage further ahead.

Sure enough, this active stream showed itself, as it transected the dry rift at right angles. The amount of water was roughly estimated at about half that of the Khazad-Dum stream, and with a stream passage dimension comparable with that of Khazad-Dum.

Enthusiastically we headed downstream (although there was the opportunity to head upstream through some talus) but after 50 metres were stopped by a waterfall disappearing into an enormous chamber. We could not see the bottom of the waterfall clearly due to spray, but estimated it at 30 metres. Having no extra equipment with us we pulled back to the surface, threatening to return the following week with a bigger team and more equipment.

Due to the dimensions of the stream passage, we were supremely confident that the cave would "go" to a depth of 300 metres at least.

During the following week an exploration team was assembled consisting of myself, Alex Terauds, Lin Wilson, Pete McQuillan and Steve Harris. A ship chandler was commissioned to construct new equipment bags, the quartermaster authorised the use of 100 metres of new rope, and all the Society's gear was checked and readied for use.

Hauling all the equipment down through the several hundred metres of cave (including a 30m pitch near the entrance) proved to be a tedious business. It took the 5 man team 3½ hours to reach the exploration front (i.e. the 30m waterfall). On first inspection the negotiation of this waterfall looked awesome. It appeared we could rig the pitch in a way which would avoid the climber coming under the full force of the water although we were not entirely certain of this.

As it turned out, the pitch was a classic and presented no problems, the depth being just 30 metres and nothing more. Excitement ran high as the first man off the ladder checked out the base of this exploration chamber for further pitches.

Unfortunately at this point the dimensions of the system closed right down with the stream disappearing through a small passage about a metre in diameter. Prospects did not look as promising as they did at the top of the waterfall. A quick recce confirmed this and the team pulled back to the surface. All hope for further extension is not gone however. There are some major talus blocks and minor rifts above the stream at it's point of disappearance and these still await exploration.

The round trip, including de-rigging took just over 10 hours. It was proposed that the cave be surveyed over the Christmas period with further exploration attempts in this system which is estimated to have a present known depth of over 150 metres.

Like many of the vertical caves in this area, explorers need to be cautioned about the high risk of rock falls and talus slippage. The basic structure of the cave is solid, however there is a lot of secondary pebble and boulder deposits which are easily dislodged when climbed on. If care and intelligence are used, safe passage is virtually assured. The converse is true if one caves carelessly.

The team left the system still holding some hope for a further break through in what is already a classic Florentine cavern.

## AREA REPORTS

Stephen Harris

### ELIZA PLATEAU

On the 17th November, Kevin Kiernan, Steve Harris and Mark visited the meltwater cave in a snowbank which is being monitored by Kevin. Various snow patches were checked for caves. Anne herself was climbed and the view from the top was beautiful because the days weather was still, hot and blue after a dense mist had cleared from the whole of the South-West since morning.

### IDA BAY

Leigh Gleeson, Lin Wilson with Neil Smith and Jim Cundy of C.E.G.S.A. visited Exit Cave on the 8th of January and pushed through to the Grand Fissure and back in 4-5 hours.

### FLORENTINE VALLEY

Owl Pot was the focus of much attention during the quarter. This was precipitated by Leigh Gleeson and Alex Terauds who pushed the talus at the "bottom" of the cave. The results of this exploration and subsequent trips are described elsewhere in this issue. Over the weekend 8th and 9th December, Leigh and Alex, together with Lin Wilson, Pete McQuillan and Steve Harris, took the exploration a stage further. On the 10th and 11th January, Leigh Gleeson together with Neil Smith and Jim Cundy of Sth. Australia completed the survey of the cave adding 200 metres of passage to the previously known length.

On the 12th and 13th January Leigh Gleeson, Neil Smith and Jim Cundy bottomed Khazad Dum via JF14 in low water levels requiring about 12 hours. A new bolt was placed on top of the last pitch (70m) and is next to the other 2 old bolts (on the right hand side of these as you face it).

### MOLE CREEK

On the 16th and 17th of January Leigh Gleeson together with Dave Gillieson and Jill Landsberg of U.Q.S.S. carried out an exploration into the downstream section of Herberts Pot. The tributary stream passage was checked closely as was a high rift above the stream however no new leads were found.

# THE SEA CAVES OF ARCH ISLAND, DENTRECASTEAUX CHANNEL

Kevin Kiernan

Arch Island lies several hundred metres offshore in D'Entrecasteaux Channel near Huon Island at the mouth of the Huon River estuary.

It is a low rock of a few hundred square metres, extent, rising perhaps 10m above present sea level, fringed on two sides by high tidal structural platforms and vegetated in part with grasses and a few low shrubs. It consists of an outcrop of Fern Tree Mudstone a generally coherent glacio-marine sediment of Permian age, dipping south-westerly at about 10°. The rock is well bedded and strongly jointed, with two principal joint trends striking at 298° and 337°, and lesser sets at 252° and 212°. It is highly fossiliferous containing various bryozoans and brachiopods, and includes ice rafted erratics of long axis dimension up to 1.5m, although the mean size is less than 6cm.

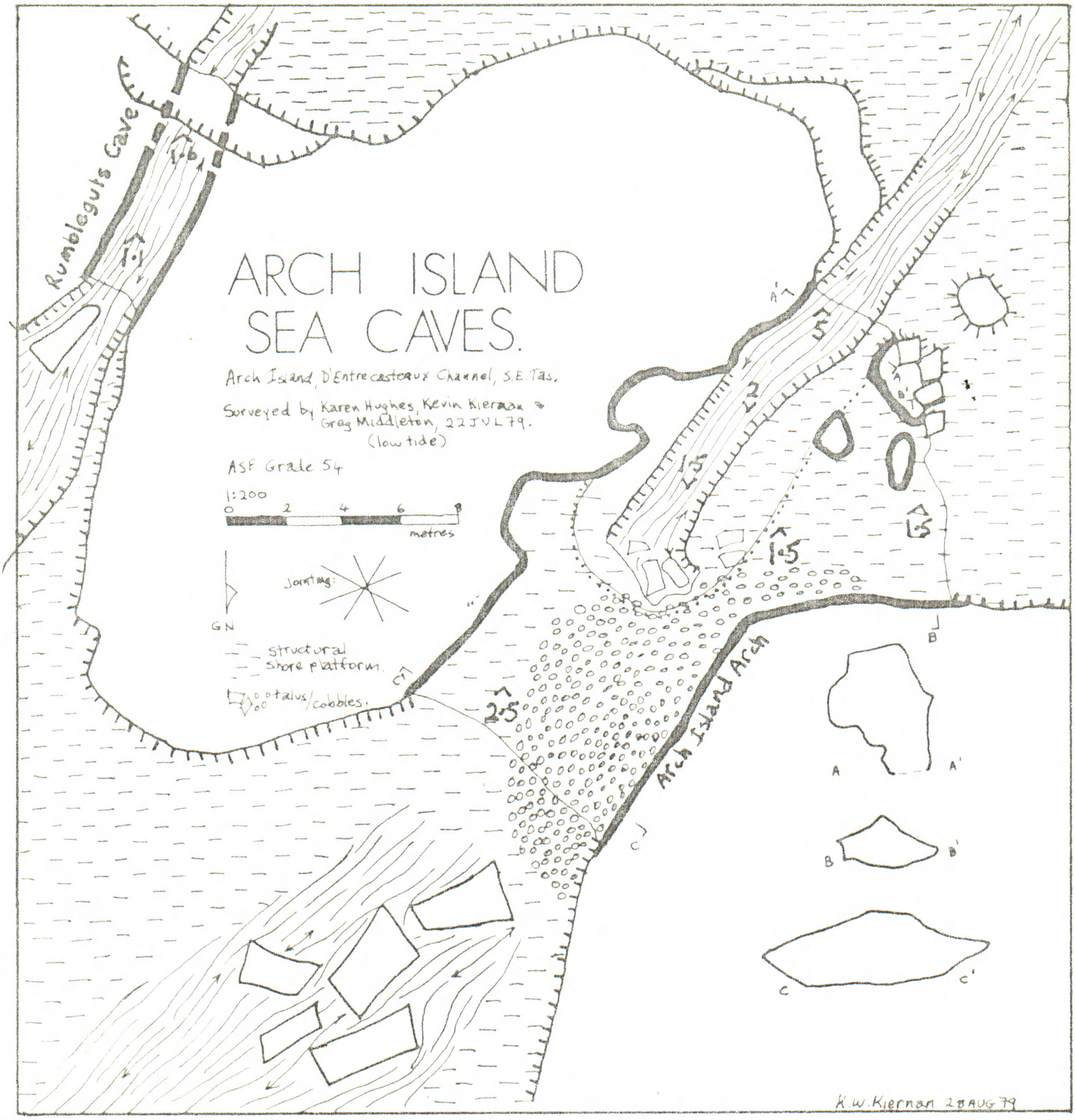
The rock crops out as cliffs up to 5m hight on two sides, with weathered pockets containing windblown sands. Minor depressions occur in the vegetated surface of the island related to structural controls, principally jointing.

Two principle sea caves are present, the island taking its name from the larger.

This is an arch extending right through the Island, a distance of 18.5m. It is developed along a fault which strikes at 122° and is downthrown to the north by 10cm. A brecciated fault zone varies from 10-20cm in width. On the seaward side facing Bruny Island is an entrance 5.5m high and 5m wide, with the roof 0.5m thick, while on the mainland side a roof 1.3m thick spans an entrance 2.5m high. The roof is generally flat and controlled by bedding, its height increasing evenly from the landward to the seaward side. A third entrance facing the open sea penetrates to the centre of this passage. It is 5.1m high with a roof 1.3m thick, but its height quickly drops to 1.5m where it joins the main passage. Dipping bedrock forms its floor, with two small remnant pillars and clastic deposits on the down-dip side.

While water would not often penetrate this latter entrance today a channel up to 2.5m wide cut in bedrock by the tractional load extends much but not all the way through the main passage, waves passing right through in storm conditions. At the landward entrance a pile of cobbles and sand 1.5m high occurs over an area of several square metres on the down-dip side, and some large angular blocks up to 4m long occur outside the present roofline.

Wall sculpturing in the cave reflects structural controls but also lithostratigraphic variation. In places wall pockets have been developed where ice rafted erratics have been loosened by wave action and have subsequently dropped out. These erratics, frequently quartzites, have doubtless served effectively as mechanical tools.



ARCH ISLAND
SEA CAVES.
Arch Island, D'Entrecasteaux Channel, S.E. Tas.
Surveyed by Karen Hughes, Kevin Kiernan & Greg Middleton, 22JUL79. (low tide)
ASF Grade 54
1:200
0 2 4 6 8
metres
Jointing:
GN
structural shore platform.
talus/cobbles.
Rumbleguts Cave
Arch Island Arch
A
A'
B
B'
C
C'
K.W. Kiernan 28AUG79

A short distance east lies Rumbleguts Cave, a partly water filled passage also passing right beneath the island, a distance of some 8m. This cave has been developed along the 298° joint orientation. On the seaward side is a channel some 2m wide with an airspace of 10-20cm at low tide. On the mainland side a passage 2.8m wide, 1.6m high and with a roof thickness of 3.4m. At low tide this passage contains just on 1m of water and is penetrable to a slightly wider and higher area. Its profile is strongly rectangular, controlled by bedding and jointing. A zeolite occurs in abundance near this entrance.

Davies (1959) has suggested there has been little coastal erosion in the Holocene, but on the other hand Colhoun (1977) attributes the present landward entrance of Remarkable Cave on Tasman Peninsula to post glacial erosion. While Rumbleguts Cave is clearly related to modern sea levels, the main arch appears to represent an earlier phase of development, and this together with the floor elevation of its side entrance suggests it relates to either a previous higher sea level or has been uplifted since that time. In common with many other Tasmanian sea caves its origins probably lie in the last interglacial.

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Historical reprint from Henry Reed's book: "Life and Work at Wesley Dale". (Henry Reed was a pioneer large landholder in the Middlesex Valley.)

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"On the day following our arrival we arranged to visit some famous caves a few miles distant. Mr. Varley had told us of their wonders and had raised our expectations to a high pitch. Mr. Reed was himself the discoverer of these now famous caverns. Many years ago, when exploring that part of the country, he desired to follow a certain creek to find its source, and penetrating the dense scrub and brushwood he came upon these remarkable caves from which the waters flow, and to which in the summer months a constant stream of visitors finds its way. We came to them by a four mile ride, rough and hilly, with any quantity of fallen timber obstructing the path and compelling frequent deviations from the beaten track. We had the sun this time, and on the mountains just ahead, lights and shade played, lighting up first a patch of forest, then a ridge of rock, and then for awhile enshrouding all in the gloom of a darkening cloud. On the road we pass a small chapel used also as a school, and here a whole crowd of youngsters stop for a moment in their play to look at the troop of horsemen. What a grand thing to have in the wilderness a school for children, and, better still, a place whence Gospel light shines forth, and where the cross is uplifted. We dismount at the foot of a small hill, and handing over our steeds to the groom who accompanied us, and who, I am glad to say, is with us on the heavenly journey too, we have but a few steps to go and are standing before the entrance of a cave. The large black opening in the rock is surrounded by the living green of ferns and mosses, while a fallen tree lies across the mouth as if to guard the bowels of the earth from all intruders. A hurried look at the interior sufficed, for we were told of grander scenes and goodlier sights. A short walk brought us to a lovely dell, thick with luxuriant growth, lively with the flit of little birds, and the murmur of a stream that rippled through it, hidden by the trees and shrubs and ferns. A kind of tropical dampness pervaded the place, and the air seemed redolent of fragrant shrubs. A well-worn footway told of numerous visitors and brought us to the opening which we sought. We had to descend some distance down natural steps, rough and uncut amongst the rockeries and ferneries planned and planted by Nature's beautifying hand.

"Three of us ventured within the high-roofed cave. What a change of atmosphere. It was fresh and cool as though we had reached the birth place of the icebergs; a real refrigerator where sunbeams never wander, and solar light and heat are never known. Armed with candles and matches we penetrate the darkness. A considerable stream runs through the caverns, a winding stream, so that we are forced to cross it many times. We often appreciate our mercies most when we have lost them. Never before did I realise so intensely the advantage of wearing boots, for the rough stones were trying to my bare feet, and the icy chilliness of the stream, with the darkness so intense, made out bootless travelling anything but pleasant work. Still nothing can be done or seen without a certain amount of trouble, the enjoyment often being all the sweeter for the previous toils. I know that I for one was glad to find the stony bed exchanged for a ridge of sand, and pleased to be able to urge my companions to press on to the smoother footing which I had gained. The roof was generally pretty high, but broken by stalactites hanging down threatening broken skulls to incautious travellers. We often found the adage true, "He needs must stoop who cannot stand upright".

"Once more booted we were able to pay more attention to our surroundings and the flickering glare of our candles cast fantastic shadows all around; now trying to pierce far down a side recess and light its gloom, and anon producing at hand ten thousand diamond flashes from a snow-white rock. How much depended on these lights we carried! They seemed the brighter for the unchanging gloom and lasting night in which we were immersed. We thought of Shakespeare's metaphor,

> "How far yon little candle throws its beams,
> So shines a good deed in a naughty world,"

and we prayed for grace to "walk as children of the light". But there are wonders above us as well as beneath and around. The rocky roof is bright with phosphorescent light. We stretch one hand towards it and find upon our finger a glowworm, who made it his delight to do his little best to light the gloom; and there are myriads of them, like nature's tapers, shining in her palace underground. Crossing the rivulet once more we are stopped by a miniature lake of considerable depth and wondrous clearness. We are told that beyond this the most wonderful stalacites and rock formations are to be seen, assuming all sorts of shapes and glistening in rainbow colours; but lack of time prevented our proceeding. The bright transparence of this pool is due to the fact that just above there is a narrow opening in the rock high over head, and through it streams the light of heaven, and cloud and sky are reflected in the glassy mirror far below. Just beside us there is another opening, steep and slippery, which nevertheless seems passable. It was dangerous in the extreme to hurry up this "hill difficulty", for there was nought to cling to should we slip, and only rugged rocks and deep water to receive us should we fall. Even when we had safely reached the open-air there was need to be careful. The warning word was passed not to trust to the rotten trees. Keeping to the proper path, and only relying on what was quite secure, we climbed successfully. Was not this a picture of men who, as they seek to climb to heaven, trust to broken reeds instead of keeping to Christ, "the Way", and clinging to Him alone? No wonder then that they never escape from "the hole of the pit".

"We had now to walk over rough ground, thick with shrubs, and ferns, and grass - the abode of leeches and lizards, and, for aught we knew, of snakes. Fortunately, we saw none of the dreaded reptiles, and after getting refreshed with a draught of pure water in the cave we visited at first, we set our faces homeward. Not far along the forest paths we met a team of bullocks, going to the creek for water. Mr. Reed asks the lad who drives them how it is he does not come to Sunday School; tells him that though he can drive bullocks, which, by the way, is no easy task, it would serve him better still to be able to read God's Word. He asks him, too, to inform his friends that Mr. Spurgeon, of London, would preach on Sunday next, and they were to be sure and come. We returned by the same track, and on the way we had great joy in thinking of the wondrous Creator and in blessing Him for such opportunities of beholding His handiworks".

## BITS AND PIECES

Annual General Meeting- Southern Caving Society:

The Society's A.G.M. will be held on Wednesday 30th. April 1980 at 8:15 pm.
Venue: SCS Clubrooms, 132 Davey St.,Hobart.
Turn up and participate you slack bastards.

SARSYM 80 - Search and Rescue Symposium:

June 6,7 & 8 th. Participants may elect to stay at Beresford House, Pitt St.,Launceston and be thrown over cliffs in Cataract Gorge to await subsequent rescue. All this for a mere 10 dollar fee- including some meals and accomadation.

The levity in this column stems from the fact that the acting editors are not standing for office at the AGM and figure they have nothing to lose.

Cave Communication Exercise.

On Sunday 27th. April an attempt will be made to communicate with a cave. Please bring your ouija boards, tarrot cards etc. Manfred will be bringing a radio. Seriously (Manfred now dictating...) Amateur radio equipment will be used in Entrance Cave to attempt communications between a party inside the cave and a party on the surface. The frequency used will be 1825 khz.

Disclaimer- please note.

Nothing in this edition of Southern Caver is to be taken as inferring that the Southern Caving Society is in any way active.

## CAVE MAN MARRIES

Members of the Southern Caving Society will join us in congratulating Kevin Kiernan and Karen Hughes on their marriage. We wish them long life and happiness together.
Will KK continue to cave and write ???