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THE HURST MINING FIELD, SWALEDALE, YORKSHIRE

by L.O. Tyson

INTRODUCTION

The Hurst Mining Field is situated north east of Reeth in Swaledale. It lies on a high plateau which is bounded on the west by the steep limestone cliffs of Fremington Edge which in turn forms the eastern side of Arkengarthdale and on the eastern side the Field is bounded by the deep Clints Valley north of Marske.

The Field is nine square miles in area and the mineral boundary lies along Fremington Edge, then north above Sleil Gill, and follows the course of Moresdale Beck. It continues down the eastern side through Helwith and past Prys Mine. It runs down to Marrick and the southern boundary is formed by the River Swale.

It is in the Hurst area that the great veins of the Swaledale Belt die out. The Racca Vein is the main vein which comes over from Fell End and is a continuation of Wellington, Cocker Rake, Tanner Rake and Primrose Veins which were worked from the giant hushes in Sleil Gill and in turn form the main veins through Surrender, Old Gang and Gunnerside etc.

A major north-east throw (which eventually reaches 200 ft.) transfers Racca Vein from Fell-End and dies out where its continuation, Grinton Dam Vein, meets the higher ground south of Hurst. Here it breaks up into a series of weaker veins including Barf and Petticoat with their parallel strings and forms the southern boundary. The Trench Vein forms the northern edge of the field from its intersection with Wellington Vein to where it meets Wallnook Vein. This in turn forms the eastern boundary of the field.

It is in this rough parallelogram that the major veins worked at Hurst are concentrated, in a half mile wide complex series of closely spaced curviform veins and strings.

The beds lie in a monocline which starts to dip at Racca Vein and with the base of the Main Lime at 1230 ft. O.D. on the south side of Grinton Dam Vein to approximately 950 ft. O.D. to the north of Trench Vein. This gives a northerly trend to the monocline.

The main bearing beds were the Main Lime and Chert. The Red Beds and the Crow Lime and Chert were the upper beds worked with the Underset Lime and Chert the lowest bearing beds worked. The main gangue was pink barytes and calcite with a little fluorspar and occasionally white witherite.

The spoil heaps at Copperthwaite were examined by Dr. Earp in 1941 and tested by Dr. Phemister and showed that a brown to yellow mineral present was hemimorphite in fibrous and radiating clusters and is not uncommon along the vein. Traces of malachite also occur but there is no evidence that, despite the name, copper ores were ever found; the name is probably a corruption of an Old English name.

The veins can be followed at surface by a broad band of spoil heaps and large shafts which come sloping gently down from Fremington Edge until opposite Hurst Village, it resembles a World War One battlefield, the ground is so shattered and must stand as one of the most stark reminders of the unremitting toil of the men and boys who worked here in the past. Standing across the road from the deserted village of Hurst this scene of devastation gives a true perspective of lead mining and its decline, found nowhere else in the Dales and is a fitting memorial to the miners of Hurst.

THE MINES

The earliest workings at Hurst were probably where the Main Lime and overlying beds cropped out on the shallow hillsides. Due to the gentle sloping nature of the ground, hushing was not a major method of working the veins and there are only small hushes to the west of the field near the Hurst-Marrick road. These are the North or Nungate Hush on Mole and Scott Veins and the Sun Hush on Stodart Vein Sun strings.

For this reason most of the ore in the early period was won from shallow bell-pits. Two plans in the Brotherton Library (see Raistrick's *Smelt-Mills*) dated 1592 of the Hurst and Marrick area clearly show a large spread of shafts on Copperthwaite, Jingle Pot and Hurst Veins plus the mill at Marrick. This would indicate that most of the veins were known at this early date and the ore was plentiful enough to justify the building of a mill.

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The first adits to be driven at Hurst were probably Nungate and Opencast Levels (ZWX9-10) but due to their horizon, would not drain a great deal of water or allow reasonable access to the major veins.

Opencast Level which starts on the hillside above the crossroads is a straight crosscut up to Barf Shaft with drives from this shaft onto Cleminson and Redshaft Veins and is joined with Nungate by a rise on Scott Vein.

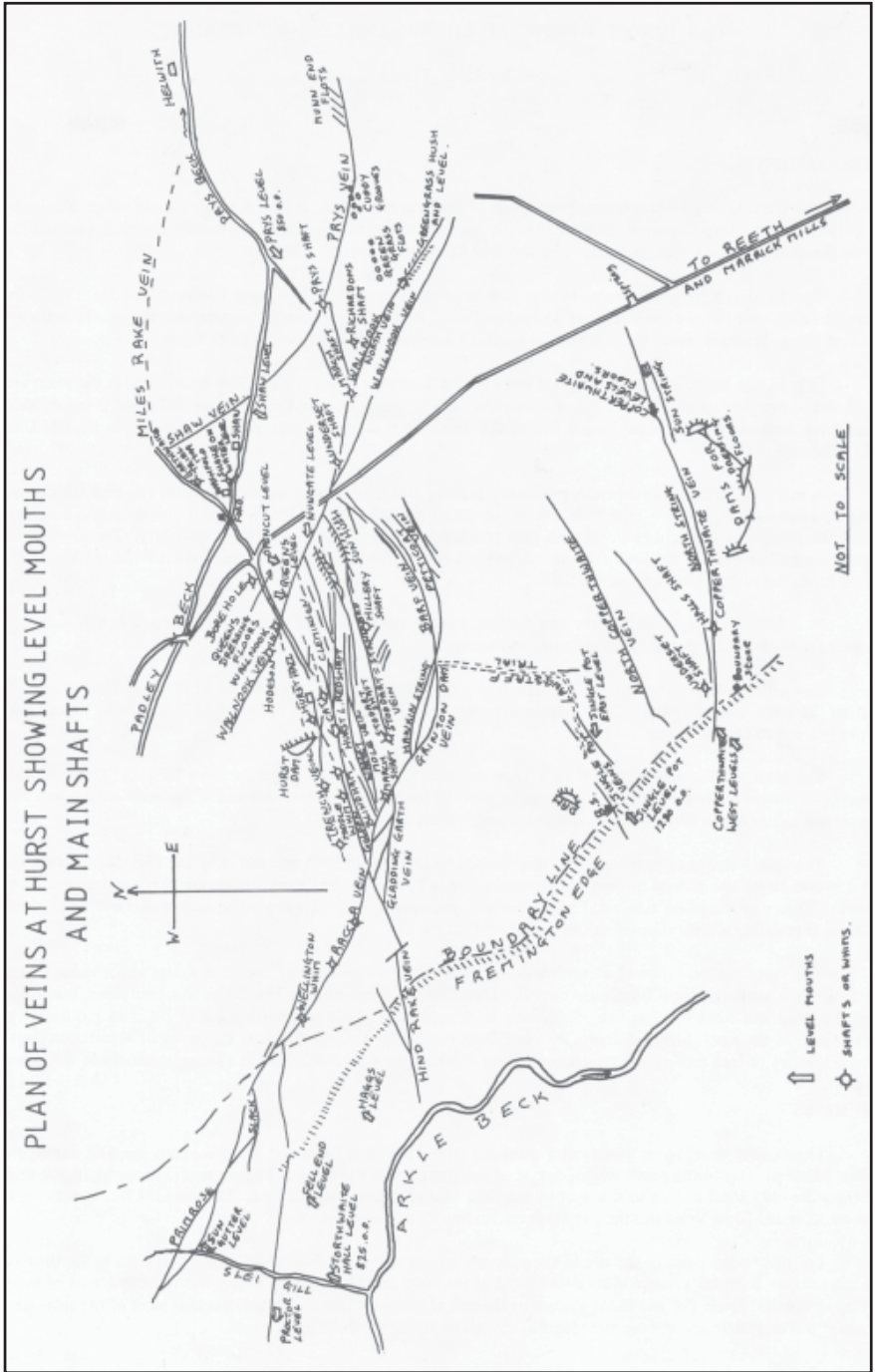
Nungate Level lies at the base of Nungate Hush and was driven on Scott Vein where, from a series of crosscuts and rulleways, Scott and Sun Hush Veins and their associated strings were worked. It connected with Hillery Shaft in the Sun Float crosscut and at Guy Rise, connected with Queens Level.

Both these levels, plus the lower Queens Level, are shown as well established on a plan (ZWX10) dated 1840 which would put their starting dates at least in the early 1700s. In fact, the lease of 1718 implies a large scale capital venture. (see History of mines).

Queens Level at 1097 ft. O.D. was the main drive into the field and had very efficient dressing floors built at its mouth (ZWX21). This became the main dressing floor for the whole field. The ore was trammed out straight onto two sets of water-wheel driven crushers and down through a series of jigs, tubs and slime-pits (see flow sheet). The floors were fed by several very long water-courses and from the Grinding

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PLAN OF VEINS AT HURST SHOWING LEVEL MOUTHS AND MAIN SHAFTS



Mill Dam behind Hurst Hall. After dressing, the ore was taken down the Hurst-Marrick toll road to the Marrick and Cupola Mills (see Raistricks *Smelt Mills* for details of these Mills).

The main access level at Queens cut south through most of the major veins. The first branch from the portal was driven west through the field on Woodgarth and Wellington Veins and it was from this drive that the major workings were made.

A second branch on the main level cut west along Cleminson Vein, most likely in the Richmond Chert, until it reached Redshaft Vein where the Undersets and Main Lime were workable on the footwall from various crosscuts and from Guys Rulleyway. This section also connected with Nungate Level via Browns Rise which would allow a ventilation circuit to operate.

The main level continued and worked Redshaft Vein and some strings from the Underset Sump. It then continued to intersect Nungate Level at Guy Rise.

The main or first branch level from the Portal cut west along Wellington Vein and the ground was worked from this level and from Browns Rulleyway 12 Fms. below adit level, the ground being drained by the Old Water Level which was 30 Fms. below adit level.

These three levels were driven west for 1,350 ft. to Cat Shaft where four major veins come together, Redshaft, Cleminson, Wellington and Woodgarth plus Hawkins String. Cat Shaft, opposite Hurst Hall, had a chimney and steam engine built on it and was 40 Fms. deep, being sunk on the downthrow side of Redshaft Vein at 1230 ft. O.D. It was used for hauling from the lower workings. The ore was lifted up to Queens Level for haulage out to the floors and the deads were hoisted up to "day".

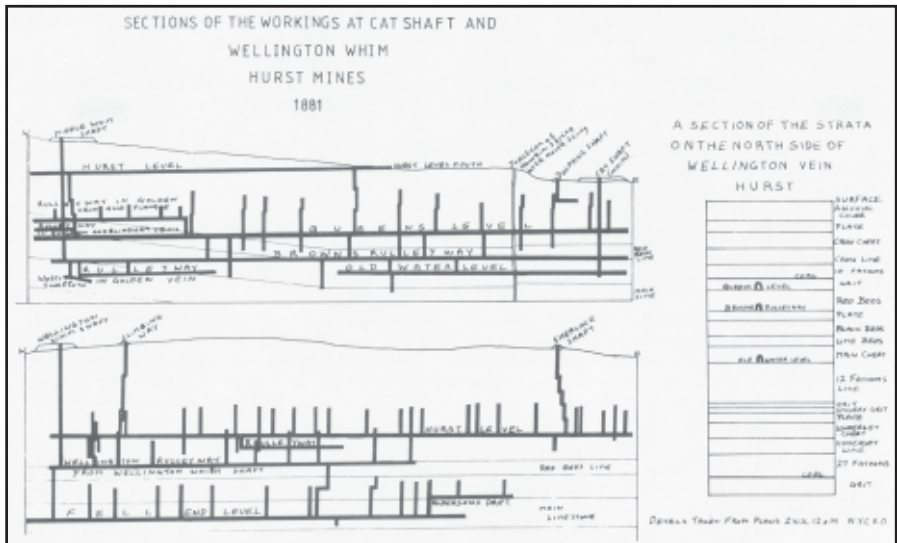
The three levels then continued 1,710 ft. to Middle Whim Shaft with Queens forehead 595 ft. W.S.W. of this shaft in 1881.

Browns Low Rulleyway ran from Middle Whim past Cat Shaft and finished at Browns Sump near the junction with Queens level entrance. The Old Water Level drained these upper workings from near Middle Whim to Browns Sump where it branched N.E. to Wallnook Shaft then east to Washfold where it ran into a natural swallow.

The main drive from Cat Shaft to Middle Whim was in Woodgarth Vein in the upper part of the Richmond Chert with ten rises into the Crow lime and Chert. The Main Lime was worked from Browns Low Rulleyway.

At Middle Whim a rulleyway 450 ft. long was made from a sump and driven in Golden Vein at about the same horizon as the Old Water Level and worked the Main Lime, draining into a natural swallow. Two rulleyways above Queens Level worked the Golden, Blindham and Flange Veins in the Red Beds, Crow Lime and Chert which trend upwards on the monocline in this area.

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Hurst Horse Level at 1277 ft. was the highest major level at Hurst and stands 181 ft. above Queens; it connected with the Middle Whim workings via Blinks Sump. This level was driven W.S.W. for 1,800 ft. on Blindham Vein to meet the Racca-Grinton Dam veins where the direction changes to W.N.W. (ZWX5).

G. Marches crosscut to the south of the level was made to Pedleys Sump and a south-east drive on Jones Vein made to March Shaft where a rullyway tried Grinton Dam Vein S.E. as far as Allmakes Shaft, with a small crosscut made in 1847, to try the Underset Chert. Further along the main level, Hind Rake Vein was tried from Brunskill's Trials. The level then continued W.N.W. along Wellington Vein for 2,650 ft. to Wellington Whim Shaft right on Fremington Edge at the Western Boundary of the field. The ground above the level was worked from rises into the Crow lime and Chert and from sumps into the Red Beds and Richmond Cherts.

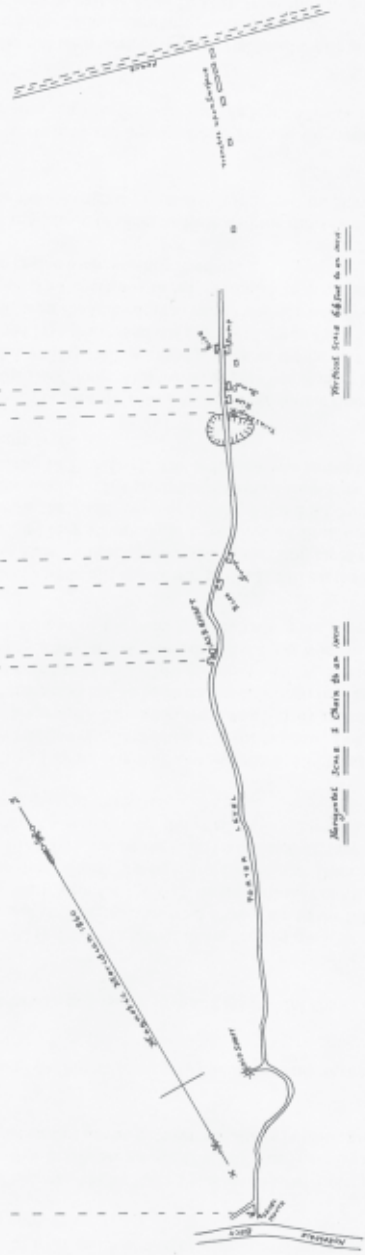
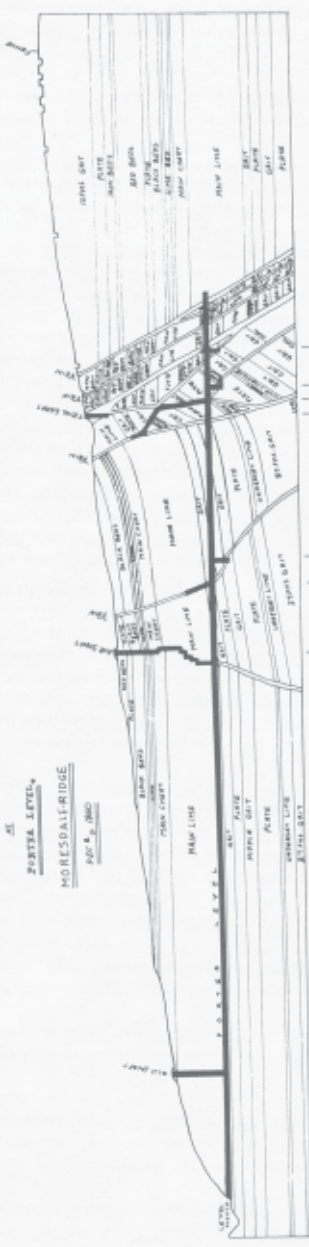
At Wellington Whim (1550 ft. O.D.) the ground was worked from the Wellington Rulleyway (ZWX10, 19) at 1208 ft. O.D. running W.S.W. for 1028 ft. in the Red Beds lime, and a small sublevel at 1247 ft. O.D. worked the ground in between the Horse Level and Wellington Rulleyway. There was a climbing shaft out to day from the Horse Level just S.E. of the Whim Shaft.

The Hurst Level workings connected with the Fell-End Mines in Arkendale via waygates and sumps from Wellington Rulleyway. The Fell End Level was driven in Blucher Vein for 1270 ft. into Hurst ground at 1080 ft. O.D. and worked the Main lime and Chert in Blucher and Wellington Veins from several rises and Aldersons Drift at the end of Fell End Level, which suggests the ground was very productive.

From these workings at Wellington Whim back towards Cat Shaft there is a gap of nearly 2,000 ft. where the Main lime (whose base reaches 893 ft. O.D. which is 100

HURST MINES

PLAN AND SECTION OF STRATA



Vertical Scale 3 Chains to an inch

Vertical Scale 60 feet to an inch

Geological Section of the Hurst Mines, showing the Main Line, Moresdall-Ridge, and Zorbia Level. The section is drawn to a scale of 3 chains to an inch. The plan view is drawn to a scale of 60 feet to an inch.

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ft. below the Old Water Level) and the Underset lime and Chert in all the major veins has not been fully exploited. Also in the area of Wellington Whim the E.N.E. Veins are displaced from Wellington, Racca-Grinton Dam Veins. This must surely give one of the most promising situations in the Dales area.

The Hindrake Level near Garthwaites Shaft was driven west along Hindrake Vein for 264 ft. to a sump, but does not appear to be a major working (ZWX10).

The Wallnook Vein forms the north-east margin of the field and it is against this that all the veins at Hurst die out. It was tried from Hodgsons Shaft and a crosscut was made from Wallnook Shaft, north along the vein but was found to be barren (Bradley 1862). The vein passes under the Hurst-Marrick road where it was tried by the Undersett Shaft.

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Shaw Level (ZWX14) at 990ft. O.D. was driven S.W. for 1400 ft. from the side of Shaw Beck near Shaw Hamlet to unwater the shaft but little or no ore was found. There were three air shafts in the level indicating trouble with bad air. This level was re-opened by the Earby Mines Group in 1977 and found to be a hand level driven in limestone with a groove in the floor where the ground was taken out in barrows.

Above Washfold, two shafts were sunk at the junction of Shaw and Miles Rake Veins above Goat Lane, called Hillery and Hodgsons Shafts and are shown as connected but no further details are known (ZWX8). Also near Washfold two shafts were sunk by W. Garthwaite (ZWX8) in 1799 and from a crosscut driven between the shafts in plate, worked the Main Chert.

Prys Mine is the next mine associated with Wallnook Vein (see British Mining 19); however since that article appeared a more detailed plan has been found (ZWX16).

The first workings at Prys were from March, Dolphin, Richardsons, Suntors, Prys and Prys Whim Shafts where Wallnook North, Prys, Prys North and Shaw Veins come together.

Owing to trouble with water, a level was driven at 850 ft. O.D. from the side of Shaw Beck below White Scar. The level was driven in Black Beds for 830 ft. where Shaw Vein was cut. A crosscut tried Shaw Vein to the S.E. but was soon abandoned. The level was then driven N.W. along Prys North Vein for 1,400 ft. where Wallnook North Vein was met in the area worked by the shafts. Richardsons Shaft connected with the level from a crosscut through the hanging wall on the north side of the Vein. A Water Level was made 8 Fms. below the main level which drained into a natural swallow in the faulted area on Shaw Vein. The East Close Shaft was sunk onto this swallow and connected with a level which was constructed parallel to the main adit level with way-gates at intervals.

Mr. Robert Daykin the agent at Hurst and Prys was questioned by the Kinnaird Commission in 1863 and in his report mentions a lot of trouble with bad air in Prys

Level. The ventilation circuit produced by the swallow, East Close Shaft with the two passages and way-gates figure prominently in his report. This air current was heavily relied upon and when the swallow was inundated in very wet weather most of the works had to be abandoned through foul air. The swallow is described as a regular fissure in the 12 Fms. lime and could take up to 140 gallons a minute. There were two "Windy Kings" in use, one driven by water the other worked by a boy, the air being directed along wooden boxes 4 x 6 inches. The Underset lime and Chert were worked at the far end of the main level by two upper rulleways and an air shaft put up.

About 1870 the beds were tried in depth and to drain them a hydraulic engine was put in at adit on the North Hanging Wall side of the Prys North Vein in a chamber cut in the Plate. The engine was fed by cast iron pipes from a reservoir 33~ ft. above Prys Whim Shaft, this fed in turn by a very long water course from Cogdale Beck north of Hurst via the Queens Dressing floors. There were four levels below the Water Level at 18, 28, 38 and 4S Fms., the water being drawn up to the Water Level and draining off down the swallow. The ground was worked from rises in the levels, the Underset lime and Chert - the main bearing beds - in the 18 Fms. level. The 3rd. lime was worked in the 38 Fms. level and the 4th. lime tried from a sump below the 4S Fms. level.

This mine was worked again in 1938 by Mr. W. S. Ryder and called the *North Riding Lead Mining Company*. The foreman was a Cornishman, Archie Rule and had his son Howard with him. Also working there was Robert Hillary of Hurst along with Mr. Hutchinson of Reeth and Mr. Stones of Arkendale. They made a sump at the far end of the main level on the downthrow side of Wallnook North Vein, beyond Prys Whim, and cut a string of ore in the Underset lime but due to problems with bad air and water the project was soon abandoned; the venture was not well financed.

Drainage was by bucket and hand drilling was used. A small amount of chert was raised and taken to Richmond by horse and cart. Deads were thrown down the engine sump but the engine room was not filled up.

To the south-west of Prys Mine the Wallnook Vein was tried from Greengrass Hush and the short Greengrass Level at the base of the hush. To the east of these workings were the Greengrass Floats and further east on Shaw Vein were shafts called Cuddy Groves and finally Munn End Floats.

The last group of mines are to the south of the main Hurst field and are the Jingle Pot and Copperthwaite Mines. These lie astride the plateau and are bounded by Fremington Edge to the west and the Hurst-Marrick road to the east.

Jingle Pot Veins and String cut through Fremington Edge and were worked from several small shafts and tried in depth from Undersett Shaft (ZWX1S). A small level was driven in the Main lime east to west and a sump 75 ft. deep was put down to the Underset Chert. Another level was driven west to east at 1280 ft. O.D. from the steep side of Fremington Edge in the Main lime but due to the eastward trend of the beds was mainly driven in shales and sandstone [66] beneath the Main lime. Garthwaites

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Shaft was sunk near the mouth of the Eastern Level, and by a line of 9 shafts joined by a crosscut was begun the only speculation level in the area. This was called the Langstaff Trial and was made to test the ground between Jingle Pot Vein and Grinton Dam Vein to the North. It was driven for 2050 ft. due N.E. under the shallow valley between Fremington Edge and Hurst but found no new veins until it cut Grinton Dam in the Underset Chert (ZWX8).

The Copperthwaite Veins are the most southerly of the veins at Hurst and are distinguished by a wide band of shafts, spoil and dams which stretch for a mile and a quarter between Fremington Edge and the Hurst-Marrick Road. At the western end, the mineralisation falls into three veins 150 yds. wide but these come together as the veins curve to the east where they die out against a N.W.-S.E. cross vein.

The veins were originally worked from a great number of small shafts sunk down to the Main lime but in 1837 a level was started above the Hurst road and driven westwards towards Fremington Edge. The Copperthwaite Level (ZWXI7) was driven through slipped ground until it met the Main lime where the ore was worked from five rises and sumps to the north of the main level on the North String. At 1020 ft. from the portal the ground was stoped out in the Main lime and Chert for 500 ft. Two 100 ft. sumps were sunk on the North String to work the Underset lime and Chert.

These were Kendalls and Underset Sumps and the ground was worked from rulleways with some flats also being worked. Bradley says the undersets were very productive (1862). Small rulleways were made into the Red Beds from several larger surface shafts, these were Garthwaites, Wards, Slacks (1859), R. Spences (1860), Wards (1859) and Halls (1860). J. Spence and Sons in 1849 sunk the 225 ft. deep Underset Shaft right on Femington Edge. Some flats were worked in the Main lime and from a crosscut and rulleway worked the Underset lime and Chert. In this working some Old Man works were encountered.

A final phase at Copperthwaite was the driving of a level from the west on Fremington Edge in 1865. This level was driven on top of the Five Yard lime (abandonment plan 1920) to its forehead and Bells Rise to the top of the 4th. lime on the 20th April 1869. A S.E. branch cut an old level and then was driven on Sun Vein, the ground being worked from sumps and rises and in March 1871 a rise put up to day. It appears to have been abandoned soon after.

Copperthwaite Sun was a weak string worked on the S.E. of the main level. The North String met the main vein in the Main lime and this seems to have been the most productive area. Copperthwaite North Vein having a straight course north of the curviform main vein, failed to reach the Main lime at either end of the plateau but was worked from several shafts. There was a dressing floor made at the East Level mouth and five dams fed the floors with water via connecting water courses. The floors were on two levels with five bouse teams on the upper level and a flagged area below. A small level was made below the Main Level mouth to try the Main lime which dips steeply here and a trial shaft was also sunk into the Main Chert. Around the larger shafts on the main workings there are large heaps of fines so it seems that

the partnerships dressed their ore at the side of their shafts and were independent of whoever worked the Copperthwaite Level.

The Northern boundary of the field lies along the very remote Moresdale Beck about 1½ miles north of Hurst Village. Moresdale Ridge to the south of the Beck had three levels driven on it which although not very extensive encountered very interesting ground.

Porter Level (ZWX13) at 1200 ft. O.D. was driven S.W. from the south bank of Moresdale beck. It was driven for 1118 ft. in the Main lime and had two air shafts. At the far end of the level extremely faulted ground was encountered between three veins and this was worked by a 100 ft. rise and two small sumps.

On the hillside to the east of Porter Level lies a small trial called F. Morleys Level (ZWX11).

Over on the south side of Moresdale Ridge lies the Moresdale Ridge Level (ZWX12). This was begun in 1836 and abandoned in 1842. It was driven N.E. for 1056 ft. mainly in the Red Beds where again much faulted ground was encountered. Two rises were made in the veins up to day and two sumps made, one of which (Hillerys Sump) tried the 27 Fms. Grit past the faulted ground. This level is now used as a water supply for the nearby Schoolmaster Pasture Farm.

To the west of this level lies the Rendezvous Hush and Dam. Coal was won from a small level and some shafts north of Hurst around Cogdale and Roan Head on Hurst Peat Moss. This was probably used for the Cat Shaft Engine.

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HISTORY OF THE MINES

Very little documentary evidence is known at the moment but what is known is given below.

In the 1600s the mines were owned by the Marquis of Winchester (Duke of Bolton). He in turn leased part of Copperthwaite and Jingle Pot plus nearby Hind Rake to Humphrey Wharton and Philip Swale around 1679. In a letter dated 1669 Philip Swale says he spent all day dialling in Copperthwaite. This lease stipulated that all the ore won must be sold within the Manor of Marrick and dressed fit for smelting at 30/- per bing.

In 1718 the Duke of Bolton leased the mines to Samuel Mellor and Thomas Jones of Flintshire, and John Halsall and William Thomson of London. The conditions of the lease and schedule of workings to be kept open show the mines to be a large scale capital venture. One condition of the lease specified that 147 men were to be employed. There were 15 working shafts varying in depth from 13-22 Fms. with drifts and sumps going down from them in steps to depths ranging from 25½ to 37¾ Fms. All these steps ended in six water levels which drained into the Main or Old Water Level which was 500 Fms long.

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On the 11th of June 1747 the London Lead Company took the lease of the mines and the Manor of Marrick from the Duke of Bolton for 31 years which included the mill at Marrick. During this time the rebuilding of the mill took place. (see Raistrick's *Smelt Mills*). Their lease terminated in 1778.

In the *Craven Herald* July 22nd 1882 the following announcement sounded the death knell at Hurst:-

“The valuable mining plant and machinery at the Hurst Lead Mines near Richmond, has just been sold by private contract to Mr. Robert Richards, Iron Merchant, of Sunderland. The Mines are amongst the oldest in the district.”

What happened now can be imagined. Ore production at this time shot up probably because ore was being ripped out from support pillars and easily available reserves, with no thought given to future prospects or development. The ore was probably being sent to Teesdale for smelting as silver refining production is shown in the Mineral Statistics at this time. The falling price of lead and a law suit brought abandonment in 1890.

The Mineral Resources Development Board Report of 1917 refers to frequent breakdowns with machinery as a contributory factor for closure. This state of affairs is born out by Mr. Robert Hillary of Hurst whose forebears worked in or were connected with the mines for many generations. He mentions a lot of bad feeling between the miners and management who were only interested in ripping out what they could easily get. Also the miners knew of a rich area of ground but refused to tell the managers of its whereabouts. Morale was so low at the end that 200 tons of ore was left in tubs in one of the bottom levels.

PRESENT DAY REMAINS

The most outstanding features today are the two chimneys, one round and one square, which stand amongst the spoil heaps opposite Hurst Hall. They are well preserved despite the army's attempts to knock them down with cannons during the last war. The square chimney plus a well constructed dressed stone engine-bed stands on Cat Shaft, and the round chimney is probably on Browns Shaft but at the moment this is not absolutely certain. To the west of Hurst Hall is the large Grinding Mill Dam and there are traces of gin circles on various shafts. The Queens Level Dressing Floors at the crossroads have all but disappeared with only the mounting bolts and part of the waterwheel pit discernable.

Prys Level has the best preserved features; the shop is in good condition, with two bridges over the Beck (one, sadly, is being washed away) onto a nice set of bouse-teams and a waterwheel pit. The Copperthwaite Dressing Floors are in a fair condition.

There are only two levels open at the moment, one is Prys Level described in British Mining 19, and Queens Level which was explored by the Earby Mines Research Group in 1978 and is described as “extremely unstable” which really means “suicidal”, so anyone visiting the area is well recommended to steer clear of this one!

NAMES OF THE MAIN VEINS WITH DIRECTION AND THROW

BARF VEIN

Direction N85E trending to N40E.

BLINDHAM VEIN – REDSHAFT VEIN

Direction N70E turning to east-west. Throw 90ft. north.

Productive in Underset time and Chert.

CLEMINSON VEIN

Direction N70E. Throw 54 ft. to north.

Productive in Main time and Chert, Red Beds, and Crow lime and Chert.

FLANGE VEIN

Throw 0-6 ft. Productive in Main time and Chert, and Black and Red Beds lime.

GLADDING GARTH VEIN

Direction N85W.

HAWKINS STRING

Throw 12 ft. Productive in Main time and Chert, Red Beds, Ten Fathoms Grit and Crow Beds.

HURST RAKE = GOLDEN VEIN

Direction N80E to N65E. Throw 54 ft. to 30 ft.

Productive in Red Beds and Crow Beds.

MILES RAKE VEIN

Throw 72 ft. Unproductive.

MOLE VEIN

Direction N75E. Throw 6 ft. north.

Productive in Main Lime.

PETTICOAT VEIN

Direction N80W trending to N45E.

RACCA VEIN = GRINTON DAM VEIN

Direction N60W N50W. Throw 200 ft. at Racca, small throw in Grinton Dam.

Productive in Main time and Chert and Underset time and Chert.

STODART = STANDARD VEIN

Direction N75E. Small north throw.

SUN HUSH VEIN

Throw 0-12 ft.

Productive in Main Lime and Chert.

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TRENCH VEIN

Direction N70E. Throw 18 ft. north.
Productive in Red Beds.

WAGGETT = SCOTT VEIN

Direction N75E turning to east-west. Throw 30-36 ft. north.
Productive in Underset time and Chert, Main lime and Chert and Red Beds lime.

WELLINGTON VEIN

Throw 96 ft.
Productive in Main time and Chert, Underset Beds and Crow Beds.

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WOODGARTH VEIN

Directions near east to west. Throw 36-42 ft. north.
Productive in Red Beds.

WALLNOOK VEIN

Direction N70W. Throw 20 ft. reversing to 245 ft. N.E.-S.E.
Unproductive.

WALLNOOK NORTH VEIN

Direction N70-75W. Throw 160 ft, N.E.

PRYS NORTH VEIN

Direction N50E. Throw 30ft. S.E.
Productive in Underset lime and Chert.

PRYS SUN VEIN

Direction N30E.

SHAW VEIN

Directions N30W trending Eastwards to N84E. Throw 0-130 ft. north-east.
Unproductive.

JINGLE POT VEIN

Direction N74E. Small downthrow to south.
Productive in Main lime and Chert, Black and Red Beds.

JINGLE POT VEIN AND STRING

Direction N55E. Branching N80E. Throw 12ft. north.

COPPERTHWAITTE NORTH VEIN

Direction N59E. Throw 15 ft. north-west.
Productive in Main lime and Chert and Red Beds.

COPPERTHWAITE VEIN

Direction N85E. trending eastwards to N55E. Throw 24 ft. south.
Productive in Main lime and Chert, Underset lime and Chert and Crow Beds.

COPPERTHWAITE SUN VEIN

Direction N56E.

The above are main bearing veins but there were a number of associated veins and strings which were worked alongside them.

Much of the information above is the result of a questionnaire circulated to mine operators by Lonsdale Bradley in 1862 prior to the publication of his book, *An Inquiry into the Deposition of Lead Ore in the Mineral Veins of Swaledale in Yorkshire.*

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The Lead Industry of Wensleydale and Swaledale Vols. 1 & 2 by Dr. A. Raistrick. Moorland.

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North Yorkshire County Records Office Documents Ref. Nos. R/Q/R 9/36,5/4. ZAZ. ZHP.

An Inquiry into the Deposition of Lead Ore in the Mineral Veins of Swaledale in Yorkshire by C. L. Bradley 1862.

THE HURST MINING FIELD, SWALEDALE, YORKSHIRE

TABLE OF PRODUCTION, MANAGEMENT AND OWNERS.

Year	Ore Tons	Lead Tons	Silver Value ozs. (£)	Secretary	Manager	Chief Agents	Owner
1852	426	264					
1853	274	169.80					
1854	225	168					
1855	129.60	96.70					
1856	118	87					
1857	190.40	130					
1858	149.50	102					
1859	158	33.10					
1860	58.50	39		C.L. Bradley & Co.			Hurst Co.
1861	60	41		C.L. Bradley & Co.		Robt. Daykin	Hurst Co.
1862	331	221		C.L. Bradley & Co.		Robt. Daykin	Hurst Co.
1863	272	176		C.L. Bradley & Co.	Robt. Daykin		Hurst Co.
1864	272	176			Ralph Metcalfe		Hurst Co.
1865	137.20	95.90				Ralph Metcalfe	Hurst Co.
1866	465.80	197.40				Ralph Metcalfe	Hurst Co.
1867	1171	749.50				Ralph Metcalfe	Hurst Co.
1868	704.90	528.60				Ralph Metcalfe	Hurst Co.
1869	652.70	501.50				Ralph Metcalfe	Hurst Co.
1870	752.80	564.60				Ralph Metcalfe	Hurst Co.
1871	387.40	290.40				Ralph Metcalfe	Hurst Co.
1872	357.60	268.20				Ralph Metcalfe	Hurst Co.
1873	476.50	357.30				Ralph Metcalfe	Hurst Co.
1874	536.80	397			Ralph Metcalfe	John Hillary	Hurst Mining Co.
1875	351.10	263.50	789	Jas. March	Ralph Metcalfe	John Hillary	Hurst Mining Co.
1876	342.70	247	741	Jas. March	Ralph Metcalfe	John Hillary	Hurst Mining Co.
1877	407.60	307.50	875 2238.50	Jas. March	Ralph Metcalfe	John Hillary	Hurst Mining Co.
1878	241.80	180	513 2662	Jas. March	Ralph Metcalfe	John Hillary	Hurst Mining Co.
1879	200.50	150.40	450 2065.10	Jas. March	Ralph Metcalfe	John Hillary	Hurst Mining Co.
1880	55.40	42.70	120 621	H.T. Robinson	W.A. Waggett	John Hillary	Hurst Mining Co.
1881					J. Retallick		F. Cookson
1882					J. Retallick		Yorkshire LMs Co. Ltd
1883					J. Retallick		Yorkshire LMs Co. Ltd
1884					J. Retallick		Yorkshire LMs Co. Ltd
1885	200		1300		J. Retallick		Yorkshire LMs Co. Ltd
1886	798	568	5985		J. Retallick		Yorkshire LMs Co. Ltd
1887	1003				J. Retallick		Yorkshire LMs Co. Ltd
1888	925	693	6475		J. Retallick		Hurst Lead Mines Ltd.
1889	390	274	2389		Jas. Wood		Hurst Lead Mines Ltd.
1890	150	105	1189		Jas. Wood		Hurst Lead Mines Ltd.
1891	Standing				Jas. Wood		Francis Morley
1892	Standing				Jas. Wood		Francis Morley
1893	Standing				Jas. Wood		Francis Morley
1894	Standing					W.A. Waggett	Exec. of F. Morley
1895	Standing					W.A. Waggett	Exec. of F. Morley
1896	Standing					W.A. Waggett	Exec. of F. Morley
1897	Standing					W.A. Waggett	Exec. of F. Morley

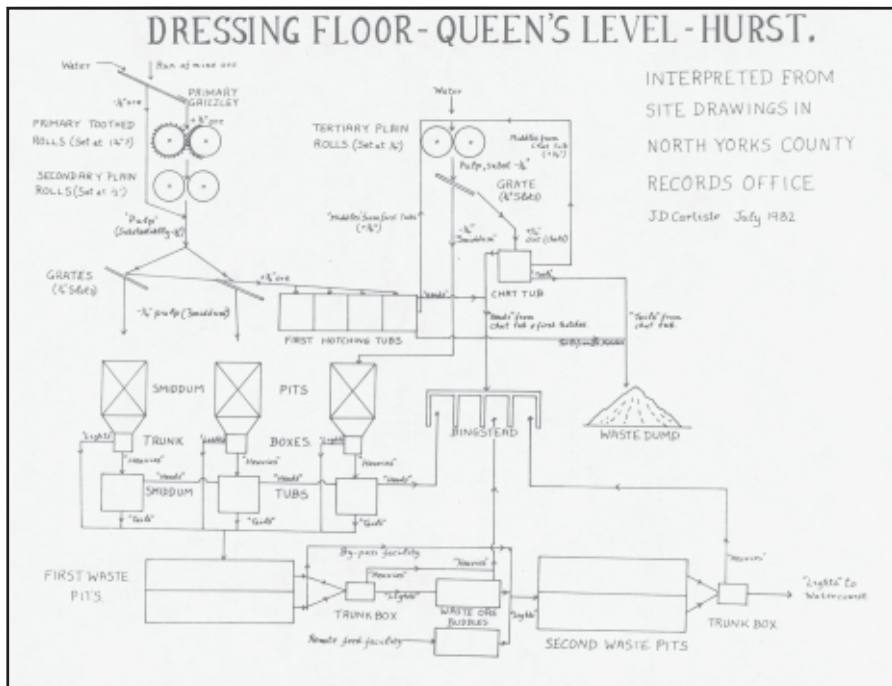
Yorkshire LM's Co. Ltd = Yorkshire Lead Mines Co. Ltd

EMPLOYMENT

Year	Underground	Surface	Total
1877	66	26	92
1878	53	25	78
1879	55	18	73
1880	21	5	26

THE HURST MINING FIELD, SWALEDALE, YORKSHIRE





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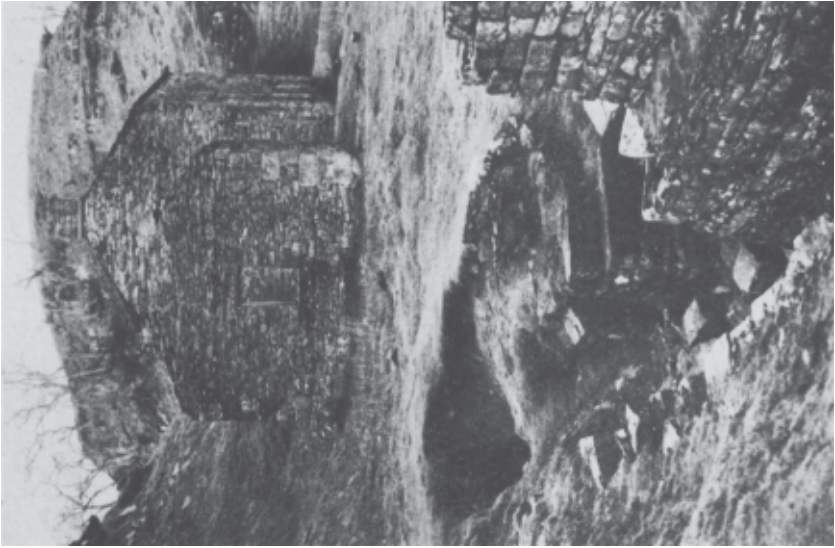


Plate II. Shop and portal of Prys Level with stonework and steps.

My long-suffering wife and son Paul who have to put up with my mining activities seven days a week. Finally perhaps the most important person, after the long dead miners whose work never fails to fascinate me and occupy all my spare time; Dick Bird without whose expertise none of this would be published.

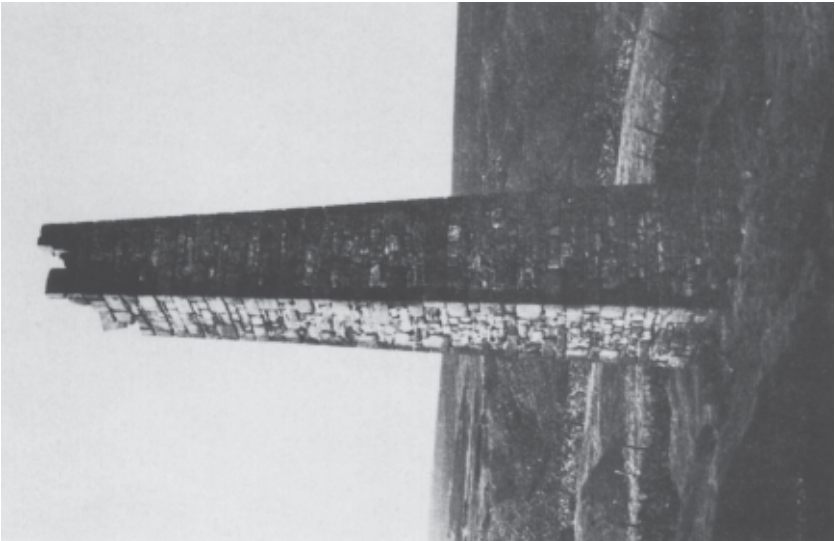


Plate I. Brown's Shaft Chimney



Plate III. Cat Shaft Chimney.



Plate IV. Bouse teams at Prys Mine.

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