

A SURVEY OF MANDALE MINE, LATHKILL DALE

by

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Introduction

This survey has been divided into three sections:

1. The Mandale Sough from the tail to a blockage upstream of the engine house.
2. The complex of workings immediately north-west of the engine house comprising the inclined plane, the middle section of the sough and a connecting vein which I have called the Aqueduct Level, situated at river level a few yards south of the aqueduct over the river Lathkill.
3. The north-west or upstream end of the sough, accessible from the inclined plane via stope workings to a distance of 388 yards from the sough tail.

Dotted lines show workings and minor offcuts which have not been surveyed to the same standard as the main workings. Where one working crosses under another dotted lines have been drawn to prevent confusion.

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References

- Thornton, D.R., 1960. Bull. Peak Dist. Mines Hist. Soc., Vol. 1, Pt. 3.
Rieuwerts, J.H., 1963. Bull. Peak Dist. Mines Hist. Soc., Vol. 2, Pt. 1.
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Section 1.

Mandale sough tail lies between the footpath and the river Lathkill. The entrance, commonly flooded for nine months of the year, is roofed by large limestone slabs. A discrepancy between present measurements and those on the section of Mandale given by Rieuwerts (1963) suggest the sough was originally roofed on the "cut and cover" principal to a greater extent than it is now. A few feet inside these slabs give way to stone

arching, 2 feet 6 inches wide and 5 feet to 6 feet high. The sough runs straight for 220 feet, and at 190 feet from the entrance there is a shaft above with footholds built into the sides. The shaft is roofed with slabs and is on the north side of the track up to the engine house. A telltale piece of barbed wire on a tree suggests it was open fairly recently.

Past this shaft the sough takes a curve under the engine house and enters an arched chamber, 15 feet by 8 feet 6 inches. Both ends of this chamber have collapsed inwards, but thanks to pioneer work in the early days of the society (Thornton 1960) it is now possible to pass this point. The main pump shaft was in the immediate vicinity of this chamber, and this may have been a Bob Chamber. A conversation can be carried on from here with persons standing in the wheel well on the surface.

Past here the sough is partly arched, and partly driven through rock. It then opens out into a large chamber, with a short passage doubling back to a square flooded shaft. The size of the shaft at this level suggests a pumping or winding shaft which is open at the surface by the incline entrance. Here it is only 5 feet in diameter and round in section. Below the sough level a plumb-line bottomed at 20 feet. The passageway leading to the shaft is floored with paving slabs.

Upstream the sough narrows to 2 feet 6 inches and arching is again met, but after a short distance a fall prevents further progress. A heap of driftwood by the fall suggests that the main water flow is up the flooded shaft not through the blockage.

A flooded winze upstream of the fall (also 20 feet deep) could act as a "U" sump to carry the water in the wet season.

On an undated section of Mandale (Rieuwerts, 1963) the shaft by the incline is marked as an engine shaft, and a shaft near the present engine house is called Lodge Shaft. The winze in the floor of the sough upstream of the fall is not marked on this section.

According to this section the middle level is 52 feet below the sough. Some reckoning books give the depth as 33 feet. Unfortunately our plumbing showed an obstruction at 20 feet down in both shafts. As the water level never drops much below the sough it would need either pumping or a frogman to discover what lies below.

Section II

Access to the main workings is easy by the Inclined Plane, above the engine house. This descends at an average angle of 16° with comfortable proportions. There are stope workings in the roof, and the floor is littered with blocks of stone from these.

Just over half way down an old roof fall restricts the passage and care should be exercised. In the event of a further collapse, there is an escape route via the stope workings to by-pass this fall. Near the bottom the incline is narrower and a passage on the right leads to a small chamber directly over the sough, (see section W W₁).

At the foot of the incline is a spacious chamber with a ramp ahead (where one would expect the incline to continue descending), a blind passage on the left, and a short passage to the sough on the right. According to the section (Rieuwerts, 1963) the incline continued down without levelling out, but this is now completely obliterated.

Beyond the ramp is a hollow filled with large shattered blocks of limestone, and this may mark where the old incline roof has collapsed. This is over the position of a shaft down from the incline, below sough level, marked on the section. Possibly the deads forming the ramp and the side of the westerly passage were built by later "old men" after the mine had failed in 1851.

During the winter months there is a foot or two of water at the bottom of the incline, with a gentle flow towards the sough.

Turning left the passage crosses under another and terminates in an area composed of a detritus of ochreous mud with mineral fragments. Here there is a fork and in the right-hand branch voices can be plainly heard from the crossing passage which is low and also driven in the detritus.

It then turns sharply south-west and leads to a small stope, which connects via a tight crawl to one of the stopes over the Aqueduct Level. This starts alongside the footpath by the river and has every appearance of a vein running up this hillside. Assuming the water level to be constant in the valley, this working is roughly 1 foot above the sough level.

The Aqueduct Level is narrow (2 feet to 2 feet 6 inches wide) and for 80 per cent of its length is roofed with wedged stone slabs, on which are stacked deads. In the gaps of this roofing the old workings can be seen overhead and extending along the line of the vein. At times slickensiding appears on the side of the vein.

Beyond the connection to the main workings there is a collapse preventing further progress, but it may be possible to "push" a connection with the stope off the sough, digging upwards.

Mandale Sough runs roughly parallel to the Inclined Plane, and a few feet to the north of it, and from the foot of the incline is open for a distance of 100 feet back towards the engine house. There is a flooded

winze in the floor, previously mentioned, and even in a dry summer the water level is only a foot or two below sough level. Just past here the sough is driven in the ochreous material already mentioned, and this is the first point where this appears in the sough. A few feet downstream from the start of this material the fall blocks further progress downstream, only some 20 feet from the inner end of section I. This fall is almost directly below that in the Inclined Plane.

Between the flooded shaft and the incline the sough is square in section and driven in rock, and continues in rock for a considerable distance upstream.

At a point 60 feet upstream from the incline, there is a short crawl connecting back to the foot of the incline. Beyond here the sough is about 6 feet high by 4 feet wide. Half-way to the Water Cave there is access to a stope some 9 feet above sough level. This stope is high and wide at the entry but the upstream end is low and narrow; it is driven in the ochreous detritus and follows a switchback course, heading in the general direction of the Water Cave. An opening in the roof may connect with other workings. To the south-east the stope terminates abruptly with a rubble filled hole sloping steeply down, and this stope appears to be a continuation of the line of the Aqueduct Level.

Upstream of this stope the sough turns sharply and at the bend is the Water Cave entered by a very low crawl, and permanently filled with water. It appears to be a small natural solution cavern.

Past the bend at the Water Cave the sough gradually becomes lower and narrower until a blockage is reached where a stope has collapsed into the sough. From here it is possible to climb into the stope to make further progress in Section III.

Section III

The major collapse into the sough of the stope has apparently been caused by the north face of the stope sliding down into the sough and the remaining slab of wall appears to be somewhat unstable. In the stope a small low working extends back along the line of the sough for about 60 feet, some 8 feet above sough level. This is also driven in a detritus of ochreous material. A shaft above may lead to a higher series of workings, and this theory is supported by the presence of other workings as shown in section X X₁)

After negotiating two large boulders the sough can be rejoined down a steep muddy slope (see section X X₁). From here the sough is open downstream for some 56 feet. While the sough is in rock at first there is extensive arching downstream to the fall. This arching is much smaller than any encountered previously in the sough.

The sough continues in a general north-westerly direction, but the ground is generally looser here and the overall conditions are more like the Aqueduct Level, with stope workings above and debris underfoot, than the rock-cut passage met with earlier.

There are three shafts overhead, and a strong draught was felt in blocked workings above sough level, suggesting a possible connection with the "day".

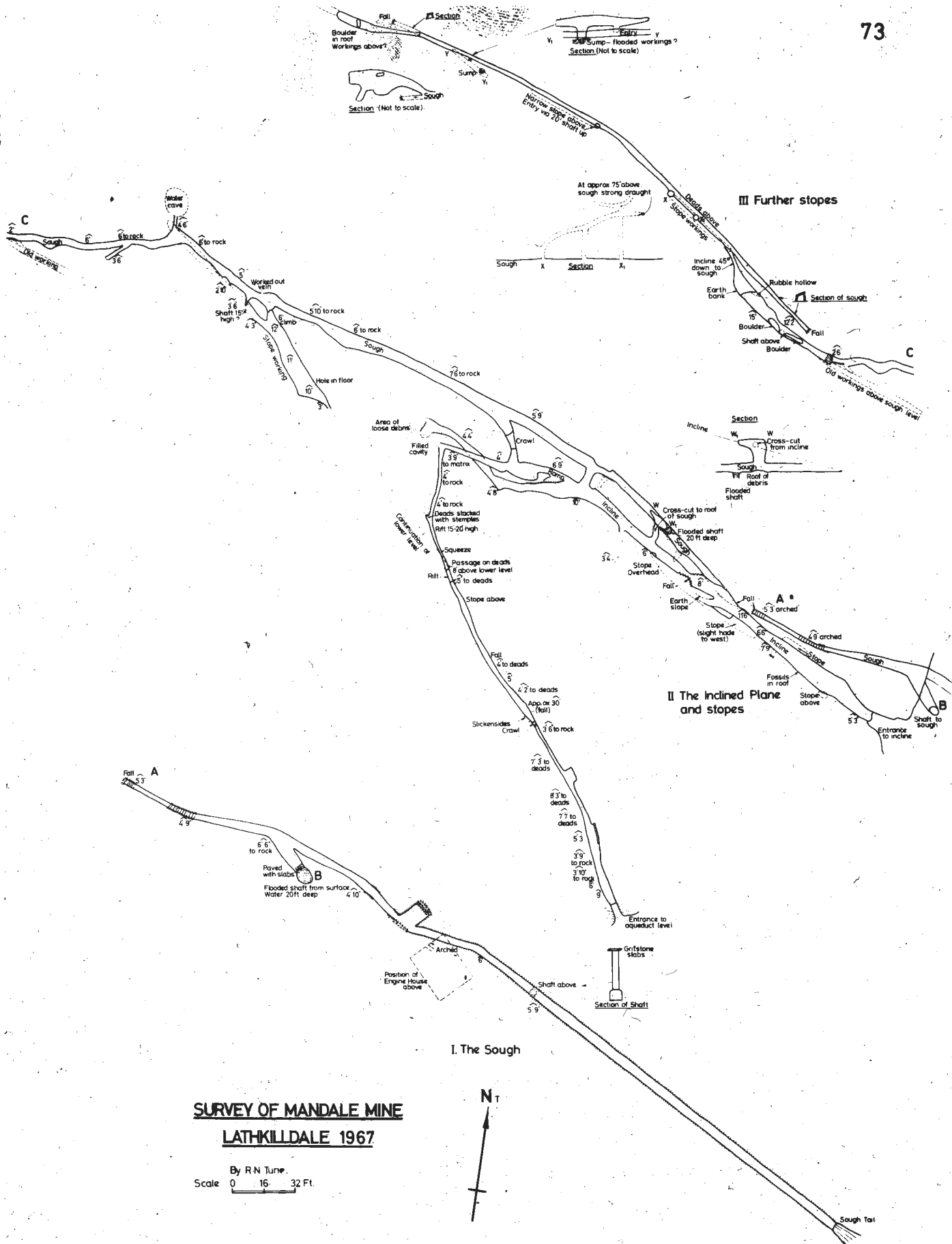
At Y Y₁ there is a stope alongside the sough similar to the previous one but in this case a water-filled hollow (which may be a shaft) blocks the way to the downstream end of the stope. Past here the sough is finally blocked at another stope. Here the sough, again low and arched, proceeds for about 20 feet under the stope to a collapse.

The stope can be negotiated for a further distance, ending in a dry sump, which may be a possible dig. A large boulder wedged across the roof adds interest to the proceedings.

There also appear to be workings in the roof of this stope, but progress at sough level comes to an end here.

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SURVEY OF MANDALE MINE
LATHKILLDALE 1967

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