

3DD-4 - AREA & CAVE REPORT

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Club: VSA	Name of Area: <i>Drik Drik (mainly DD-4).</i>	Author: <i>K.G. Grimes.</i>	Date of trip: <i>23 & 24 April 2005</i>
Caves visited: <i>DD-4, DD-18.</i>			
Title of report (if any): <i>Geology & Hydrology of DD-4, plus surface notes.</i>			
Names in party (indicate Author, Leader) <i>Ken Grimes, Sue White, Nick White (Sat), Marg Brownlie (Sat), John Webb (Sun).</i>			

Report:

Summary:

We took Sue to the falls in DD-4 on the Saturday. On Sunday we showed the cave and surface karst to John Webb.

DD-4D Doline

In the DD-4 Doline, about half way down, the limestone cliff has a couple of small vertical fissures (abt 10-20cm wide) that trend N-S (approx). These contained old speleothem material - fine drusy calcite crystal coatings and horizontal flowstone bands [photos D050665-7]. This would have been an old high-level cave that was exposed when the doline collapsed.

John Webb commented on the lack of an obvious soil at the contact between the scree deposit and the overlying dune limestone - suggesting only a short time between their formations.

DD-4 cave

Hydrology

I measured stream discharge (using pooh-sticks), temperature and electric conductivity(EC) at the following sites in DD-4:

Big Pool below cascades at Falls:	Flow = "small"	Temp = 14.1°C	EC = 1806 uS (~1170 ppm)
North end of "Bowling Alley"	Flow = 1.6 L/s	Temp = 14.9°C	EC = 1913 uS (~1240 ppm)
50m in from Entrance	Flow* = 1.3L/s ?	Temp = 15.0°C	EC = 2140 uS (~1390 ppm)

* NB I had no tape measure when doing the entrance site, so measurements of the stream cross-section for discharge were of low accuracy - I doubt if the real flow was less than that at the site further upstream!. On my previous measurement (June 2001) the Bowling Alley flow was half that at the entrance (1.4 L/s versus 2.8).

Note the trend for increasing EC outwards differs from the previous measurements (June 2001) when the EC at the above three sites decreased outwards: being 1700, 1570, & 1590 uS.

Geomorphology etc.

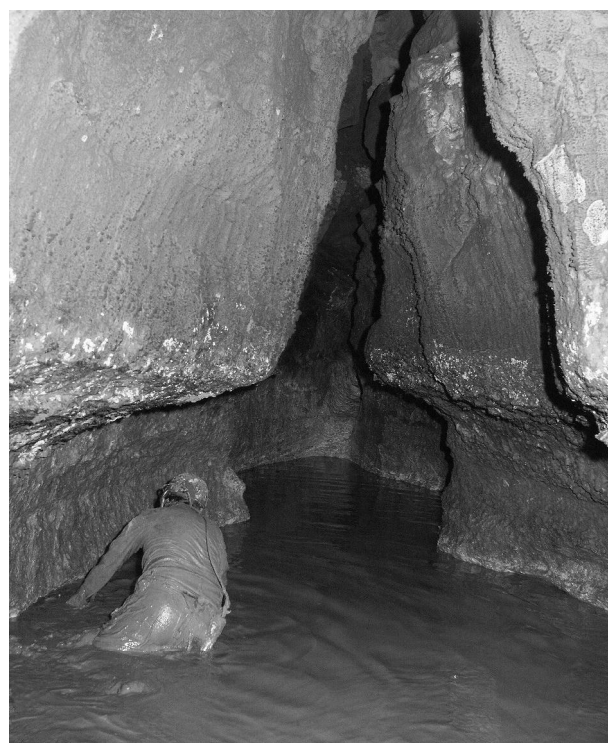
See also my earlier notes (reports of June 2001, Jan 2004); this report just mentions additional observations.

Scallops (1 to 4 cm) are moderately common along the stream passage [photo D050646].

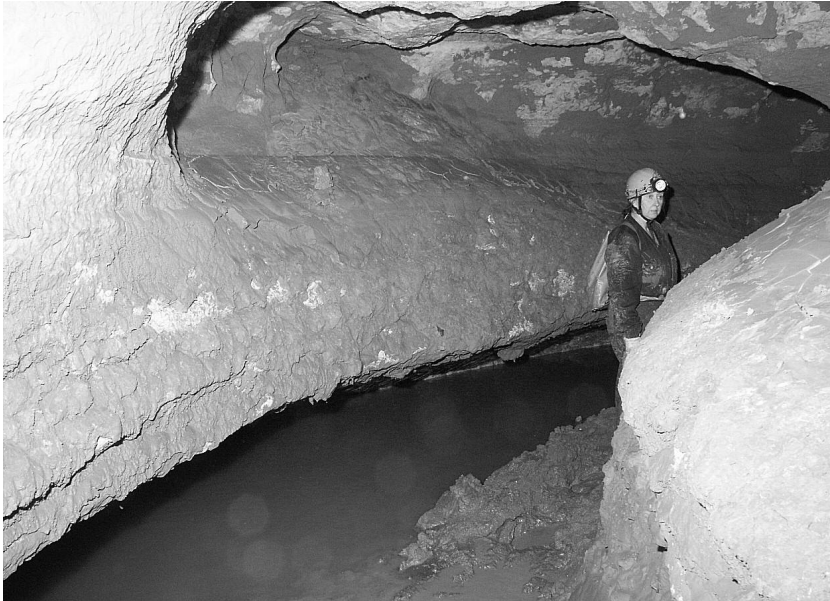
Wall notches (typically about a metre high and half a metre in)) are paired in some places, but not so in others [photos: C991211, D040061, D050588 (paired); D050662 (unpaired) & C991212 (both)]. Paired notches would suggest a still-stand of the stream level, unpaired ones might indicate that the stream was meandering gently as it cut down.

Mud coats most walls except where there is *breakdown*. Only some breakdown is coated. This suggests that most of the breakdown postdates the last big (full-to-roof) flood. This could indicate that it is a long time since that flood - or it might indicate that the breakdown is all fairly recent, and the cave is unstable. If the latter, we need to be careful about disturbing the walls and existing breakdown!

Signatures: We debated the authenticity of a signature "E DADSEY 11-2-1919" in the low-roofed section between the 1st and 2nd rockpiles [photo D050623]. I felt the style (large capitals and sans-serif) made it look more modern. Others were more positive. Perhaps we should ask Mr Brown if there is a Dadsey family in the area. Some



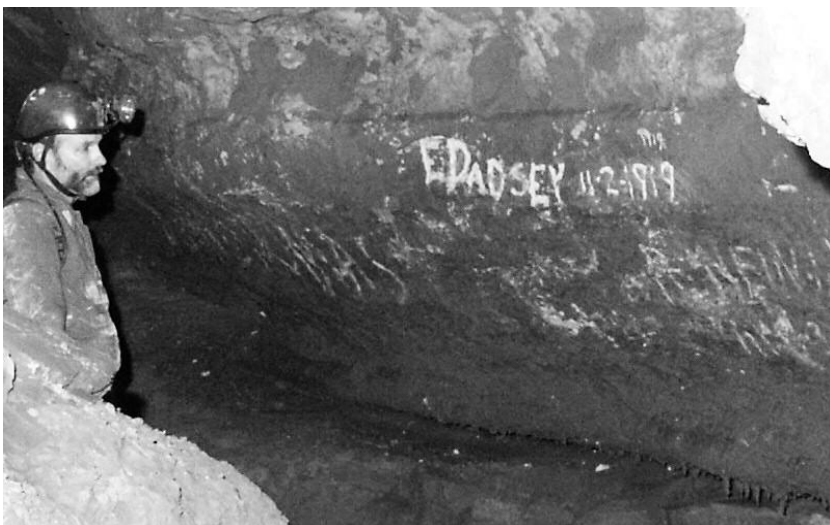
D050588: The big pool at start of Cascades. Note the wall notches - a prior stream level?



D050656: Undercut meander and mud banks in the low-roofed section between 1st and 2nd rockfalls.



D050661: Mud drape over earlier flat-lying mud and sand deposit. On side of stream passage between 1st and 2nd rockfalls. Scale is 10 cm.



D050623y: Signature "E DADSEY 11-12-1919". Between the 1st and 2nd rockfalls.

other (older) signatures we felt were definitely suspect. If this one is authentic then there have been no major floods since 1919, and that might be the date of the calcite-filled footprints closer to the entrance.

Liesegang bands are exposed in the fresh breakdown walls in the Bowling Alley (see report of June 2001 & photo C011211). This is a brown & yellow banding that occurs within the crack of a vertical joint (and is exposed where the wall has broken along the joint), but the effect is also restricted to particular horizontal zones - possibly a result of intersection of the vertical joints with porous beds that delivered the solutions that precipitated the coloured material (probably iron oxides?).

Upper level at First Rockfall: Peter Freeman attempted a dig into the mud-blocked side passage but only penetrated a few metres. The end of the main crawl-way is blocked by mud and rubble comprising limestone fragments and sub-angular basalt cobbles up to 20 cm across [photo D050616]. One irregular crack in the roof, trending north (approx) had vertical *slickensides*.

Mud Speleothems: More of these were seen and photographed. They are common throughout the cave - mainly under overhangs in a zone up to 1m above stream level. A particularly interesting set occurs about 40m after the U-bend, on the NE wall [Photos D050597 to 606]. These were carrot-shaped, up to 14 cm long and up to 20 mm thick at the top. They all are bent in a downstream direction. Many had a thin mud string at the end, and a couple ended in very fine hairs/threads [zoom in on the end of the right-most one in D050605, and the end of the long one in the middle of D050602]. One, which ended just above a mud bank, had a small (10mm high, 2mm wide) 'stalagmite' below it with a gap of 5mm [bottom-left side of photo D050605]. The walls also have smaller knobby mud forms.

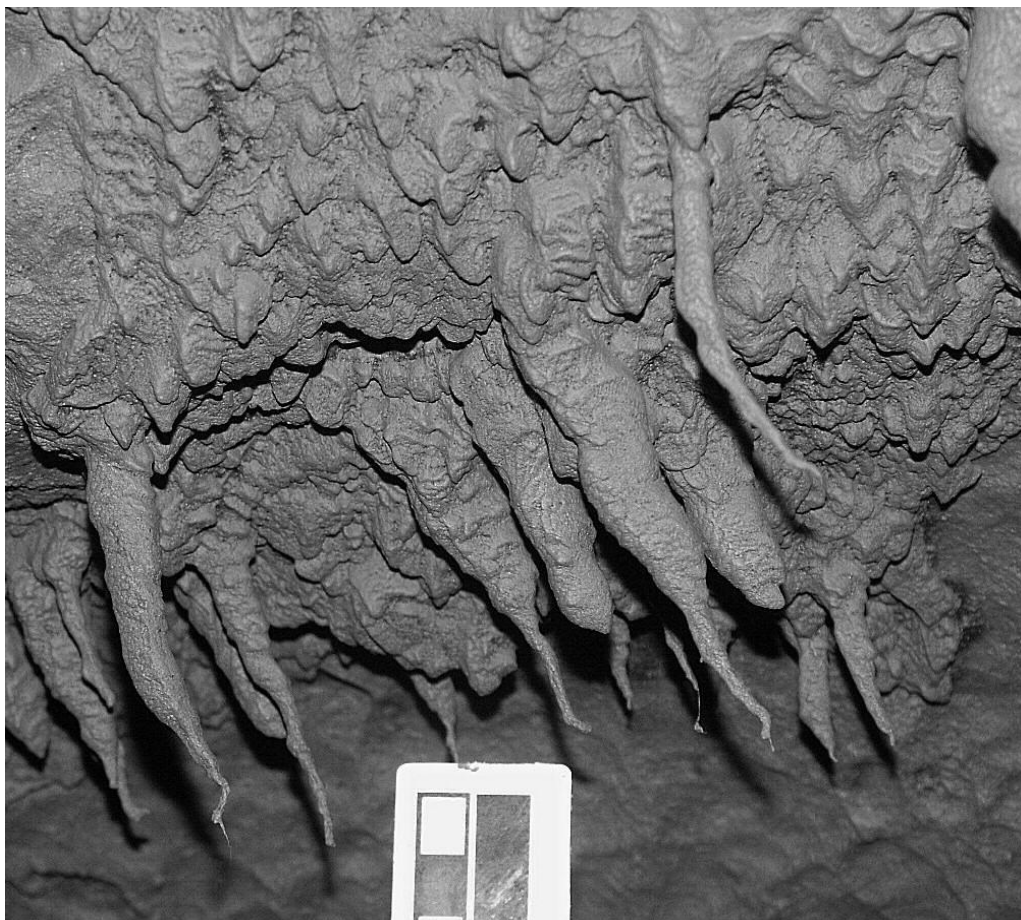
I also photographed some less distinct knobby mud forms at the Big Pool below the cascades [D050595-6]. Some 'triangular leaf' and other forms were photographed on the East wall just south of the 1st Rockpile [D050618-9].

DD-18S (Great Expectations)

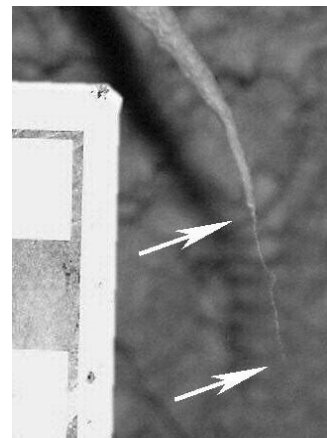
There was no flow into the stream sink in the big uvala on this visit. But plenty of leeches.

Mud Stalactites - photos

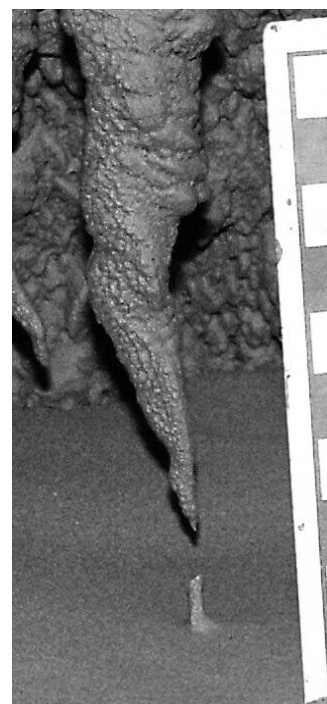
These photos are of a group about 40m past the U-bend.



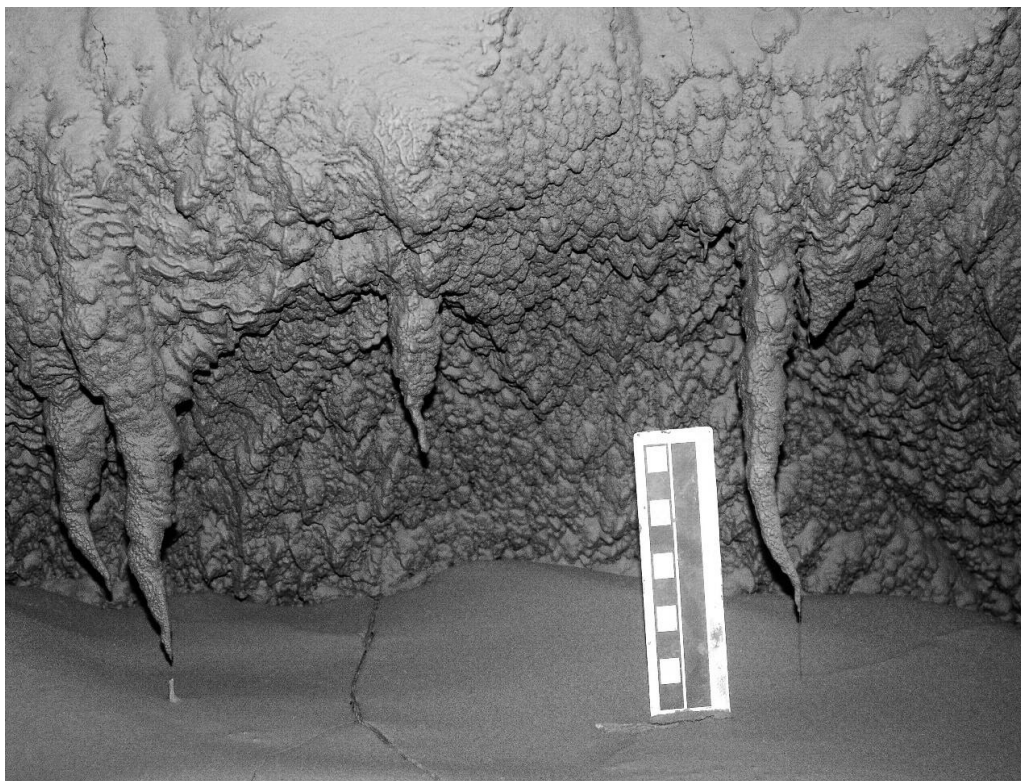
D050597: Mud stalactites tilted in downstream direction. Note thin ends.



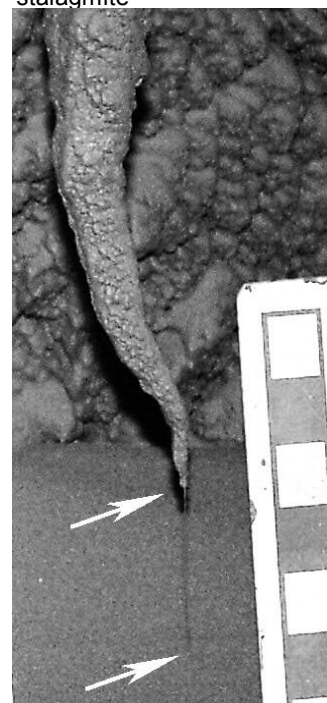
D050602x: Detail of pale thread at end of stalactite.



D050605y: Detail of small 'stalagmite'

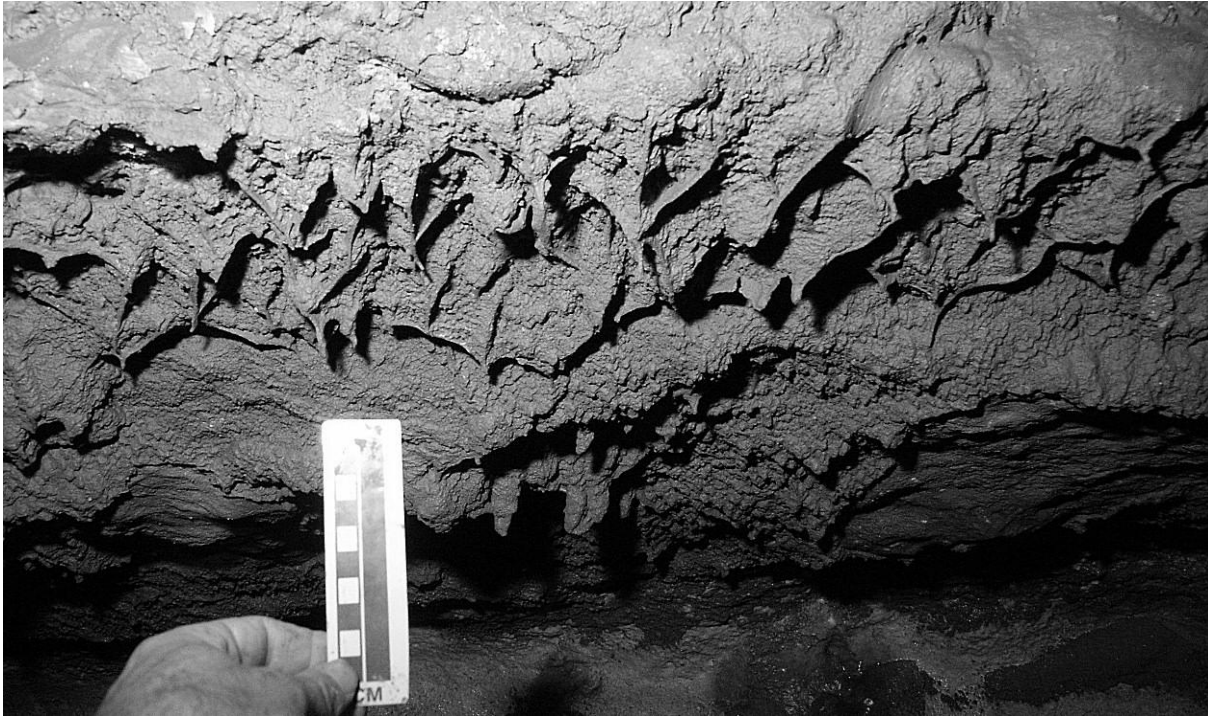


D050605: Mud stalactites. Note small stalagmite at lower left sitting on mud floor (detail to right) and thread at end of lower right stalactite (detail to right). Scale is 10 cm.

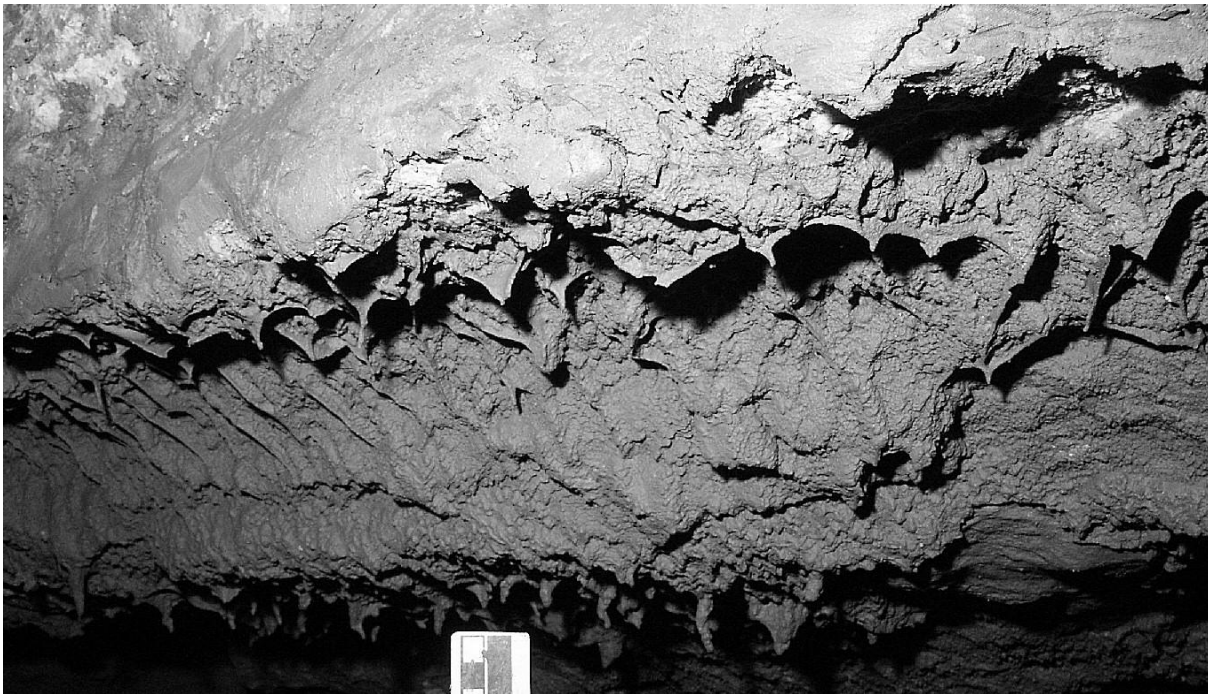


D050605x: Detail of thread at end of stalactite

More Mud stalactites.



D050618: Mud stalactites under an overhang. Just upstream of the 1st rockpile.



D050619: Mud stalactites under an overhang. Just upstream of the 1st rockpile.