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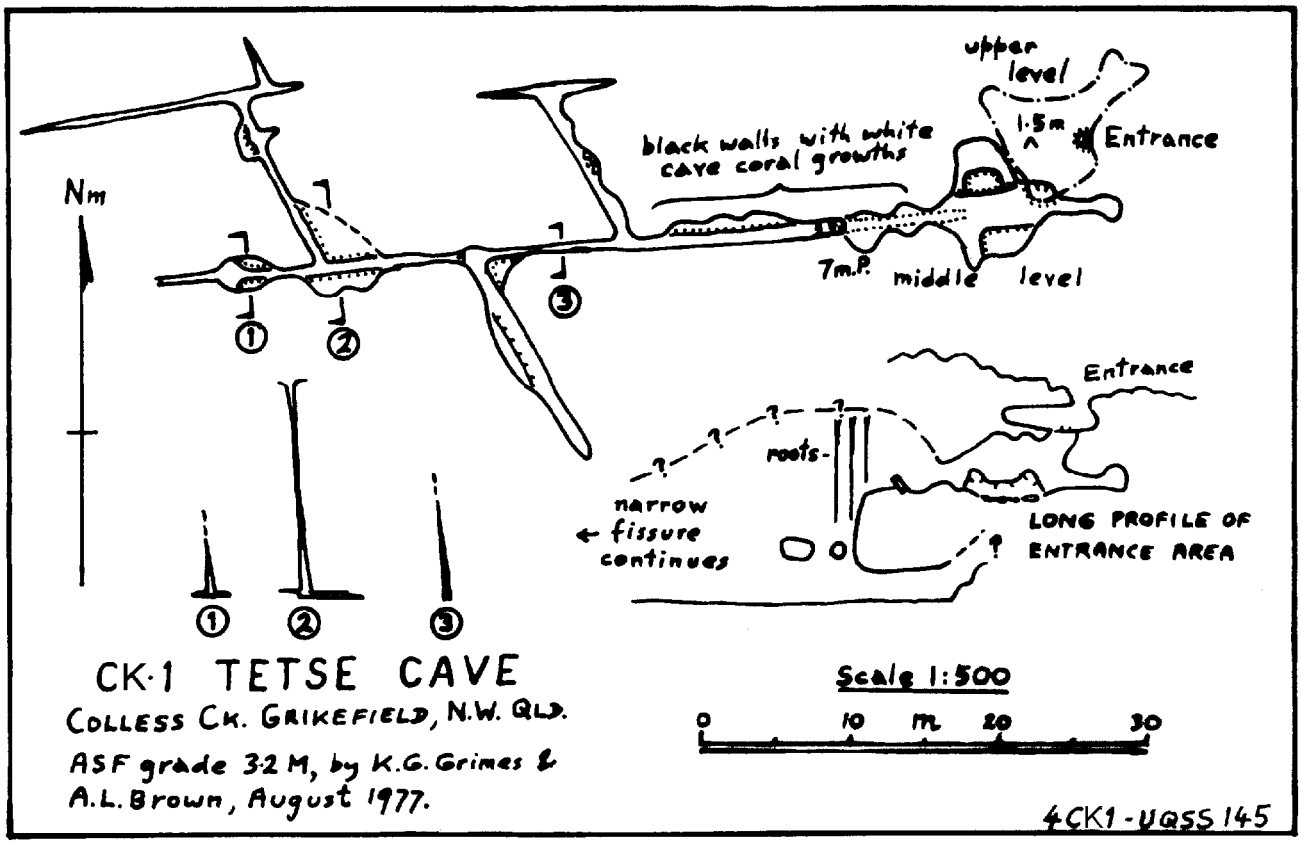
COLLESS CREEK AND LAWN HILL GORGE ..... Ken Grimes

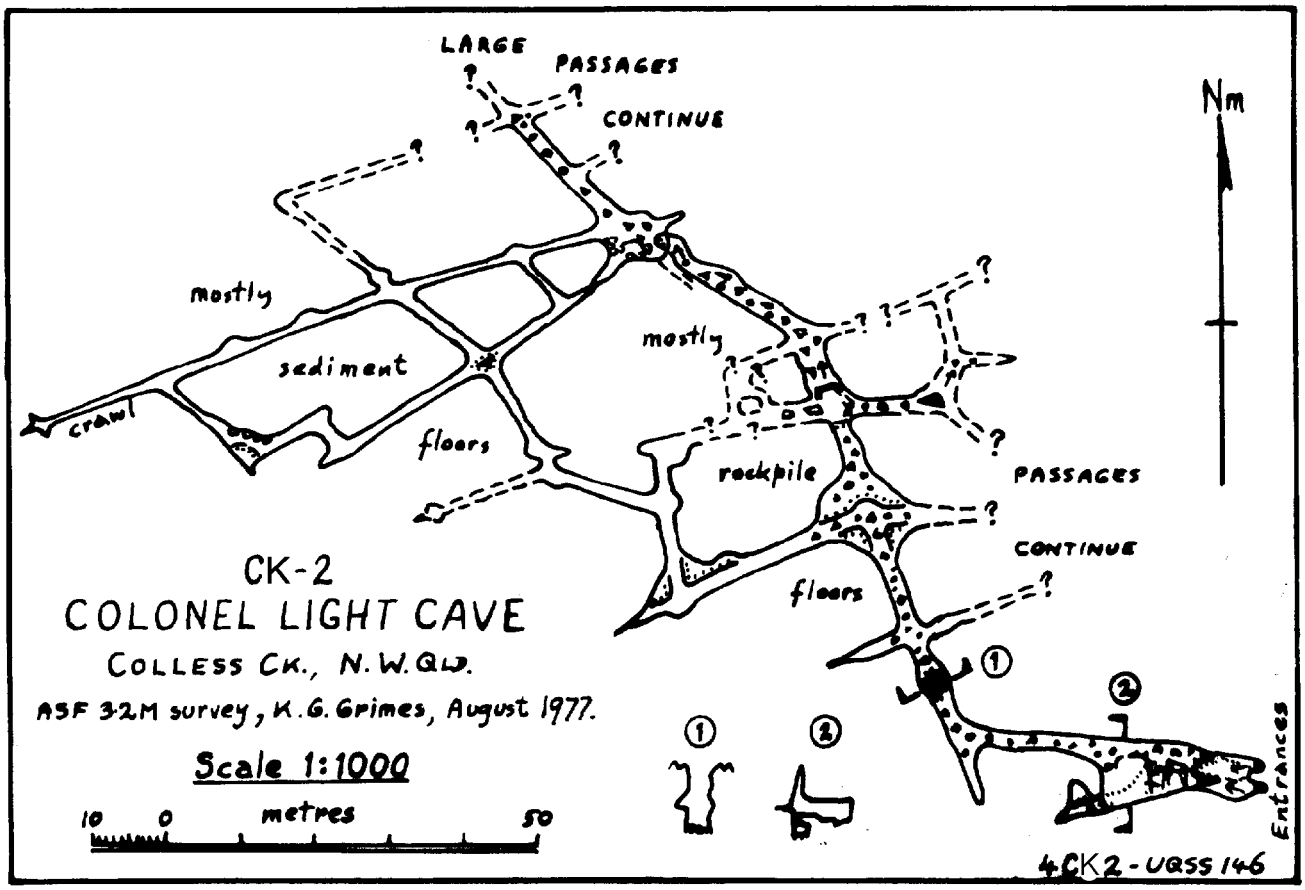
This area was visited by the UQSS/VSA party in August 1977 (see *Down Under* Vol 16(4) p 94-97 & (5) p 129-133). The area contains both karst and pseudokarst caves and related features. It comprises a belt of Precambrian sandstone ridges (the Constance Sandstone) through which the main Lawn Hill Gorge passes, and to the west of that a group of wider gorges cut in the Cambrian Thorntonia Limestone, and the Colless Creek Grikefield (see map UQSS 177).

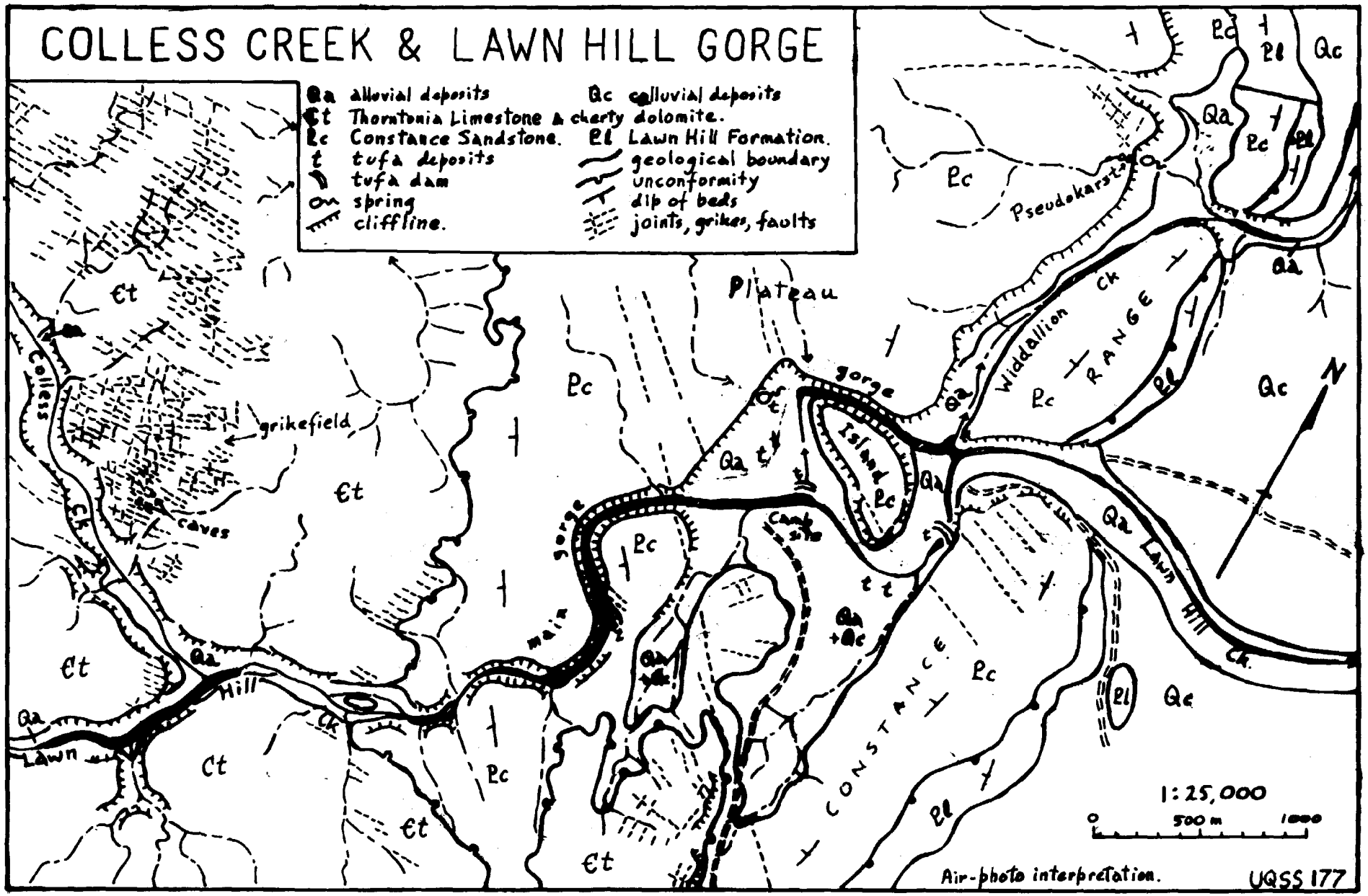
Lawn Hill Creek and its tributaries are a superimposed form of drainage. In mid Tertiary (?) times the streams flowed on a more-or-less flat land surface at the level of the present ridge tops. The streams meandered and bifurcated into two distributary branches and this drainage pattern was preserved and incised into the sandstones when the area was uplifted (in the Pliocene?). Within the gorge, Lawn Hill and Widdallion Creeks separate as shown on the map and flow on opposite sides of an island, rejoin briefly below the island (the breakthrough occurred only a few years back), and then separate again to leave the sandstone ranges via separate gorges about a kilometre apart.

THE COLLESS CREEK GRIKEFIELD: The surface features of the Grikefield were described by me in 1974 (*Down Under* Vol 13(4) p.159-160), During the recent trip we found an 8m deep pothole and two caves during an afternoons exploration. Tsetse Cave was the smaller of the two caves. Its development is shown on the map (UQSS 145). Apart from the two small upper level chambers this cave is a set of vertical fissure passages which developed by the solutional enlargement of the joints in the limestone. The fissures are doubtless a subsurface extension of the grike system seen on the surface. In a few places daylight was filtering through from above. At floor level the walls of the fissures had been undercut to form horizontal extensions about a foot high (see section 2 on the map). I am not sure whether these represent solution at an old water table or the erosion of a softer bed. Cave coral and flowstone coatings are common on the walls. In the area below the 7 m pitch into the main level the walls are black - possibly from algal material - and growths of white cave coral occur on top of this, giving a rather striking effect.

The second and larger cave is Colonel Light Cave - so named from the rectilinear layout of its passages; reminiscent of the Adelaide street plan (see map 146). The entrance is in a collapse doline and leads into a moderately sized chamber. Beyond this the cave is a network of joint controlled passages similar to Tsetse Cave, but the fissures are larger in size and the network more extensive. We explored only part of the system - about 635 m of passage - but there were a number of large passages continuing on. Several daylight holes occur - typically at the intersections of passages. In the eastern half of the cave the passages are up to 10m high and 3m wide with rubble floors. In the western part the passages are


upper level
1.5m
Entrance
black walls with white cave coral growths
Nm
7m.P.
middle level
Entrance
roots
narrow fissure continues
LONG PROFILE OF ENTRANCE AREA
CK·1 TETSE CAVE
COLLESS CK. GRIKEFIELD, N.W. QLD.
ASF grade 3·2 M, by K.G. Grimes & A.L. Brown, August 1977.
Scale 1:500
0 10 m 20 30
4CK1 - UQSS 145


LARGE PASSAGES CONTINUE
Nm
mostly sediment
crawl
floors
mostly
rockpile
PASSAGES CONTINUE
floors
CK-2
COLONEL LIGHT CAVE
COLLESS CK., N.W.QLD.
ASF 3·2M survey, K.G. Grimes, August 1977.
Scale 1:1000
10 0 metres 50
Entrances
4CK2 - UQSS 146


COLLESS CREEK & LAWN HILL GORGE
Qa alluvial deposits
Qc colluvial deposits
Ct Thorntonia Limestone & cherty dolomite.
Pc Constance Sandstone.
Pl Lawn Hill Formation.
t tufa deposits
tufa dam
spring
cliffline.
geological boundary
unconformity
dip of beds
joints, grikes, faults
Plateau
gorge
Colless Ck
grikefield
caves
Island
Pseudokarst
Widdallion Ck
RANGE
Lawn Hill
CONSTANCE
1:25,000
0 500 m 1000
Air-photo interpretation.
UQSS 177

smaller and with mud floors. There are some solution undercuts at the base of the walls here. A few areas of flowstone were seen but overall the cave is not well decorated.

A couple of sheath-tailed bats (*Taphozous georgianus*) were seen and I collected some snail shells from the floor. These were identified by Martin Bishop (Qld Museum) as follows:

Eremopeas interioris *Torresitrachis sp*

Stenopylis coarcata '*pupoides*' *sp*.

'*gastrocopta*' 2 spp.

This cave and the area as a whole still has plenty of potential for exploration.

TUFA DAMS AND DEPOSITS IN LAWN HILL GORGE: In Lawn Hill Gorge tufa deposits from the lime-saturated waters have built walls across the stream in several places (map 177). About half way through the gorge is a single narrow wall of tufa, rather like an oversized rimstone dam, which backs the water up about a metre. On the eastern side of the island a much broader belt of tufa, with trees growing amongst its has a number of rapids and small waterfalls as well as some underground conduits. Older tufa deposits are interbedded with alluvial deposits in the area upstream from the island. The tufa deposits all have a spongy texture with many moulds of tree roots and trunks about which the material was deposited. Vertical walls often have large weird looking bulbous forms.

PSEUDOKARST IN THE CONSTANCE SANDSTONE: The quartzose sandstones which form the gorge walls continue north as a plateau. A small stream bed running across this plateau ends in two large closed depressions in a hanging valley above the 50m high cliffs beside Widdallion Creek. There is a spring directly below at the foot of the cliffs (see map). The western depression is cup shaped, with a solid rock floor and a small pool. It is about 15m across and has a downstream closure of 5m and a 10m cliff on the upstream side. On the downstream side a small impenetrable hole opens into a narrow fissure cave which leads through the intervening ridge to the eastern depression. This is more funnel shaped and contains a number of large fallen blocks. It is about 20m across and 10m deep. At the bottom it narrows down to a vertical hole which needs ropes/ladders to enter. There was a faint smell of bats and the sound of falling water coming out of this hole. This doline is about 20m from the cliff edge and separated from it by a dry valley. The spring at the base of the cliff was not visited but is doubtless the efflux for the water heard in the hole above.

The Constance Sandstone is porous and makes a good aquifer - numerous springs occur along the sandstone escarpment to the north of here. The pseudokarst may be the result of spring sapping and piping working upwards from the base of the cliffs; possibly aided by solution of the matrix of the sandstone.