UNWELCOME NUGGET AT CAREY'S CAVE

- Geoff Kell

I suppose it is not any cave manager's dream to unlock the gate of their showcave with a number of visitors in tow to find that overnight the stairway has been blocked by a somewhat large rock (roughly two thirds the size of your average VW beetle).

"My goodness! (or words to that effect)", says I, slamming the gate shut. "We seem to have a slight technical difficulty……."

The entrance to Carey's Cave (Wee Jasper, New South Wales) is through a sediment-filled lead. Discovered in the 1800's the cave was developed in 1968 by the Shire Council as a tourist attraction. During the entrance excavation a large boulder was left sitting in the sediments to one side of the staircase inside the entrance. Thirty two years of water percolation working at the supporting sediment, plus strong spring growth of the roots from an overhead native blackthorn resulted in this rock deciding to gravitate into the stairway, probably not with a bang, but rather a graceful slide. Luckily nobody witnessed the event!

We are extremely fortunate, for many reasons, to have Andy as the karst consultant on the G & G Reserves Trust (which administers the cave on behalf of the Dept of Land & Water Conservation) so a phone call brought him and others speeding to the scene.
"My goodness", sez Andy, "This is verily a largish rock!"
Various incantations are muttered….."Open Sesame etc etc" but to no avail. Andy and Mike's Italian rock-crushing dance also proves ineffective.
It becomes obvious that a number of options are available. 1) We could faithfully wait for Easter Sunday. 2) We could elicit more expert technical opinions. 3) We could wait for the ACKMA Wee Jasper AGM:
"We would indeed have many expert opinions then" sez Mike "Many, many ….."
"Whatever else", Andy sez, "'tis clear…we must find us a geotechnical engineer!"

This good man eventually being located, his assessment is that being at the surface there is no danger of further major collapse, however the surrounding area will have to be stabilized to avoid further washing of sediment and associated small rocks. Oh, and of course the rock will have to be removed! The latter being the more immediate problem further technical advice was sought. After some trial banging away with a kanga hammer (very slow and relatively ineffective) three feasible approaches were investigated:

1) Drill it and blow it up (gently!)……too unreliable, unknown effective charge size versus danger of damage to the surrounding area.
2) Drill it and use expanding grout…too slow, unreliable result, expensive material
3) Drill it and split it with hydraulic splitters, a modern development of feather and wedges.

Enter Danny and Rodney, hydraulic rocksplittermen *extraordinaires*! In one day these guys reduced a roughly10 ton hunk of (mainly) calcite to manageable chunks, with an absolute minimum of noise and vibration. Andy still waxes quite lyrical about the amazing effectiveness of their operation.
But wait, there's more! Andy (rigger *formidable*) devised a block and tackle on a running pulley on a cable from odd bits of equipment found under his bed, so that pieces of up to 100kg could be moved, using Landcruiser tyre chains as a sling!

Enter also a motley crew of volunteers, including a contingent from Canberra Speleo. A day and a half of sweat and grunt (much grunting from Andy prominent at the coalface) saw the obstacle totally removed from the entrance.

The second problem, stabilization, was achieved by covering the sediments and loose small rocks inside the entrance with used fencing chain mesh, and spraying this with shotcrete (high strength concrete with 10mm max. aggregate). The shotcreting was done by a contractor from Canberra who normally does swimming pools, the usual thickness of these being 75mm. We initially expected to use about 3.5 cubic metres of concrete, however because of surface irregularity we used 5, the actual application taking just over an hour. The off-nozzle finish is not too bad: at some point we may consider cosmetic finishing for more compatible colouring when time permits. The following day the job was given the stamp of approval by the engineer and at the 11th hour, Friday afternoon before Christmas, Andy managed to secure clearance from DWLC for us to reopen.

The cost for consultants, contractors and material purchased thankfully turned out to be a smaller sum than that originally feared to run into the tens of thousands, however this was only possible due to the ongoing time and effort of an extensive group of friends. Both the Yass Shire Council and DLWC also provided invaluable assistance at critical stages. The nature of the work meant that it could not be done by a large group at one time due to safety factors, so we were extremely fortunate to be able to complete the operation in time for a critical trading period. We cannot thank enough those involved for their generosity of spirit, particularly Andy whose onsite assistance and backroom finagling was instrumental in a successful outcome. Andy confessed to me after the event that he had initially had serious doubts as to whether the cave would reopen - I'm glad he didn't tell me at the time!

Oh, and for those of you attending the ACKMA conference, you will get a look at the result and you will still have the opportunity to air your expert opinions!