

LONGWOOD VALLEY SINK - THE HIGH LEVEL DIG

3 January 1993 - RW, CN

Visit by Land Rover to tidy up the underground digging area and assess the prospects of opening up the high level tubes - judged by Willie Stanton to be part of a Triassic proto-cave.

We removed the rotten railway track and brought out hosepipes, broken buckets and assorted tools and kit from the lower reaches which were flooded to within 6' of the foot of the shaft.

The two, roughly parallel, high level tubes are small (6"-9" wide with a tiny slot in the floor), and merge a few feet in to form a low, fairly horizontal bedding plane. The passage extends for at least 10', but a clear view is prevented by a number of small rocks. The right hand wall of the right hand tube can be blasted off, but great care will be needed in the early stages if a roof collapse above the main shaft is to be avoided. Additional shoring/grouting will almost certainly be needed. Bang debris will not be brought out of the cave but will be dropped down the shaft to fill the lower dig.

31 January 1993 - RW, CN, "Stan" Chappell

Visit by Land Rover - very slippery conditions.

Commenced shoring up the roof and left hand wall above the shaft. Grouted in a 4' steel scaffold pole placed diagonally across the rift, one end in the mouth of the adit, the other end on a ledge and a portion resting against the existing grouted buttress. Then added a 2' length of galvanised steel angle, grouting it in at right angles from the pole across to the end of the rift.

7 February 1993 - RW, CN

Visit by Land Rover - with rear wheel chains fitted!

A further steel pole grouted in at the far end of the rift, and the stone and concrete left hand support "buttress" completed. Tunnelling along the tube can now commence.

13 February 1993 - RW, CN

Visit by Land Rover.

A token start was made on enlarging the tube using the portable compressor and a hand drill fitted with a chisel. A few sizeable pieces of the right hand wall and some chert nodules were removed. Serious digging i.e. shotholes and bang, must await the renewal of CN's licence.

27 February 1993 - RW, CN. Later Steve Shearn and son Jim Shearn.

Visit by Land Rover.

Banging campaign opened with an attack on the wall opposite the adit using two slabs of Plaster split into three Cordtex linked charges. Fumes dispersed very quickly and mainly below ground. Damage was satisfactory and much rock was chiselled away using the compressed air "weapon".

6 March 1993 - RW, CN

Visit by Land Rover.

Still using plaster, laid two further slabs on the wall opposite the adit. After one misfire caused by a battery problem, the charges were duly detonated. A certain amount of smoke came out of the drum shaft but again most of the fumes vanished underground. The shattered rock was quickly ripped out using the air chisel.

Some timbers were cut as supports for a working platform in the rift while another two slabs were tamped to the right hand side of the tube. There was a very loud detonation and some minutes later, after the worst of the fumes had cleared, a very dazed long eared bat flew or rather wobbled up the adit. It hung up for a few minutes in the adit mouth and then staggered back underground!

After chiselling out the loose rock, a couple of stones were pulled out from 2' or 3' into the tube. The floor beyond is covered in stones and the true passage dimensions may be a little bigger than at first thought.

On the way back along the woodland track (on foot) I came very close to three roe deer.

20 March 1993 - Steve Ellis, CN, RW

Visit by Land Rover.

CN has still not received a supply of cartridge explosive for shothole work so we again had to resort to using plaster slabs.

The right hand buttress at the tube entrance proved a very hard piece of rock. The first bang - three slabs divided into two linked charges - virtually bounced off the rock face, causing little damage or cracking. After a disappointing amount of chiselling, a second pair of charges, also three slabs in total, was laid, this time with one charge in the crack in the tube floor.

Much more damage resulted and the floor in particular could be levered up over a 2' distance. The left hand tube merges with the right hand tube 3' in and creates more of a bedding plane feature.

A first year frog was spotted in the lower dig lake but could not be rescued on this occasion. Up valley from the dig, a greater spotted woodpecker was in action.

27 March 1993 - CN, Steve Ellis

Visit by Land Rover.

Plastering again. Four slabs worth fired off in two paired charges. Plenty of damage done and about 18" of progress made.

17 April 1993 - CN, RW, Steve Ellis, Lee Ellis

Visit by Land Rover.

The opening of the shothole campaign, using Gelamex sticks and a brand new drill sent up from Cornwall.

Operations did not proceed as smoothly as had been hoped. The drill used a lot of compressed air power and after about half a minute's drilling, it was necessary to wait 3 or 4 minutes for the air reservoir on the compressor to refill, slowing progress considerably. There was also a difficulty in retrieving the drill bit from the shothole beyond a few inches depth. It may be that slightly damp air from the compressed air line was turning the limestone dust into a concretion behind the drill head.

The first shothole, in the right hand wall, was drilled to a depth of about eight inches, but withdrawing the bit took over a quarter of an hour and involved chiselling away part of the hole! A second shothole was started in the passage floor but abandoned after three or four inches because of the jamming problem.

A stick of Gelamex was split between the two shotholes, two thirds and one third, and the linked charge did a satisfactory amount of damage.

Small frogs are present in the terminal pool. One was rescued.

1 May 1993 - CN, SE, RW

Visit by Land Rover - without chains! The woods were carpeted with bluebells.

The jamming drill bit problem had been solved by CN. He had found an air vent near the bit head clogged with grease. Once cleared, this emitted an air jet to blow the dust out of the hole as it was being drilled.

One full length shothole (approx. 9") was drilled in the right hand wall and a shorter one in the floor. There was no jamming problem but the fine limestone powder blown out made the use of face masks even more essential. Drilling was still fairly slow as the maximum compressor pressure of 100 psi dropped to 60 psi in less than half a minute's use of the drill. A full length shothole takes just under an hour to drill.

One complete stick and about two thirds of a stick were linked and fired, doing a reasonable amount of damage. Before leaving, a short shothole was drilled into a resistant buttress on the right hand side of the blasted passage, and the remaining one third of stick was used to hopefully create more elbow room.

15 May 1993 - CN, SE, RW

Visit by Land Rover - with chains again.

The final bang of 1 May had removed the offending buttress and work quickly started on two deep shotholes, one in the right hand wall and one in the floor.

In an effort to speed up drilling, SE's battery powered Bosch drill was brought into use to sink a pilot hole during the lulls in main drilling caused by the recharging of the compressed air tank. The experiment was not a success as the pneumatic drill's subsequent enlargement created chips of rock which jammed the bit and slowed the whole process down.

In due course, the two full length shotholes were stuffed with a stick and a bit of bang each, and fired during the lunch break. Damage was satisfactory but the hardness of the rock, particularly on the right hand side, is such that very little chiselling can be done beyond the length of the shothole.

After clearing the bang debris, two further full length shotholes were sunk, and two more sticks and the remainder of the fifth were inserted. The resulting loud crack woke up a nearby tawny owl.

A couple of sizeable rocks in the roof close to the drum shaft are now giving cause for concern. They are "psychologically" supported by a piece of angle iron but are being loosened by the bangs.

22 May 1993 - CN. RW paid a brief visit later.

By Land Rover.

The final bang on 15 May had done a satisfactory amount of damage to the digging face, but had also further shaken the loose rocks in the roof. One large rock and some bits and pieces were barred down leaving something hopefully safer above.

Three full length shotholes were drilled, two on the right wall and one in the floor, and three sticks were duly fired. The usual amount of damage resulted, although the last inch of one shothole survived.

After a considerable amount of productive chiselling, three more full length shotholes were drilled, one on the left, one in the floor and one on the right. Banging was left to another day.

29 May 1993 - CN, SE

By Land Rover.

A big charge was laid in the three shotholes drilled the previous week - one stick in the left, one and a half in the floor and one and a half on the right. Damage was satisfactory but the fumes were slow to clear.

Two further shotholes were put in and two more sticks fired. Again the fumes hung around, and burning paper and a petrol soaked burning rag only added more noxious gases to the atmosphere. Chiselling was left for another day.

5 June 1993 - CN, SE

By Land Rover.

After clearing the results of the last bang, a single shothole was drilled in the floor and a one stick charge fired. Fumes were again slow to clear.

Following chiselling, two further shotholes were sunk, one on the right and one in the floor. Each hole received one and a half sticks and the resultant bang created a considerable fug. When the fumes had still not cleared after half an hour, the diggers departed.

About 8' of progress has now been made along the tube, and a further 15' can be seen. There is a slight enlargement ahead, with a fairly consistent foot and a half of 5" to 6" high bedding plane on the left of the tube. There is a downwards dip of perhaps 10 degrees.

19 June 1993 - CN, RW, SE

By Land Rover.

CN had become frustrated with the compressor recharging delays during shothole drilling and had traded in his compressed air rig for a electrically powered Kango Hammer Drill and a petrol driven generator - a Wisconsin Robin.

The chisel action proved very effective although the drill is a good deal heavier than the compressed air tool. After the usual clearance session, SE brought into use a specially constructed long handled hoe, designed to pull back loose rocks from the floor of the tube ahead. A better view was gained of the way ahead but no significant enlargement can be seen in the visible 20' or so.

When the time came to try out the Kango drill action, it was found that the the wrong adaptor had been provided for the drill bit. As a result no drilling was possible, and instead two sticks of bang were "plastered" into two cracks, one on the right and one in the floor.

The fumes were, as usual, slow to clear, and the damage done was not great. After a small amount of chiselling on the right hand side, attention was switched to the left hand "shelf" of rock beneath the tiny bedding plane. Using the chisel and crow bar, several large chunks were prised up and dropped down the shaft. Progress on this side with its air space should be quicker than banging through the very solid right hand wall.

After more raking by SE, he managed to insert himself into the passage feet first as far as his shoulders - "Chacun a son gout!"

At the bottom of the shaft, the bang debris was dragged down into the pond area.

27 June 1993 - CN

By Land Rover.

With the drill bit properly attached, the Kango made very short work of drilling three 18" shotholes - one on the right, one in the floor and one under the left hand shelf. Five sticks were fired in a linked charge and an

excellent amount of damage resulted. The fumes emerged as a plume from the drum shaft and then settled in the surrounding depression. After three quarters of an hour, it was clear enough for a short session of chiselling work at the face.

As the digger was leaving through the banged connection with the wooden adit, a rock left the ceiling and hit him on the back. A warning of the cumulative effect of the bang shock waves.

3 July 1993 - CN, RW

By Land Rover.

Ken Appleby arrived later on foot.

A maintenance day spent grouting various areas "shaken up" by the bangs. Concentrated on the area below the oil drums and the seating for the steel bars across the main rift.

9 July 1993 - CN, RW

By Land Rover.

Further walling and grouting. Made "safe" the threshold of the new passage, and the oil drum area, where a steel angle bar was inserted under a threatening piece of ceiling. Started work on the entrance adit where a vertical steel rod was included in a wall buttress.

17 July 1993 - CN

By Land Rover. KA arrived on foot later.

Drilled two shotholes, one on the right and one in the floor, and fired two sticks. With a slight inward draught, the air was reasonably clear after an hour. After chiselling and clearing back by hand - some form of sledge or truck will be required soon - three more shotholes were drilled, a small one on the right and two deep ones in the floor and on the left hand side. Four sticks were fired.

7 August 1993 - CN, KA

By Land Rover.

Cleared the results of the last bang, making use of a sledge on a rope - a plastic jerry can with one side cut off - as a means of spoil removal.

At the far end of the passage, which is now 13' to 14' long, a cluster of a dozen or so hazel nuts was found perched on the bedding plane shelf. They were blackened and all had had the kernels removed by squirrels. If we assume that no squirrel (or mouse for that matter) would venture this far underground, the nuts must have been washed in by flood water (? 1968).

Drilled two further shotholes, one on the left and one low on the right, and fired one and a half sticks in each. The fumes were left to clear very slowly.

14 August 1993 - CN, RW, KA

Cleared the loose debris from the previous week's bang and then had a productive chiselling session.

While CN drilled two further shotholes, KA and RW went to the bottom of the rift to move spoil down to the lake. A very large block which had jammed across the start of the terminal rift and was holding back debris, was slowly shifted by a process of undermining the debris cone from below and it eventually disappeared under the waters.

Three sticks were divided between a right and a left shothole, and duly fired. Fumes were still swirling around the drum winch when we left.

We are now temporarily out of bang.

29 August 1993 - CN, KA

A tale of digging woe - the Land Rover refused to start and needed time consuming jump starting, on route a broken branch scraped the side of the vehicle and then smashed the rear lights, KA spilt his beer inside and then discovered that he had forgotten to load the drill bit!

The diggers took out their frustration in a two hour chiselling and clearing session. The way on appears to be widening a little and is "not without interest".

30 October 1993 - CN, RW, SE

By Land Rover.

Still no bang, so the session was devoted to further walling and grouting in the blasted section of the adit, and the drilling of three shotholes.

The way on is veering slightly to the right.

20 November 1993 - CN, SE

By Land Rover.

Following prolonged heavy rain, ponding had occurred in "Triassic Tunnel" and the shotholes had filled with water. The pools were bailed and partly successful attempts were made to blow the water out of the holes. Three sticks were fired, but clearing was left to another day.

4 December 1993 - CN, RW, SE

By Land Rover.

An extensive clearing and chiselling session, combined with more walling and grouting around the blasted section of the adit.

The view ahead is encouraging. The tube portion of the passage is veering slightly to the right while the low bedding plane development continues straight on, increasing the potential overall passage width. There also appears to be a small rift developing in the tube floor which 5' or 6' feet ahead could make it just man-sized.

CN, peering up-dip in the main rift, noticed a black space behind the grouted area at the foot of the drum shaft. There may have been a collapse here due to the shock waves from blasting, but the resulting small chamber or aven is too unsafe to enter.

27 December 1993 - CN, JN, Cliff North

By Land Rover.

Recent heavy rains had sent a flood pulse down the valley. The drum entrance was buried in detritus and the adit was washed clean, but there was no evidence of water flowing down Triassic Tunnel. Some of the stream appeared to have gone underground close to the rift beyond the spoil heap.

After further clearing in the tunnel, shothole drilling commenced but was brought to a halt by a slipping

clutch or some such problem in the Kango. A stick was fired in the one shothole on the right that had been completed.

1 January 1994 - CN, RW

By Land Rover.

Carried out a quick sketch survey to establish progress made during the first year - 20' of tunnel on an approximate bearing of 170 degrees.

After a session at the bottom of the shaft pushing spoil down into the "lake" - during which flood debris was noticed 15' above the water level - the latest bang debris was cleared from the tunnel. The Kango is still out of action, but CN was quite successful with the wrecking bar, and opened up a view ahead. The bedding plane continues for at least 10', while the tube on the right, after a veer to the right, veers back to the left and out of sight behind a pillar of rock, again about 10' ahead. Neither parts of the passage are man-sized yet.

Hanging from the roof, about 25' in, was a disturbed, hibernating butterfly - a wood brown type.

19 February 1994 - CN, RW, SE

By Land Rover.

With the Kango repaired - an armature spline problem - and a fresh supply of bang, it was intended to open the Spring offensive with a hefty four shothole charge. Alas, the first hole had only reached a depth of 6" when the drill slowed and came to a complete stop. Checking back through the system showed that although the generator was running happily, it was supplying no power to the drill. The intention to use a vacuum cleaner with an extended hose to suck out the bang fumes must wait for another day.

As second best to banging, SE was allowed to crawl into the furthest extremity of Triassic Tunnel wielding a crow bar. He brought back a fair number of slabs but could still not get a view around the slight bend up ahead. He spotted two very small straws in the bedding plane.

RW continued with grouting and walling around the head of the rift and the blasted section of the adit.

16 April 1994 - CN

By Land Rover.

With the generator repaired, five shotholes were sunk at the face - two deep holes on the left and three shorter holes to deepen the floor. A three stick charge was fired.

23 April 1994 - CN, RW

By Land Rover.

The bang had created a mass of gravel and rubble, which took all afternoon to clear. One large slab which resisted break up by the Kango has been left parked against the passage wall.

The view ahead is still partly obscured by a pillar of rock, but the passage appears to be very low for at least 10' to 15'.

24 April 1994 - CN

By Land Rover.

Drilled four deep shotholes - two in the floor on the right and two in the wall beneath the bedding plane on

the left - and fired a four stick charge. After the detonation, a thump of something falling was heard. The fumes appeared briefly above the drum shaft but were then drawn underground.

30 April 1994 - CN, RW

By Land Rover. Woods carpeted in bluebells.

There was no evidence of the "thump" heard after the last bang - it was possibly a large rock thrown back far enough to drop down the rift.

It took three hours to clear the bang debris and chisel away the cracked rock. Another "nest" of squirrel eaten nuts was discovered on the bedding plane floor together with rounded pea-sized nodules of mud and rock.

The way ahead can now be seen more clearly. The rift/trench on the right hand side is a negligible feature and the majority of the 3' wide passage is an irregular bedding plane averaging about 4" in height. It certainly veers to the left and perhaps 20' ahead - the limit of practical visibility - it may open up a little.

There is a lot more banging ahead!

NB The Cerberus were found digging at Timber Hole in large numbers. They are following a steeply inclined mud choked rift a few inches wide and have progressed about 25' from the bottom of the entrance shaft. All the usual troubles with ponding water.

1 May 1994 - CN

By Land Rover.

Drilled three deep shotholes across the digging "face" and fired three sticks.

15 May 1994 - CN, Tony Audsley, Andrew Johnston, James Johnston

By Land Rover.

The passage length is now reaching the point where improved haulage methods need to be examined, and TA and AJ - both keen on narrow gauge railways - were brought in to advise on some form of tramway. AJ duly undertook to design and construct a dexion based track and an appropriate wheeled chassis.

The visitors were persuaded to clear back the considerable pile of debris from the last bang, a task that took 33 tray loads.

20 May 1994 - CN

By Land Rover.

Three further deep shotholes drilled and three linked sticks fired.

2 July 1994 - CN, RW

By Land Rover.

The gate padlock had been tampered with but could be opened - just. Below ground there was a foul smell, the origin of which we preferred not to investigate.

Ten minutes were spent at the bottom of the shaft, pushing spoil down the rift into the "lake".

The debris from the last bang was cleared and, in the absence of the Kango - CN had forgotten to bring the petrol for the generator - a small amount of crowbar work was undertaken. The view ahead is slightly clearer. The passage is divided by a buttress approximately 3' long after which it appears to settle to a width of 3' and a height of 3" to 4".

7 July 1994 - CN

By Land Rover.

Drilled two shotholes before the generator failed - a float chamber problem.

Fired two sticks.

25 July 1994 - CN, Andrew Johnston, James Johnston

Laid and ballasted XX' of x" gauge railway track made up from Dexion angle pieces. The drag tray was bolted to a stout steel wheeled chassis to form a truck.

After a small amount of power chiselling, the truck was successfully used to remove about half a dozen loads of spoil.

7 August 1994 - CN, JN

Brought back nine and a half truck loads of rock and then drilled four deep shotholes across the face.

After the four stick detonation, a loud clatter was heard - probably the truck being blown over the lip of the shaft. A large plume of fumes emerged and spread themselves very slowly over the ground.

14 August 1994 - CN, RW, Tony Audsley

The truck had indeed been blown down the shaft and needed beating back into a rectangular shape! The rails survived the blast.

Fifteen truckloads of rock were moved back, using one man to rake from the face and crowbar loose rock, one to load the truck and one to haul and empty.

Later CN and AA used the Kango to break up more of the shattered face, while RW went to the bottom of the shaft to move spoil down into the lake.

17 August 1994 - CN

Drilled four shotholes and placed a four stick charge - half a stick in a buttress on the left and, and one and half, one and one across the main face. Fired and left.

20 August 1994 - CN, RW

Cleared back 28 truckloads of rock, and then spent nearly an hour chiselling with the Kango.

The buttress dividing the passage was removed, and a clearer view ahead was obtained. The dimensions seem to close down 10' or so ahead, but much more mud fill is now present and the true rock dimensions may be little changed. Some of the mud is in the form of hard pellets like rabbit or sheep droppings - is this the result of water action e.g flood pulses?

25 August 1994 - CN

Took some photographs of the digging face and then drilled a spread of five shotholes.

27 August 1994 - CN

Laid and fired five linked sticks - two half stick, one single stick and two one and a half stick charges. No fumes emerged.

30 August 1994 - CN, RW

An evening session.

A few more photos followed by the removal of thirty two truckloads of rock.

By inserting the head into a minor bedding plane up to the left, a further fifteen to twenty feet of passage can be seen. It does not appear to get any larger but it is changing in form from a bedding plane to an irregular tube shape.

Emerged to the calling of tawny owls.

25 September 1994 - CN, Andrew Johnston, James Johnston

After a chiselling session and the removal of five truckloads of rock, two further sections of rail track were installed. The last section can be easily lifted to avoid bang damage.

When a powerful beam was shone down the passage, the tube could be seen to continue at its present dimensions for perhaps thirty feet!

26 September 1994 - CN

Two shotholes drilled. A faulty cable connection brought work to a premature halt.

12 October 1994 - CN

Two further shotholes drilled and a five stick pattern fired.

16 October 1994 - CN, Andrew Johnston, James Johnston

Nineteen truckloads of blasted and chiselled material were brought back, and a further section of railtrack installed.

1 November 1994 - CN

After a weekend of heavy rain, there was evidence of flash flooding around the dig site. Underground, the shaft was washed clean and the last 8' or so of the tunnel were under water. A flood "trickle" appears to have flowed out of a small hole two thirds of the way along the left hand side of the passage. No drilling was possible.

27 November 1994 - CN

The digging face was still flooded and after an unsuccessful attempt at hose pipe siphoning, more primitive methods were adopted. Sixteen truckloads of water were hauled up the railway, and finally the residue was scooped up in an ammunition tin and poured away down the tube ahead. Interestingly, after flowing to the visible end of the passage, the water seemed to change note to something more like a pattering noise, perhaps indicating a drop somewhere ahead.

One and a half shotholes were drilled in the time remaining.

11 December 1994 - CN

The digging face was flooded again. All the water was bailed down passage, and the sound of it flowing could be heard for about a minute and a half. After 45 seconds, there was a break in the sound and then the note seemed to change. A quick trip down to the lower dig produced no evidence of water dripping into the lake, a good indication that the upper passage is heading off into the unknown.

Further drilling added another three shotholes to the two drilled on 27 November.