Spoil Tips and Mine Approach

The Car Park at the Village Hall is where the coach will leave the group. There are toilet facilities here, and the group may also book the hall as a place to have a sandwich lunch.

On the opposite side of the road from the Cark Park the land slopes steeply upwards. This is the edge of an old spoil tip from the mine which has now been stabilised and grassed over. The road signposted to Lordshill has old spoil tips on both sides.

The waste rock, or spoil from the mine, was dumped in large tips which came right down to the road. The path up to the mine goes up one of these, which has mainly been covered with soil. As the photograph shows, it now provides safe grazing for sheep.

Sheep grazing on the former White Tip 1

Until it was reclaimed by Shropshire County Council, this was part of the 'White Tip' of discarded rock from the mine.

Beside the path the foundations of an old building can be seen. This housed steam powered machinery operated by the Halvans Company. 'Halvans' is a Cornish word for reclaiming minerals from old mine tips. The Company was established in 1900 to rework the white tip, using machinery to separate Galena (lead ore) and Barytes.

Foundations of the Halvans Building

Towards the top of the slope an area has been left uncovered so that the variety of rocks and minerals present in the tip can be seen.

Engine Shed

Cross the road and the old railway tracks, and go around the Engine Shed. There are no engines inside, because the last ones were worn out in 1945. After that, a tractor was used to pull the trucks. The tracks show that two engines could be kept here. There are chimneys on the shed because the fires in the engines had to be started to get up steam each morning before the engines could be moved. The engine was left for the night with its funnel under the chimney.

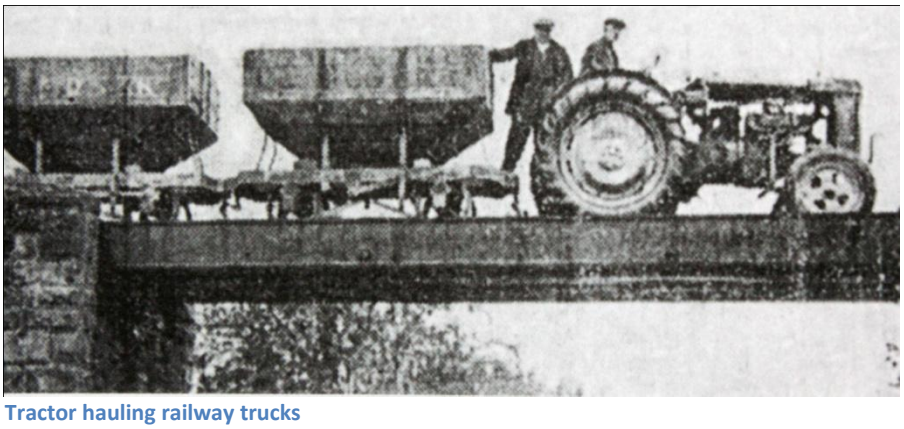
Engine Shed

Inside, there is a rebuilt railway wagon. The letters SDR stand for Snailbeach District Railway. The lower part of the wagon sides are tapered because it is designed to be emptied through a trap in the base. Wagons like this were used for bringing coal to Snailbeach Mine. Later they were also used for moving stone from a number of quarries in the area. It was probably not strong enough to hold lead ore, which is far heavier than stone or coal.

Snailbeach District Railway Wagon

The Waggoner's Tale describes the railway from the point of view of someone who didn't think it necessary!

Warn pupils not to be tempted to climb the wagon.



Tractor hauling railway trucks

Jigging Machine, in the Engine Shed

A replica of a Harz Jig has been built, and this is kept inside the Engine Shed. ‘Jigging’ is shaking fragments of mineral ore to divide dense minerals, from less dense minerals. The same idea is used in panning for gold, as gold is even denser than lead. The Jig is based on the remains of one found by Black Tom Shaft and was probably last used in the 1920s.

The Harz Jig here is an interesting historical relic. It is clearly much smaller than anything the mine would have required during the 19th century. Originally the main purpose in jigging was to separate Galena, lead ore, from other minerals, but this machine was most probably introduced to perform the more difficult task of separating ‘Heavy Spar’, Barytes, from minerals of ordinary rock density.

The shaft on top was rotated by an engine attached by a belt. This moved paddles up and down inside the wooden trough. It was water filled to assist the separation of minerals.

A number of mining artefacts are found in the building. The old tractor is a reminder that in the last days of the Snailbeach District Railway the wagons were hauled by a tractor – but an old photograph of a tractor at work clearly shows that this was not the one used.

Mine Truck

Mine Truck

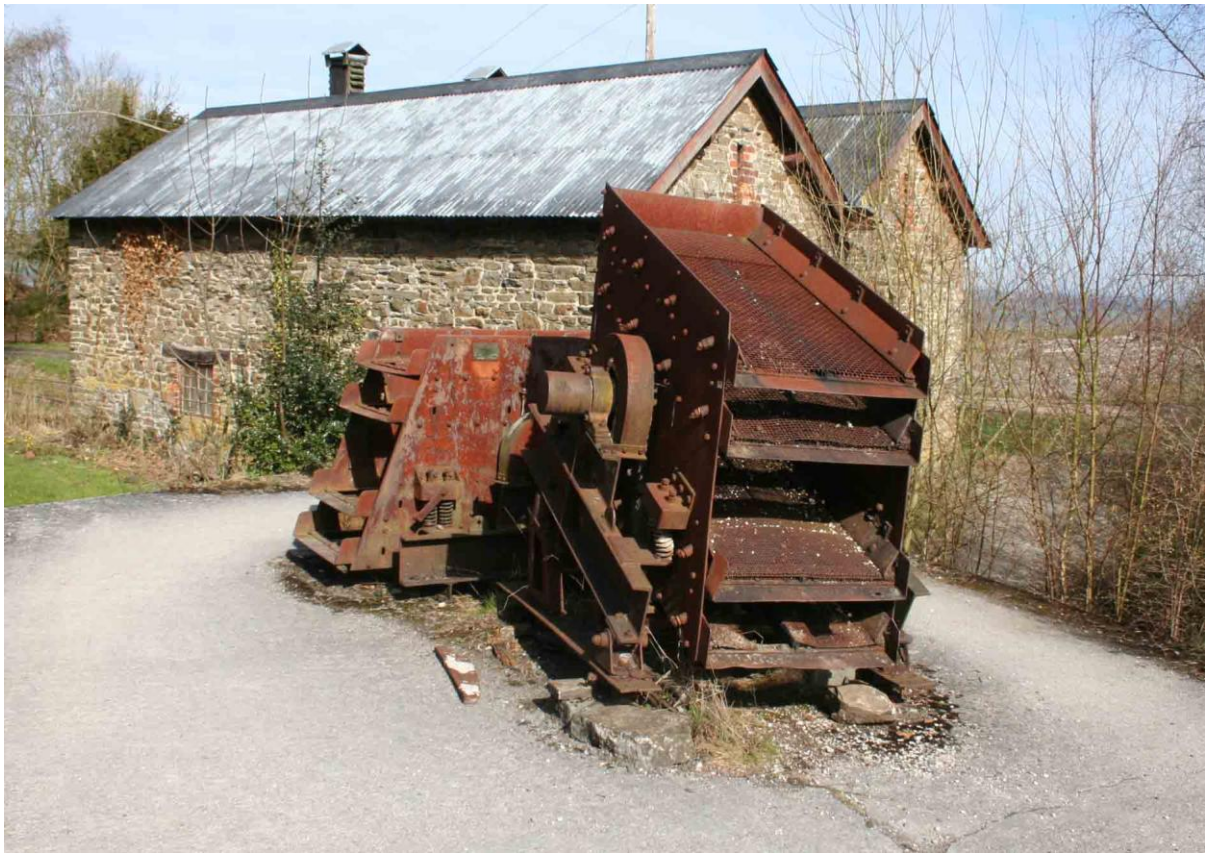
Behind the Engine Shed is a flight of steps leading up to the main mine buildings and the exhibition. There is part of an old railway track behind the Engine Shed, and on it stands a yellow painted mine truck. Point out that the wheels on the truck don't fit the railway. The tramway used in the mine had a narrower gauge (distance between the rails) than the railway. It might have seemed sensible to make them the same gauge, but the Act of Parliament authorising the building of the railway stated that the gauge had to be at least 71 centimetres. This is about half the gauge of standard railway lines in Britain. The mine tramway had a gauge of about 60 cm.

The truck is painted yellow so that it would be clearly visible underground. Notice that it is much more strongly built than the SDR wagon. It is built to carry a heavy load of lead ore and so it is made entirely of steel. It was emptied by tipping the ore container sideways. On this wagon the container cannot be tipped. It is welded in place to prevent accidents from people playing with it.

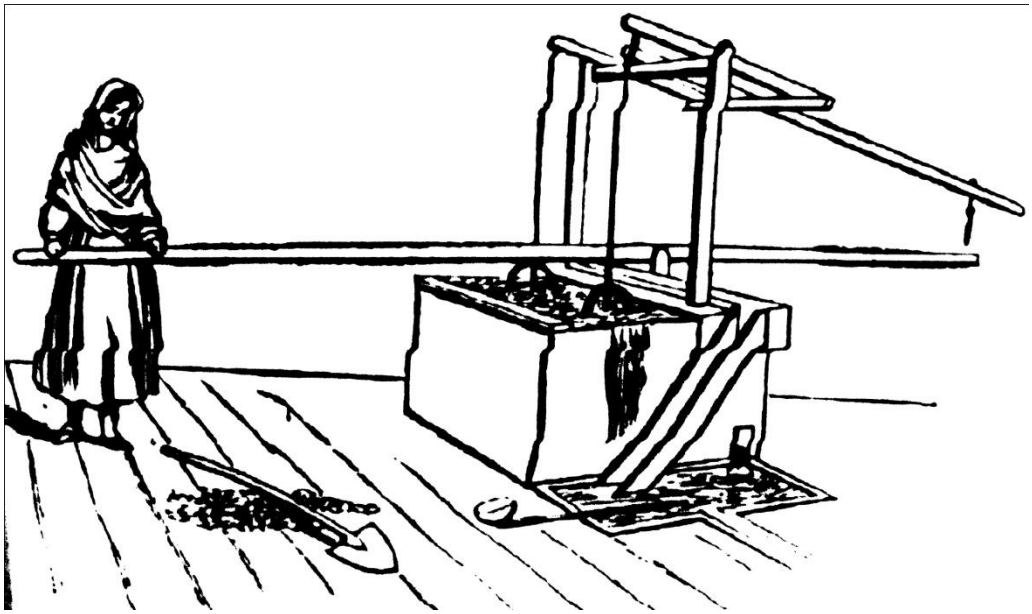
There was never an engine to move these trucks. They were pushed by miners because the greatest part of their journey was underground.

Jigger

On an old concrete base behind the Engine Shed are the rusting remains of a Jigger. Jigging involves shaking the ore in order to separate dense Galena from the less dense minerals. Ore was sorted on the steel mesh trays, and machinery shook these up and down.



Originally jigging had been done by hand, as shown in the sketch. Clearly the machine driven Jigger was quicker and saved a great deal of effort.



George's Shaft Headgear

The photograph shows the view looking back towards the steps from the Engine Shed. On the left is the Blacksmith's Shop, the next point of interest. Close to the top of the steps are the remains of the Mine Office. The head gear over the shaft is a modern replica of the last working headgear used until 1912. The shaft was the first one to be used, and at first men would climb ladders to go down the shaft. The gate is not locked, and groups can go inside the fence to appreciate how wide the shaft was. It needed to be wide because originally it was used for many different things.

1. Men going down the mine via ladders
2. The rods for a pump to drain the mine
3. Hauling lead ore and waste rock out of the mine
4. A wide shaft would help to ventilate the mine, especially if it was the only access.

After 1848 when Day Level was made, this shaft was only used for transporting miners. Two cages balanced each other, and each one would hold seven men.

The top of the shaft is lined with brick to prevent the sides from falling in, and the shaft has been capped to keep it safe. The shaft is 252 yards (230 metres) deep.

The Tale of George's Shaft describes an accident here in 1895 when seven miners were killed. It was the worst in the whole history of the mine.

Mine Cage at George's Shaft

The mine cage and the truck show the way in which lead ore was brought to the surface. The horizontal levels underground had rail tracks for ore wagons like this. The truck is strongly built to hold lead ore and rock. There are handles on the end because it would be pushed along passages in the mine. The trucks would be pushed into a cage suspended in the mine shaft, and then brought to the surface.

(*This isn't an accurate representation of how George's Shaft was used. There were actually two cages balancing each other, and they were only used for transporting men. There was no evidence of rail tracks going to this shaft.*

The ore was lifted via the new Engine Shaft at Lordshill, and then brought to the surface through the Day Level which is near here.)

Engine Winding House

The wire from the head gear goes to the engine winding house, built in 1872. By this time the mine was very deep and the winder operated lifts to take workers to the base of the shaft. There were two cages balancing each other, and each cage held up to seven men.

Inside the Miners' Dry there is one of the signals used to show the engineman when to raise and lower the cages.

The engineman had a very responsible job. He would have kept the winding engine clean and well greased, and would have been responsible for checking the state of the winding rope.

Blacksmith Shop

A mine, or any industry, would always need a blacksmith, and a shop, valued at £10, is listed in the accounts for 1769, long before the Snailbeach Company was formed and large scale mining began. It was probably rebuilt several times over as needs changed. In its present form there are two hearths and bellows, so there was obviously work for more than one man.

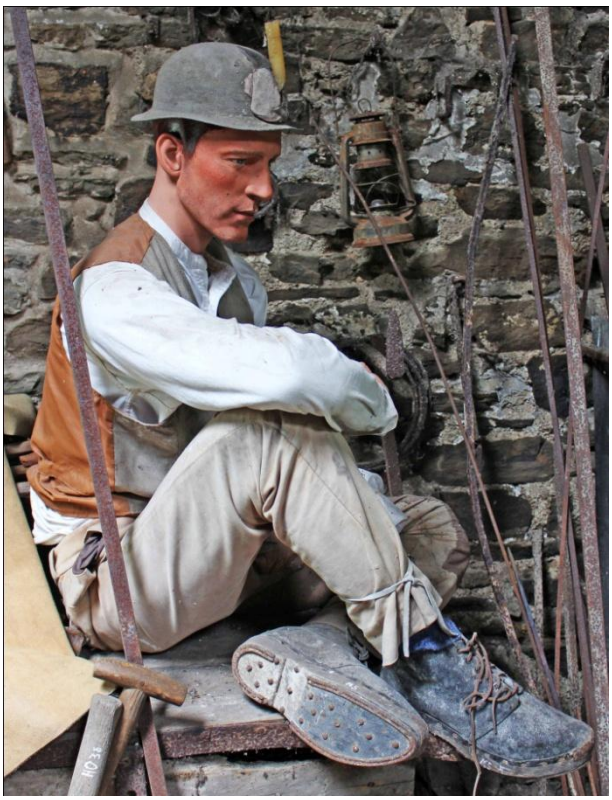
The Blacksmith's Tale describes the importance of the Blacksmith. The building continued to be in use after the Snailbeach Company closed. The spiral drill rods and other artefacts inside were not used here but came from other mines.

The unroofed building to the left of the Blacksmith Shop is extremely old and may have housed an early pumping engine. The stone slab in the wall has a date 1797. The boiler may have been housed in what is now the Blacksmith's Shop.

Inside the Blacksmiths' Shop

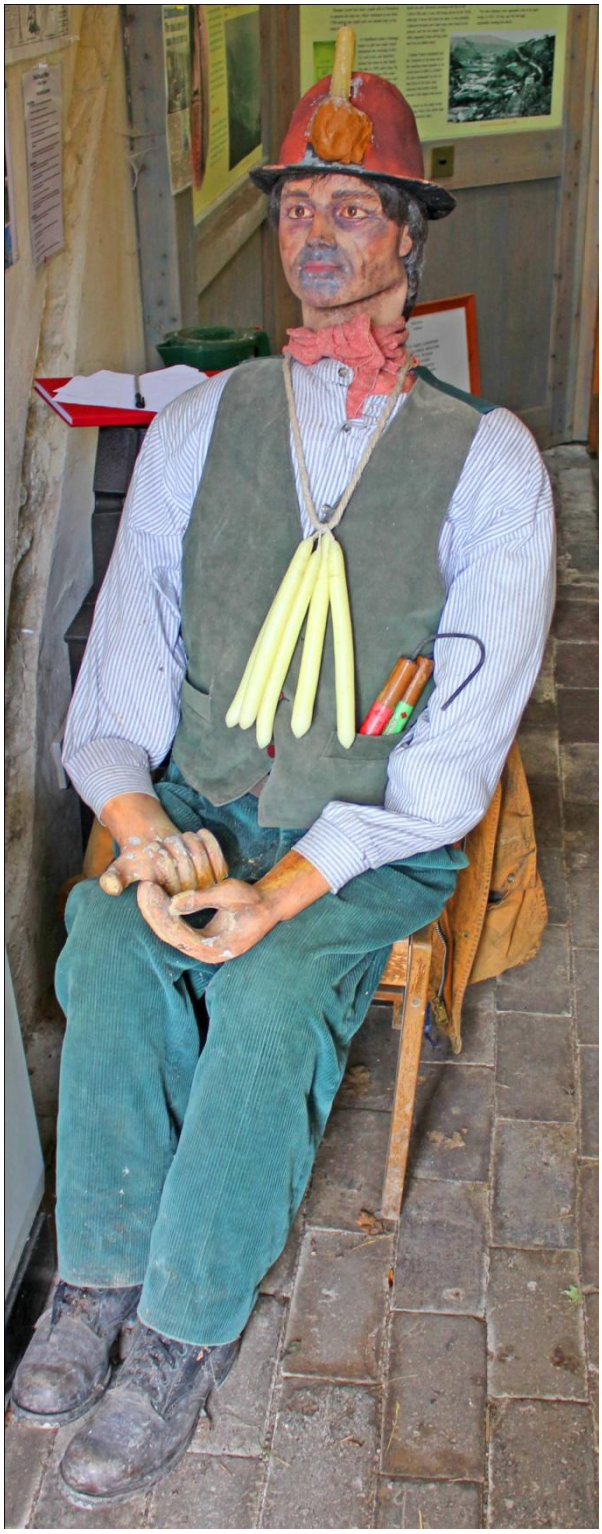
The picture shows one of the hearths, with several pairs of tongs to hold hot metal hanging on the front. The large bellows (the brown leather is visible) are behind the wall.

There is a model of a miner wearing the typical miner's hat with a tallow candle attached to the front with a lump of clay. The clogs he is wearing may be rather more authentic than the boots of the model in the Miner's Dry.



Miners' Dry & Barracks

The 'Miners' Dry' is now used as the Visitor Centre and was a place where miners could change before and after work and leave wet clothes to be dried. It would have been heated by steam pipes, but was only provided during the last years of mine working.



It was originally a two story building and the upper floor was a room where miners could sleep overnight if they lived a long way from the mine. Miners tended to value their independence and often lived in places where they could work a plot of land to grow some of their own food. The mine did not provide much housing for its workers and the most significant part of that was a line of cottages for men at the smelt works.

After the crash in the price of lead in 1885 most of the other lead mines in Shropshire closed, so miners from these places might have welcomed the chance to work at Snailbeach, which continued until 1910. If these miners owned their houses and land somewhere else, they would have been unlikely to move to Snailbeach – hence the value of a place to sleep during the week, especially in winter.

Today the Miners' Dry houses a display about mining, a model of a mine, some artefacts and of course the miner illustrated here.

The unroofed building called the Barracks was probably a tool store.

Day Level

A LEVEL is a horizontal passage into a mine. Usually they have rails so that mine trucks can be pushed along them easily. As the plaque shows, this level was dug in 1848 to speed mine operations. It was driven to meet the Lordshill Engine Shaft which was driven from higher up the hill. Where this horizontal passage meets the shaft it is already 160 feet (about 50 metres) deep.

The Old Engine Shaft (George's Shaft) only goes down 252 yards (230 metres). It doesn't go to the bottom of the mine. Lordshill Shaft goes much deeper, first as a vertical shaft, and then on an inclide, following the lead vein down more than 400 metres.

The lead ore is hauled up Lordshill Shaft. It then goes to the crusher. Since the crusher is at this level, having this tunnel saves lifting the ore further up the hill and then carrying it back down again.

The first part of the tunnel was carefully lined with stone by the miners to prevent the unstable ground close to the surface from collapsing. As you can see it isn't tall enough for a man to stand up in. That doesn't matter because the miner will be pushing a tub full of ore, and he won't need to stand upright.

What do you think was the most dangerous part of making this level?
It was the point where this tunnel met the shaft. It would be easy to send boulders crashing straight down the shaft over 300 metres.

Inside Day Level

The rail track goes from the entrance of Day level to the chamber at the end. Visitors may sit on the flat wagon and be pushed into the mine. In this way disabled access is possible.

There is a wide chamber at the point where Day Level meets the Lordshill Engine Shaft. The whole of the shaft is covered by a strong steel mesh so that no-one can fall through. The central part of the shaft is guarded by a barrier because the top is open, and only covered by a similar steel mesh. This allows bats to find their way in and out of the shaft. The danger is that objects could fall through the mesh at the top and, after falling for 50 metres, they would be extremely hazardous.

This shaft is about 500 metres deep in total. It isn't possible to explore all of it, because the mine is flooded 100 metres below here.

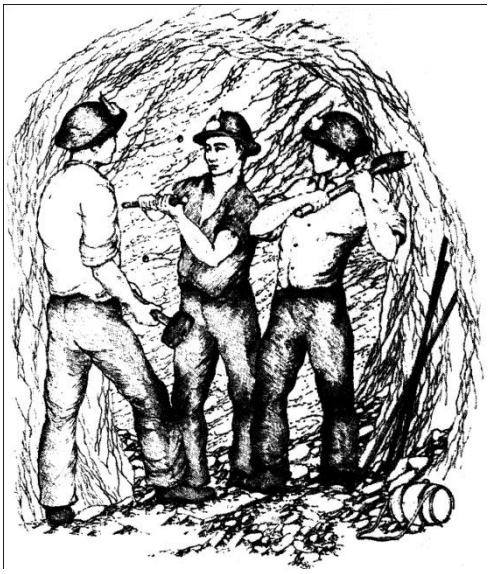
This wide part of the shaft was needed for taking mine trucks full of ore, like the rusty one in the picture, out of the cage in the shaft, and then pushing them to the entrance of Day Level.

There are some mining tools here. An old pneumatic rock drill is supported by two pieces of scaffold pole. There are lots of holes in the walls made by drills and it looks as though the miners tested their drills here before going to work.

There are also other tools: a shovel, a pick, and hammers and tools for boring holes for blasting the rock with gunpowder.

Making Holes for Blasting

The old method of making holes was to drive a sharpened steel drill into the rock with a hammer. The sharpened end was made slightly wider than the shaft of the bar so that it didn't become wedged in the hole. After each stroke the man holding the bar would turn it slightly to ensure that the hole was widened all round. He had to trust the man with the hammer not to hit his fingers!



Here, to speed things up, two men are taking it in turns to strike the drill with their hammers. The passage in the picture looks much taller than Day Level. When this was made all the men would be crouching together in a low passage.

When the hole is deep enough, rock dust is cleared out using a scraper, like a small rake.

Gunpowder, kept in a tightly stoppered leather flask to keep it dry and safe from sparks, is then packed into the hole. Clay is pushed into the end of the hole so that the force of the explosion breaks the rock and doesn't just shoot out of the hole. Then, very gently a pricker (a thin pointed wire) is used to make a hole through the clay for the fuse. Fuses are usually straws containing fine gunpowder. The fuse has to be long enough to allow the miners to reach a place of safety before the flame reaches the explosive charge.

The miners only return after the dust has settled. After spending several hours drilling the hole they are ready for a long break before starting work again. After that they return with shovels, picks and hammers to break up the fallen rock and take it away in the truck.

Driving a level in this way was extremely slow. The miners would probably only advance by three metres in a month. No wonder they only made it as large as necessary.

The passage is called a LEVEL and it needs to be level. Trucks full of lead ore are extremely heavy and the miners didn't want to have to push uphill. Usually passages like this would slope very gently towards the entrance. Do you know why?

1. If there is water in the passage, it needs to drain naturally to the outside.
2. Trucks are full as they go to the entrance, and empty on the way in.

This is the way miners worked for most of the life of Snailbeach Mine, from the time that Thomas Lovett started the Snailbeach Company in 1783 and for the next 90 years.

For the next part of the story we go out of Day Level and see the changes which Henry Dennis made to the mine in 1881.

Rock Drill

A pneumatic rock drill can be seen held in position by two scaffold poles. The compressor needed to power such a drill when this area was mined in the 20th century was much smaller than the vast Compressor House built in Henry Dennis' day. There is nothing attached to the drill to limit the amount of dust created and the old stories from miners' families in this area would indicate that silicosis caused by silica dust on miners' lungs ended the lives of many miners.

The sketch shows the way a drill would have been used, with a scaffold pole wedging the drill firmly in place.

Mine Wagon

There is a length of rail track in the level, and a loaded mine wagon. It is quite large compared with the wagon at the top of George's Shaft. Perkins Level is quite large and there was plenty of room if necessary for two men to push a loaded truck. The flat wagon in the foreground would be used for bringing timber into the mine to build supports for men to work from in the large stopes.

The drawing to the right shows how timbers were used both to support the roof of the working and also to provide platforms on which men could work.

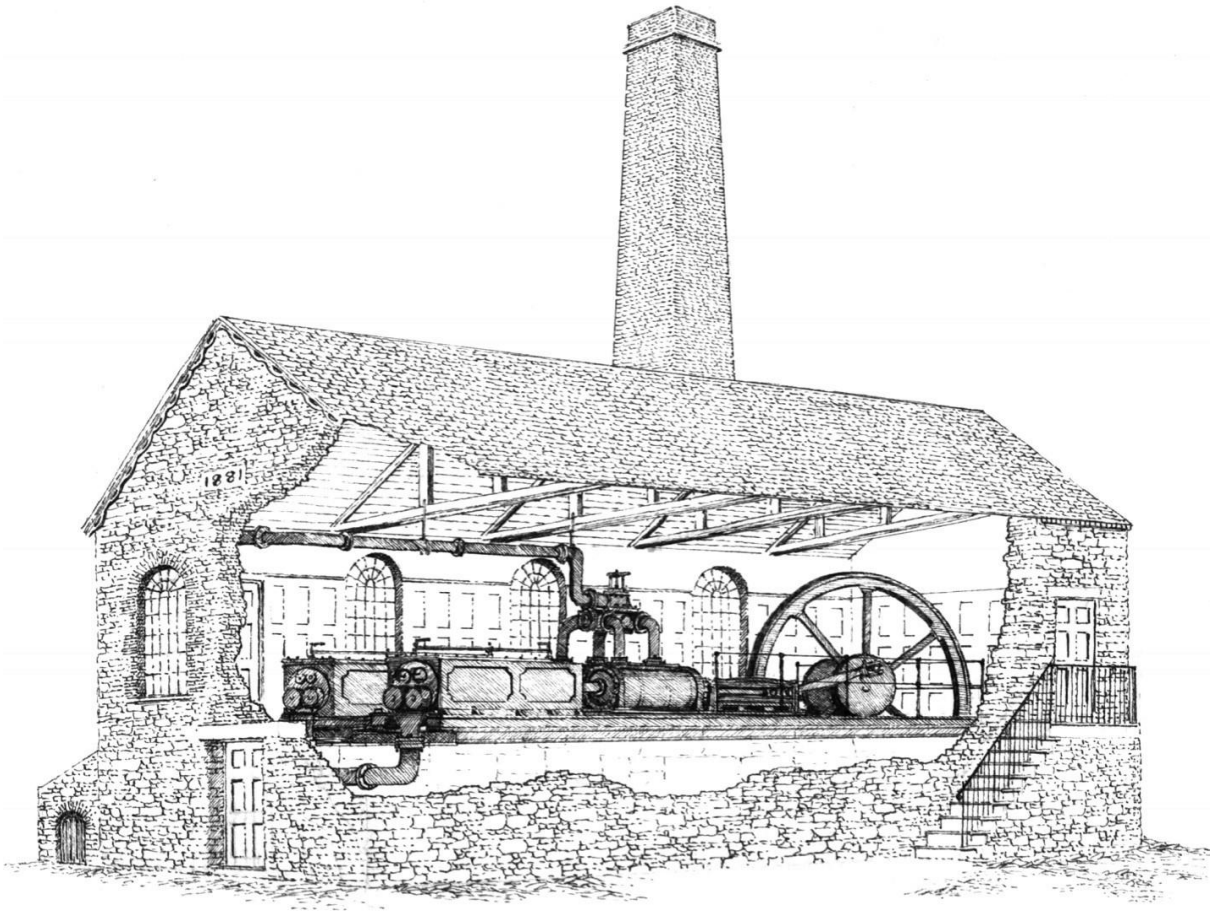
Compressor House

The Compressor House, with the tall boiler house chimney, was built in 1881 when Henry Dennis was mine manager.

His tale describes some of the changes which he made. The Compressor House is one of the most impressive relics of lead mining, and it was carefully constructed, on the scale of a Victorian chapel, to house what was the latest technology in mining.

Go up the steps of the building and you can see inside to the huge supports for the Compressor. (photograph overleaf)

They are needed because the Compressor had a large flywheel which would fit between the supports.



Drawing of the Compressor House by Malcolm Newton

Visitors may be surprised to find that the Compressor House contained only part of the plant. Outside, on the side towards Day Level, there would have been a large storage tank for compressed air. A pipe would then take compressed air into the mine via Day Level and the Lordshill Engine Shaft.

Inside the Compressor House

The boilers would have been in the building on the other side. Very little remains of this. What can be seen is the ends of some carefully constructed brick lined flues. In the top right corner of the photograph the top of the flue connecting to the base of the chimney can be seen. These would probably have been the biggest boilers on the entire mine site.

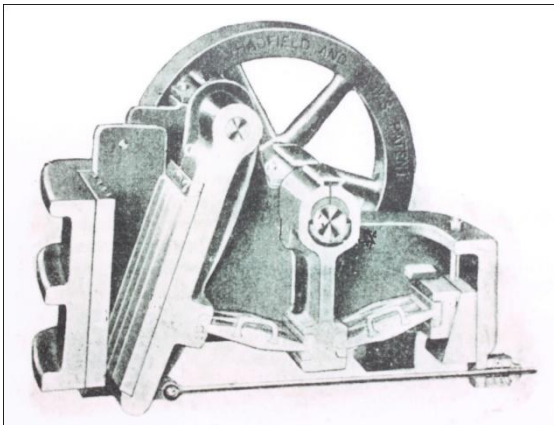
It is worth remembering the difference mechanical drilling would make. *A new report in 1878 demonstrated that mechanical drilling was now economic. A level could be driven at a speed of 18 metres a month at a cost of £9 per metre. Hand drilling would get you just three metres a month and cost £14 per metre. Mechanical drilling is six times as fast and two thirds of the cost per metre of hand drilling.*

Besides driving the rock drills, the compressor would power other underground machinery, such as winches for hauling from the bottom of the mine, 500 metres down. This part of the mine was only reached from an inclined shaft which did not come to the surface.

Remains of the Boiler House for the Compressor

Crusher House

The photograph gives a clear indication of the size of the flywheel inside the Crusher House. The drawing here shows the kind of machinery which would have been used, with the flywheel moving powerful jaws backwards and forwards to break up the ore. In the foreground of the photograph the curved brickwork shows the length and diameter of the large axle for the crusher.



Trucks full of Lead Ore and waste rock would be pushed out of Day Level and the rails would have ended here.

Full trucks of crushed rock were then taken for dressing; separating the useful ore from waste rock. The dressing floor was on the flat ground beyond the far wall of the Crusher House. Nothing remains of the buildings which were once there, because they would have been lightly constructed sheds.

Chimney

The chimney beside the Crusher House probably served boilers which were in the building alongside the Crusher House, and powered both the Crusher and other ore dressing machinery.

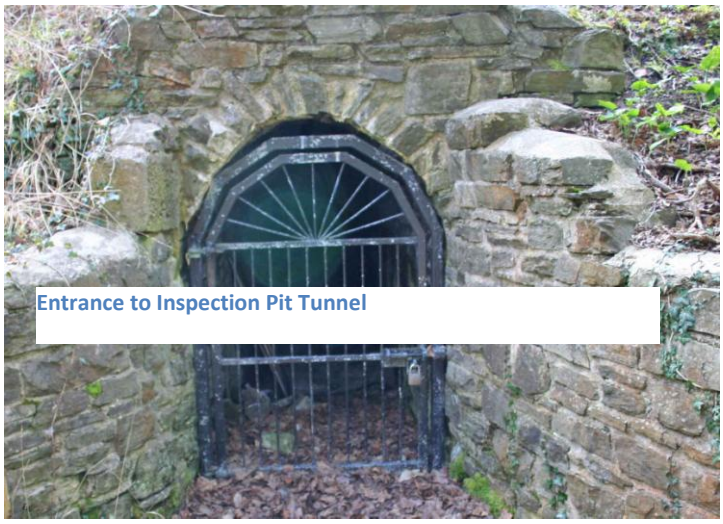
Going up Resting Hill

It is now time to visit the buildings on Resting Hill. One way is to go up the steep path between the Compressor House and the entrance to Day Level. Where this meets a path, turn right, and then turn left to go up the hill again. This path leads to the mouth of the Inspection Pit Tunnel which is below the buildings.

An easier route can be followed if the steep path is overgrown or too slippery.

Go past the Compressor House, away from George's Shaft and continue to the road. Shortly after joining the road a steep path turns back and leads up to the buildings on Resting Hill, called Lordshill by the miners.

When the mine was working an inclined tramway brought coal up the steep hill to power the boilers of the pumping engine and winding engine.



Entrance to Inspection Pit Tunnel

Lordshill Engine Shaft

The steel mesh covers a shaft which descends 450 metres. The shaft is vertical for about 300 metres and then it descends at an angle, following the vein of Lead Ore. The lower part of the shaft cannot be explored because water needed to be pumped out of the mine constantly, and the pumping engine was turned off 100 years ago.

Do not throw stones down the shaft. There may be people below. The end of the Day Level tunnel is directly below here.

The opening at the top of the shaft looks quite small. The top has been reconstructed and is narrower than it originally was. This shaft was used to raise Lead Ore as for as Day Level, and it also housed the long rod connected to the pumping engine. This is because it wasn't used by men to reach the mine. Nor was it used to bring Lead Ore out. As the name implies, there were two large engines here.

This engine house was the site of a fatal accident in 1896 which had nothing to do with work at the mine. Young men used to meet in the engine house on Sunday mornings, and on this occasion, went up the steps and started playing on the huge beam of the steam engine. Normally it had a guard around it, but the guard had been removed for cleaning. Thomas Davies fell off the beam and was crushed by the engine.

Lordshill Pumping Engine House

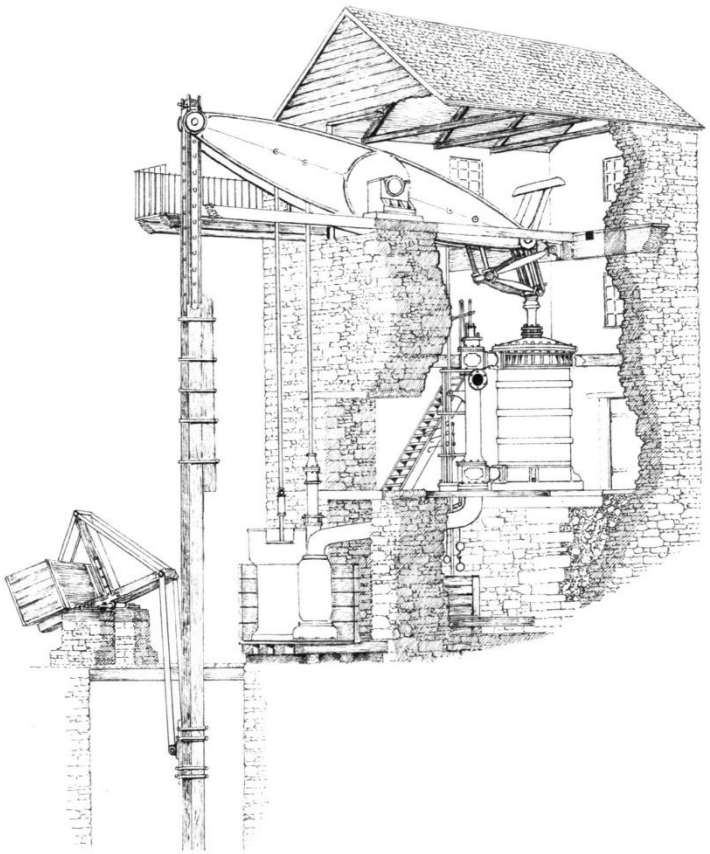
The diagram below shows the machinery contained inside this building. It was a huge steam driven pumping engine completed in 1858.

The low wall facing the photograph was the strongest part of the building, because it supported the weight of a massive beam which stuck out of the building, and was connected to rods which went down the mine shaft. To balance the weight of the long rod, weights in a balance box, shown on the left of the diagram would have given some support. Today there is only a depression in the ground to show where this would have been.

The cylinder of the steam engine which powered the movement of the beam had a diameter of about one and a half metres.

The engine ran for about six hours a day, Monday to Friday. More pumping was needed in winter than in summer. The water did not need to come to the surface here. It was lifted as far as the Adit which drained the mine at Wagbeach in the Hope Valley.

Presumably this engine ran for 50 years until pumping stopped in 1910. It must have proved remarkably reliable, and it would have needed careful maintenance. Notice the platform from the building going to the end of the beam to allow the engine man to grease the joint at the end.



Pumping Engine by M. Newton 1

Lordshill Winding Engine House

There is no indication of the machinery which filled this building but its size gives an impression of the power of the boilers needed to raise Lead Ore and waste rock up the mine shaft. There appear to have been two large boilers side by side. There was no need for a large head gear like the one over George's Shaft because the rock was not brought to the surface.

Since the man operating the winding engine would not be able to see how far to raise and lower the cages in the mine, a good signalling system would have been necessary.

Lordshill Chimney

The chimney, which can be seen from a distance, is reached by walking up resting Hill using the path on the West side of the Pumping Engine House. On the way an information board provides details of the Stiperstones, an Area of Outstanding Natural Beauty.

The chimney was built to serve the Smelter constructed a mile north of here at Snailbeach and connected to this chimney by a mile long flue.

Smelter Flue

Walking eastwards down the hill from the Winding Engine House the track now follows the path of the former incline used to convey coal up to the mine engines on Resting Hill. At one point part of the flue which carried waste gases from the Smelter to the Resting Hill chimney can be seen. It is lined in brick and was tall enough for a man to stand inside. In the picture the section of flue visible has lost its arched top, and a steel grill has been provided for protection from accidents. The flue was over a mile long. Clearly the value of the lead recovered from the flue must have made its construction worthwhile.

Candle House

The Candle House, where fats were rendered down to produce candles for use in the mine, stood away from most mine buildings, probably because of the unpleasant smell of hot rancid fat which would have been present. The building is not currently in the care of the County Council or English Heritage, and is on private land. It cannot be visited and is in a dangerous condition.

Magazine

Close to the junction of the paths at the foot of the incline is the former Magazine. This was a secure store for gunpowder and dynamite. It has double walls for protection and the entrance to the central part is offset. It is best viewed, if vegetation permits, from the path on the south side which is at a high level.

The roof would have been very lightly built so that if an explosion occurred inside, the roof would blow off but the walls would remain intact. The walls have remained in good repair because the Magazine continued in use until mining of Barytes ceased in the 1950s.

Mine Reservoir

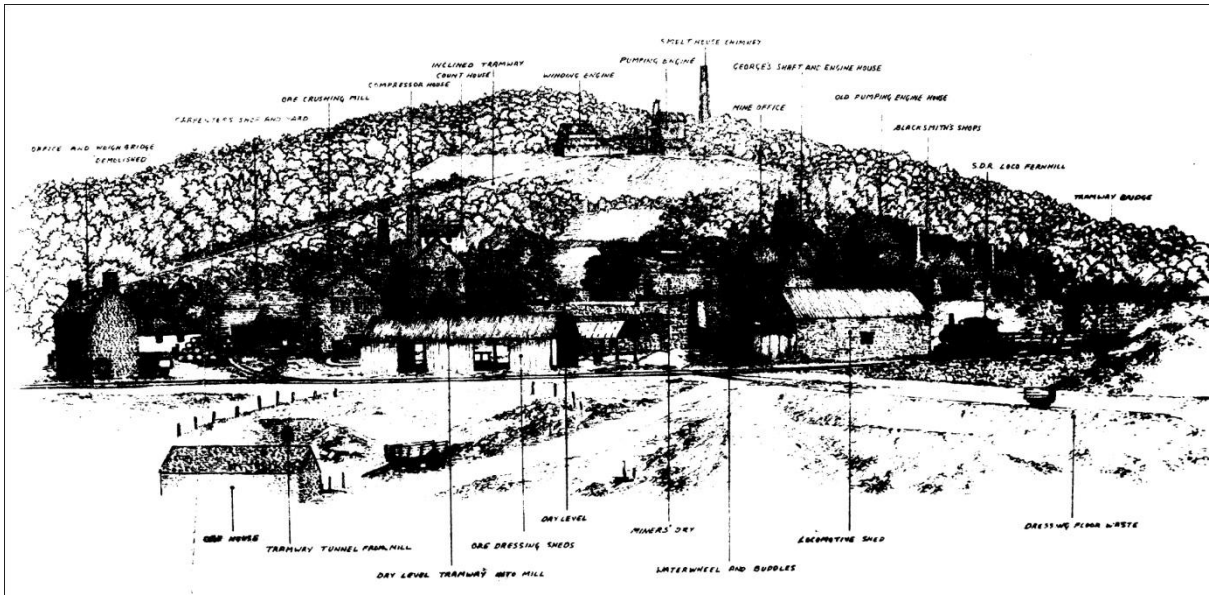
This reservoir, constructed in 1872, replaced a number of ponds which used to be closer to the mine. These were then filled with mine waste. Water power was used for crushing and dressing lead ore.

The Reservoir Valve House can be found below the dam towards the north side of the valley.

Nearby is a cottage which belonged to one of the last miners to work at Snailbeach, when only Barytes was being mined in the 20th century.

Site of Ore Dressing Plant

There is little to see of the former Ore Dressing Plant. The large level area had been built up from mine waste and it is here, below the Crusher, and close to the mine, that new machinery was installed here in Henry Dennis' time as manager. The drawing below gives an impression of the mine in 1900, in the final years of its working.



Ore House

The former Ore House, where Galena was stored before it was smelted, has now been converted into a chapel. It is known as Lordshill Chapel because the original chapel building, which still stands, surrounded by its own graveyard, is further up Lordshill.

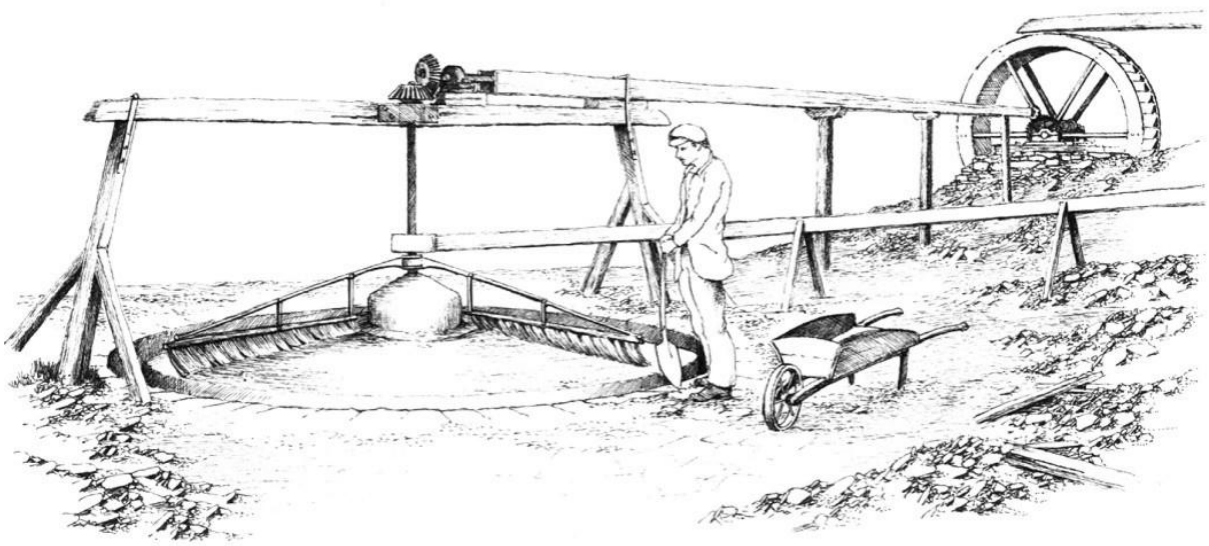
The lead ore was kept inside because of its high value. It was originally brought here from the Dressing Plant via a tunnel which passed under the road and the railway. The entrance to this tunnel can still be seen.

Buddles

Little evidence of ore dressing (separating lead ore, Galena, from other minerals and waste rock) survives at the main mine site. The waste tips were reworked later in order to extract more lead ore, and particularly to obtain Barytes. The remains of three Buddles beside the waste tips can be seen.

They are reached by walking down towards the village hall and then turning along the road north towards Minsterley. There is a track on the right just before the old railway bridge and a sign on a gate helpfully announces NO THROUGH FOOTPATH ACCESS TO THE “BUDDLES” ONLY.

There is a circle of brickwork, and the concrete base of each buddle is raised in the centre, forming a low dome. The diagram overleaf by Malcolm Newton shows how they were operated.



The crushed rock is washed into the centre of the buddle along the channel visible behind the man. In this drawing a water wheel drives the arms which sweep across the surface of the material in the buddle. This stirring action, aided by the flow of water separates minerals according to their density. The man operating the buddle will stop the process at intervals and fill his barrow with the separated minerals.

These bubbles were used well into the 20th century after lead mining had ceased, and the arms were most probably moved by steam power rather than by water.

This concludes the main part of the tour of Snailbeach Lead Mine.

Continuing to explore Snailbeach

There is more to see. Barytes Mining continued here for half a century after lead mining ceased. The lower levels of the mine had flooded once pumping ceased, but working continued down to the level of the Wagbeach Adit which drained the upper part of the mine. The waste tips were worked first for Barytes and later for Calcite. There was a plant for separating and grinding Barytes on what is now the car park for the village hall, but all trace of this has been removed.

The ‘Visit Extras’ file gives details of other locations around Snailbeach.