A History of Lead Mining in Upper Swaledale:

For many residents and visitors alike the valley of Swaledale is a familiar sight, yet there is another Swaledale – a subterranean Swaledale that has long been forgotten or simply never seen. Underneath the rolling hills and wild moors are a labyrinth of tunnels and mine workings; many of which interconnect. For centuries men toiled away under the earth and rock, hoping to change the lives for both themselves and their families.

Mining was dangerous, unhealthy and unpredictable yet for generation after generation of men it held great appeal. The promise of great riches outweighed the hard labour, dangerous working conditions, and required endurance; not to mention the often relentless grinding poverty for both the miner and his family. These men held the belief and hope of the 'lucky strike' despite enduring long periods of hard work for no return. Mining also provided employment opportunities for small farms, where there was not enough work to sustain the number of children born into the family.

Development of the lead industry allowed colonisation of the dale and the establishment of mining communities. In the 18th & 19th centuries the Swaledale was famous as the biggest lead mining area in Britain, and Britain was the largest lead producer in the world.

A rich system of lead veins ran along the north side of Swaledale and contained many good ore shoots, as a result the area has been worked extensively for centuries. The area extends from west of Keld, where Lane End mine is located, through Beldi Hill and Swinnergill, across Gunnerside Gill and Melbecks moor, eastward across Arkengarthdale and on to Hurst.

History (inc Beldi Hill)

It is thought that the Iron Age tribes who occupied much of the North Pennines were skilled metal workers, and excavations of their dwellings have revealed items made from smelted lead. After the Roman defeat in AD 74, prisoners were taken to Hurst and Greenhow as slave labour for the mines, as was common Roman practice. Lead from Hurst was sent to Catterick and York (Roman stations) and generation after generation proudly spoke of Hurst lead being taken to roof St Peters in Rome. After the Romans there is little record of mining for centuries, although lead was certainly in demand by the Anglican settlers for coffins, pipes, tanks and buildings. After the Norman Conquest, Count Alan of Brittany created a huge local demand when he built Richmond Castle; old mines were expanded and new ones discovered, by the end of the 12th century lead production in Swaledale was sufficient to allow for export.

The second half of the sixteenth century and early seventeenth saw great prosperity and expansion. The Elizabethan period created great demand for copper and lead, and in 1564 German miners began working in the Lake District copper mines bringing with them new methods and tools. They had advanced skills and techniques and introduced water wheels, pumps and blast furnaces and other machinery. They also drove levels (horizontal tunnels) into hillsides to reach ore veins and this practice slowly spread throughout the land.

By the end of the seventeenth century Swaledale had become an area known to be rich in mineral veins and this led to a great expansion of the industry and the period of greatest activity. Mining began at greater depths with levels being driven into hillsides for great distances. Purpose built smelt mills replaced the early rudimentary bale hills (essentially hillside fires). New reservoirs were built, or small natural tarns enlarged, to meet the increased demand for water to power the water wheels needed to drive the bellows for the ore hearths, and many remain today on the moor, such as Birkdale Tarn, Summer Lodge Tarn, Satron Tarn.

After the 1715 rebellion the current Lord Wharton's estates were confiscated by the Crown and in 1721 placed in the hands of trustees for payment of his debts. In 1738 Thomas Smith bought the manors of Muker and Healaugh from the Wharton trustees for £10,500, but the mining rights on all 'wastes and commons' were reserved by the trustees. The scope of this clause was never fully clarified to the satisfaction of both parties which led to the subsequent trials.

In 1764 the Wharton estates were inherited through marriage by George Fermor, Lord Pomfret 2nd.

The Beldi Hill complex, near Crackpot Hall, was leased from Smith in 1742 by a local company – the Parkes brothers and Leonard Hartley. They developed the earlier workings, realised pumps were needed so instead drove a level (Parke's level) west from Swinnergill to drain the developing complex. At this time Lord Pomfret's company were working eastwards from Swinnergill and an agreement was made that the Parkes level would also drain out the Pomfret workings too. However after a year the Parkes Company had worked out their area and so had no further need for the level; they asked the Wharton estate for a contribution towards upkeep but they refused, so Parkes walled up their level so flooding out the Pomfret workings. A bitter quarrel ensued and in 1752 Lord Pomfret drove another level east further up Swinnergill and in 1769 built his own smelt mill higher up Swinnergill where the remains can still be seen today.

In 1767 the Parkes Company sublet ground, which they leased from Thomas Smith, to Richard Metcalfe and John Scott who soon discovered a rich vein in Crackpot Hall Out Pasture and so paid Smith & Parkes a royalty on all ore raised. However Lord Pomfret claimed that the pasture was actually part of his 'waste' land and so all royalties should be paid to him. In 1769 Lord Pomfret obtained an injunction, pending trial, which decreed that all monies earned by Metcalfe and Scott had to kept in a bank account until the outcome of the trial.

Meanwhile Pomfret's men began sinking shafts within the disputed area of land, a mere eighteen yards from where Parke's men were working, and then loudly toasted Lord Pomfret's health with brandy supplied by Pomfret's lawyer. This provocation was too much, Parke's miners attacked Pomfret's men. A six hour riot then ensued with Pomfret's men being pulled out of shafts *'by the hair of their heads, their arms and clothes'* and were then thrown into a hush gutter 27 feet deep (along with Pomfret's attorney) and Parke's men then filled the shafts in.

Pomfret's men resumed work on them a week later and Parke's men responded by flooding them. Pomfret's men then tried to flood the Parke's workings. Fights erupted when they subsequently broke through into Scott and Metcalfe's workings, threats were made to break shins and water courses were repeatedly destroyed. Miners were attacked whilst working at the ore face and pulled out of the workings by their legs. Pomfret's men even resorted to secret meetings underground to ensure they would not be overheard by any of Parke's men.

Smith owned a smelt mill over at Old Gang beck and Pomfret's men repeatedly destroyed the water supply to the mill; as soon as it was repaired, Pomfret's men destroyed it again and the smelters had to resort to taking the bellows home each day to prevent them being vandalised. Pomfret's men then seized Smith's second smelt mill at Spout Gill and £2000 worth of ore held there. Fearing Pomfret's men may also attempt to seize ore from the Beldi Hill mine site; Scott and Metcalfe moved 520 tons of lead to Crossgreen, Hartlakes and Calvert Houses farm buildings. The weight of the lead caused the cowhouse walls to burst outwards at Calvert Houses and they were never rebuilt.

Pomfret's men also destroyed Smith's corn mill at Gunnerside, by June 1771 Smith had '*not a corn or smelt mill left fit for service within his extensive royalties'* Smith's supporters were also targeted, haystacks were thrown into gills and in one case Pomfret's men relieved themselves over one belonging to Isaac Alderson.

The ongoing fighting and riotous behaviour involved hundreds of miners and resulted in criminal prosecutions at Richmond and Leyburn. Men fled into Westmoreland in the hope of escaping capture, returning at intervals to carry out more acts of vandalism.

The case was heard at York on 10th August 1770 and the jury ruled in favour of Smith. Lord Pomfret would not accept this ruling and so in 1772 took his dispute to Westminster; the case opened on Saturday 7th November at 8am and the whole day was taken up with Lord Pomfret's case and the examining of his witnesses. At 10pm Smith's counsel were finally directed to open their defence; the jury had sat for 14 hours with little refreshment and many of Smith's Swaledale witnesses were elderly and exhausted. The hearing was adjourned until the Monday and then the verdict went again to Smith.

Pomfret then appealed to the House of Lords three times in two years, with the final ruling being that the Crackpot Hall Estate fell outside the wastes of the Manor and so all mineral rights belonged to Smith. The expense of all the trials and appeals ruined Lord Pomfret, who was imprisoned in the Tower of London for debt. Sadly Thomas Smith died in January 1773, a few weeks after the verdict.

The ongoing trials had a significant impact on the people of Swaledale, who were called as witnesses and so had to take sides, which then caused friction within many families. In 1770 Old Sarah Metcalfe *'was uneasy in her mind and could not sleep having something to say very much in favour of Smith, but was afraid of hurting her son, Chris, who had made an affidavit for the opposite party'.* Edward Alderson (known as Green's Neddy) was a witness for Smith and was so upset that he tried to cut his own throat after being chastised by his children for perjuring himself and so bringing shame upon them.

The high profile trials, which became known as the Great Beldi Hill Trials, involved many local miners and people as witnesses and was a scandalous affair within the Swaledale

community. For four years it was the talk of alehouses, taverns and markets in Richmond and York, with reports and rumours even circulating in the clubs and meeting places in London.

It is thought that Lord Pomfret was probably mentally unstable, a gambler since his youth and with a fondness for duelling. As young Lord Lepster he appeared in the Old Bailey accused of murdering a British army captain whilst duelling over gambling debts. He apologised to the court, was found guilty of manslaughter and freed without punishment, so perhaps this indicates why he thought he was above the law. He continued to pick fights over the smallest of matters, resulting in him being imprisoned again in the Tower of London in 1780 after a dispute with the Duke of Grafton. On his release it was said *'he is much disordered in his mind at times, and if his friends do not take great care he will probably do more serious mischief'*

However the trials allowed a review of mine law and custom, and as a result there were clearer definitions over leases and ownership of land and mineral rights.

There were many other disputes over mining rights, in 1696 Solomon Swale and Roger Hillary disputed mineral rights to the 'wastes' in the Manor of Grinton. In 1705 Thomas, Lord Wharton 5th, in partnership with Solomon Swale, ordered his miners to sink shafts next to Reginald Marriot's workings on Grinton How. Marriot obtained protection from the courts, which Wharton ignored, his miners were served with injunctions which they also ignored, and their response was that *'they care not a fig for the injunctions!'* They dammed water races, took over the smithy and sank shafts on major veins, and even fired shoots at the men sent to serve them their injunctions. Wharton claimed the land was part of that granted to his ancestors, the case reached London and the verdict went in Marriott's favour. Solomon Swale died ruined and broken-hearted in December 1773 having spent time in prison for debt.

In the 18th Century a dispute arose over Spout Gill mine's water rights on Satron moor, resulting in a new water course having to be cut from Foss Beck on the other side of the valley. This was a huge undertaking and the miners completed this in their spare time, no doubt motivated by the promise of £10 for the first quart of water delivered, which they then promptly spent in Jenkin Gate ale house.

Methods:

The early miners worked ore veins where they were outcropped, mainly in cliffs and rocks with just a thin soil cover. Once an ore vein's direction was determined it could easily be worked by digging trenches or shafts along its expected course.

In medieval times wealthy local men formed partnerships to work areas of land, mining ground was measured in *'meers;* in Swaledale this was 30 yards along the vein with 7 ½ yards on either side, this provided enough space for sinking a shaft, building spoil heaps and

putting up a small building. Shafts were typically less than 100 feet due to the weight of the rope needed to bring the ore, men and equipment up via hand operated jack rollers.

By the 18th century deeper shafts were sunk as these were then wound by horse whims. Only a short distance could be worked either way from the shaft due to poor air quality and unsafe roofs so new shafts were regularly sunk along the ore vein which has left rows of circular 'bell pits' running along many moor tops around Swaledale.

Ore was brought to the surface in large buckets *(kibbles).* The miners had to climb up and down the shaft via wooden bars *(stemples*) driven into the shaft walls to form a ladder. This was very dangerous and resulted in frequent accidents and fatalities due to miners losing their footing on the stemples.

Another early form of mining was *'hushing'* which was used for both prospecting and working veins on hillsides. This involved collecting and releasing great volumes of water that would tear down the hillside, washing away all top and sub soil so exposing the underlying rock and ore veins. Complex water systems were cut into the moor to collect water into reservoirs which were dammed with stones and turf, and located above the area to be hushed. Once the water had been released, the newly-exposed rock face was worked and then hushed again to wash away all the remaining loose debris. A metal grate was installed at the bottom of the hush and the heavier lead ore fell through into this. This method was very destructive and has left a striking landscape in both the deep ravines in the side of the gills and the high content of stones that washed down into the becks and eventually the river Swale. Hushing also polluted the water with poisonous minerals and lead being washed down stream. Gunnerside Gill and the Hungry Hushes in Arkengarthdale are striking examples, along with the Old Field Hush which was the site of the earliest mining at Beldi Hill and was worked for hundreds of years.

Huge amounts of labour and effort was employed in ensuring a constant water supply, which was needed both for hushing hill sides and the preparation (dressing) of the ore for smelting. Water course systems were cut into the surrounding moor tops and hills to collect all available water; many evolving into elaborate water systems which became the subject of sabotage, quarrel and dispute as the mines grew in size and profitability.

As Swaledale has many steep sided gills and valleys, horizontal tunnels or *'levels'* were cut into hillsides. These allowed access to ore at greater depths and also provided a means of draining mine workings of water as they were usually driven at a slight incline so water could naturally run out. The incline also made it easier to pull the heavy laden waggons downwards out of the workings. Levels were driven after the formation of the larger mining companies as they required significant capital investment and did not always yield a high return.

The ore veins collected a large amount of water from the many fissures in the surrounding rocks, and the early miners had no other means of draining the water from their works than drawing it out by 'kibble' (a wooden bucket). Tales were told of miners starting their day drawing out water for six hours to allow them to work the mine for the remaining two or three hours of a shift, and the same procedure would have to be completed each day. It is not surprising that the 15th and 16th century miners abandoned many of their mines due to constant battles with water levels.

Miners of Keld had increasing struggles with water, as they were forced to go deeper to find ore. Even with two engines pumping out the workings, the mines west of Keld had to eventually close due to water levels. Miners then walked from Keld to Hurst (15 miles) to work there, lodging in the village and returning home during the weekend.

Men who had a little capital formed smaller 'partnerships' and began working mines all over the mining field of Swaledale. These local small partnerships prospected for ore through embarking on *'trials'* with the consent of the owner of the mineral rights, who would then receive a royalty varying generally from ¼ to 1/8th of the produce of the mine. An area of promising ground would be selected by the miners and a permit obtained from the Lord of the Manor or his agent. These local partnerships were too small to warrant their own smelt mill so they would sell ore to the larger mine companies or groups, such as Lord Pomfret's. Each partnership would have their own individual storage bay (bouse team) at the mine site so the mine agent could keep an accurate record of what amount each partnership produced

A mining partnerships was usually between 4 – 8 men, they made a bargain with the mine agent to work part of a vein for a certain price for every bing (8 hundredweight) of ore raised. The price would depend of the estimated difficulty of getting the ore or how productive the area proved to be. E.g. if there was little or no ore, they may be paid 50 - 60 shillings per bing, if ore was abundant then would they might only be paid 6-10 shillings. So if miners hit a rich vein, they would then keep this from the agent and only produce modest amounts of ore so as not to raise suspicion, but equally they might not hit any ore and work for months for nothing.

Lord Pomfret made changes to how miners were paid. The custom of working mines for 'bing tale' provided opportunity for agents, who were often local men, to treat family and friends more favourably. Bing tale was the price paid to miners for the dressed ore before smelting. Agents may pay for partly dressed ore (i.e. still mixed with dirt) from friends and family, while they would make other miners fully dress their ore (sort from dirt and deads) before paying.

In 1773 Lord Pomfret wrote '*The only way to have a just account and to make a full profit of the estates of Swaledale is not to employ anyone as steward who is a Yorkshireman and particularly of that neighbourhood. If let to any of their friends and relations they will pay for the ore when but half drest or mixed with dirt. Whilst they will compel others to whom they owe no good will to sift out all the dross'.*

The bargaining system was a huge gamble and often resulted in miners being secretive if they suddenly struck it rich. 'Captain' Jammy Harker was working the Windeggs mines in Arkengarthdale when he discovered an enormous flot of ore, his 'bargain' or contract had only a short time left to run, so he stayed at the mine for four months to protect his find. During this time he did not return home, had his food brought up to him and extracted as much ore as he possibly could.

Miners were often robbed of their ore by fellow miners, and would go to drastic lengths to protect it. John Hardy wrote of men at the Kinning Mine, above Winterings, setting a man trap to catch a man they suspected of theft. When they returned the following morning the man in question had been caught in the trap and had died through the horrible injuries it caused.

When the larger mining companies, like the London Lead Company, began operating mine leases often had certain clauses included to preserve the long-term development of the mine and to guarantee work for local miners. This was to ensure that lessee's did not simply clean out all accessible ore towards the end of their term, as a mine left in such a state would be hard to let again on good terms. So work such as driving new levels, sinking shafts or constructing buildings would typically be stipulated.

For example: The 1828 Old Gang lease was offered with the following conditions; 74 men to be kept in work driving 12 horse levels and 350 ore men were also to be employed.

The 1825 lease for Lane End mine stated that an engine had to be installed for pumping all the mines to the west and fifty men were to be employed throughout the term of the lease.

Occasionally a partnership would strike lucky, four miners from Muker made £400 in eight weeks, a considerable sum of money in the 1850's. Bradley Stonesdale raised £120,000 worth of ore from 1847 - 1849 at West Stonesdale. Some mines were very profitable, it was said that £40,000 of ore was raised from one single shaft in Spout Gill in one year, so justifying the expense of building of the smelt mill at the top of the gill. No date is recorded but if this was around 1750 when the mine was in peak production then this was a huge amount of money.

Working Conditions

A miner's typical working pattern was six hour shifts, 'Pickmen' extracted the ore and were paid by the bing (8 hundredweight of dressed ore), the price of which varied due to market price and estimated difficulty in extracting, ranging from five to sixty shillings per bing.

Due to the remote location of the mines, many men had to walk over 3 miles to work, over wild fells and moors in the harshest climates. They may then have another 2 mile walk underground to get to the ore face, often still in their wet clothes. Many would knit as they walked to and from the mine, for some the distance was too great so they would lodge at a nearby farm or at the mine's lodging shop although many of these lodgings were considered to be more detrimental to health than working in the actual mines.

In the 1842 Children's Employment Commission William Eddy stated in his evidence:

"Our lodging rooms were such as not fit for a swine to live in. In one house there were 16 bedsteads in the room upstairs and 50 occupied those beds at the same time. Often three at a time in the bed and one at the foot. I have several times had to get out of bed and sit up all

night, to make room for my little brothers, who were there as washers. There was not a single flag or board on the lower floor, and there were pools of water 12 inches deep. You might have taken a colrake and raked off the dirt and potato peelings six inches deep. At one time we had not a single coal. The breathing at night when all were in bed was dreadful. The workmen received more harm from the sleeping places than from the work"

At the forehead, 6ft high by 4 ft wide, only two men could work at any time, the poor air quality made even worse by gun powder or dynamite blasting in such a confined space. Pickmen working piece-rate were under pressure to obtain as much ore as possible and so could not afford to wait for the air to clear before returning to the area and continuing to work. The impact on their health was often fatal.

There was little regard for health and safety, it was 'just one of those things' if someone was killed or injured. The effects could be devastating; in 1831 in Arkengarthdale there were 30 widows under the age of thirty whose husbands had been miners. On one particular day miners had been driving a vein and blasted into an underground lake, 24 miners were killed and two pit ponies washed out of the level. Eighteen of the miners came from the hamlet of Booze, which must have had a devastating impact on the families there. An entire generation of wage earners gone. This story was told to John Hardy by the late Fremmie Hutchinson.

Other accidents included:

A miner from Lane End mine had been out poaching on the moor at night and was chased, he thought he could escape and hide by jumping into the cage he assumed would be at the top of the Lane End shaft as it was always left at the surface. For some reason it was not at the top of the shaft, so he fell to the bottom and was killed. If anyone has ever looked down into that shaft, you can only imagine his last thoughts

James Clarkson – Beldi Hill mine – died smothered

William Ellet worked at Little Moor Mine, near Hoggarths. He jumped from edge of shaft to catch the rope in the centre, missed it and dropped to bottom of shaft. He was bedridden for two weeks.

Anthony Cottingham worked at the Sir Francis mine. He tried to unfreeze some dynamite in hot water and it exploded.

George Taylor, a wagoner at Keldside mine, fell into a shaft with a wagon. He was 27 years old and was killed instantly. Coroner's inquest at the Cathole Inn declared a verdict of 'Involuntary Death'.

My great, great, great Grandfather, Thomas Metcalfe, was the engine man at Lane End mine. In 1850, he was reaching over to grease the engine when his arm got caught. He had to have his hand, and then his arm amputated and eventually had a hook fitted. He was only thirty years old, continued to work at the mine and then took over Hill Top quarry near Birkdale Tarn.

It was not until 1872 that Act was passed requiring mine managers to receive training in health & safety matters, by that time the industry was in decline.

Health

Life expectancy for lead miners was around 45 – 50 years. For smelters who worked closely at the ore hearths, standing over and breathing in the poisonous sulphur dioxide fumes daily, it was even less.

Working conditions did not support good health; poor air quality often made worse by dust from explosives. Ventilation was poor, levels in hillsides or from the bottom of shafts did not allow any fresh air to flow through. Although mechanical methods were used to circulate air through the main levels, many ore face workings held stagnant dead air which combined with the miner's heavy breathing, burning of candles and explosive fumes had a devastating effect on health.

Lung damage caused by working in dust laden confined spaces included emphysema and silicosis and resulted in miners being susceptible to tuberculosis which was a common cause of death for miners in Swaledale.

Water was the constant nemesis. Miners had long treks to reach the remote mines, often arriving in rain sodden clothes. Not all mines had 'mine shops' which allowed miners to change and dry clothes, so they would have to work in their wet clothes, or walk home in them after their shift. Many mines had water constantly dripping from the roof and running along the level floors, deeper level workings were constantly prone to flooding. In mines which did not have the capital to install pumps, miners could spend their entire shift standing in water. Many miners suffered from the effects of lead poisoning – violent headaches, feeling faint, excessive tiredness, violent vomiting, poor appetite and bowel problems. Adding all these factors together; the wet working conditions, foul air and the long walk to and from work it is not surprising that miners died at an early age.

Woman and Children

Dressing the ore to prepare it for smelting was often carried out by women and children; this included washing the ore, crushing it on knock stones with *buckers* and separating ore from the waste rock *gangue.* Until the introduction of water-powered crushers all of this work had to be done manually. Boys would leave school at ten years of age; as they did not have the strength or experience to work at the ore face they would take on menial and repetitive tasks. These could include blowing air into poor ventilated areas by using a Windy King machine, holding the candles so the men could see to work, loading hopper tubs with mined ore and then taking them out of the mines to the dressing floor. Early mining practices included children as young as ten years dragging ore along in buckets strapped to them via a harness. Children and women would work on the dressing floor in rain, sleet and snow, working 10 hour shifts. Boys of ten or eleven years would earn six to eight pence per day and be placed under the supervision of 'master washmen' who were often cruel and

worked them hard. Women working the floors in Arkengarthdale were provided with strong woollen petticoats and earned a shilling a day.

The last occupant of Level House was Splitmate Meg, she was apparently a big rough woman who worked at the Old Gang dressing floor. She lived alone with a big black dog with whom many a passer-by could hear her having very 'lively' conversations with.

Life of a Miner

People of Swaledale struggled for survival in the most hostile of environments. Homes were very basic and overcrowded; a Marske miner lived in a small cottage with seventeen children and still made room for five mining lodgers as he needed 'to keep the wolf from the door'. Small cottages were thatched with ling, 18th & early 19th century lighting was rushes dipped in tallow, tallow candles followed, then oil lamps in 1880's. Cottages with stone floors were cold, damp and smoky, but people were hardened to this way of life. Porridge, broth and oat cake formed the basic 18th century diet. Water was from the village pump.

As miners were paid via the bargain system, this could result in men working for months and receiving nothing for their labour if they did not find ore. The only family income could be a pittance from wives and children knitting, taking in lodgers or washing and other casual labour. Many miners also kept a smallholding so they could grow vegetables, keep a cow, pig or some sheep for cheese, butter and meat. Mining families would run up credit with local suppliers or at the company mine shop, which was then deducted on pay day when it finally arrived.

Miners would take on other employment and work in an effort to keep their families from the poorhouse. After a shift in the mine, miners would go walling for a rate of 1 or 2 shillings per day. A decision in 1831 by the Muker Parish Vestry also cannot have helped the plight of some mining families. It was decided that paupers would be denied a pension if they possessed any 'luxury' possessions; this resulted in clocks, cupboards, tables, frying pans and even bibles being confiscated and sold at public auction and must have caused outrage amongst families that treasured these precious items.

For many they had no option but to seek help. In 1847 a Poor Law Inspector found that the Guardians of Reeth Workhouse had been providing loans for destitute miners which was against the rules, as relief was only to be given to those actually living in the workhouse. If life was hard for able bodied miners, it was even worse for older men.

On 30th December 1863 a letter of concern was sent to the Poor Law Board highlighting the lack of support for a pauper, Thomas Simpson. The letter stated *"He is sleeping on the boards of his wretched home with only a few rags to cover him. His relief is now 2s, it was 1s 6d and no clothing allowance. He had salted and pickled a pig, which had died of disease and such was his hunger that this was a great prize to him. He has such a fear and dread of the workhouse that he refuses to go in it. He says he would rather die than go into the*

workhouse. He is now 69 years of age and unable to labour. He was a miner and is of good character. He has been very poorly recently and his neighbours have expressed a fear that he will be found dead"

The Board responded by giving Mr Simpson a blanket and a pair of clogs. Within weeks he had entered the workhouse and died there. An investigation was demanded, stating that Mr Simpson *" had been left to sink gradually . . in a hovel not fit for a dog, the decision to not allow him sufficient relief has brought him prematurely to his grave'.* The Guardians dismissed this claim and stated that Mr Simpson *'was a man of dirty habits which made him reluctant to submit to the discipline of the workhouse'.* Nothing more was heard of the case. *(Alan Mills: Mining & Miners in Swaledale & Arkengarthdale 2011)*

Childhood illnesses – measles, chicken pox, whooping cough and mumps were all potential killers. Miners inhaled silicon particles which made them vulnerable to tuberculosis which could kill within ten – fifteen years. Sadly living in such cramped conditions, the coughing adults unknowingly infected their children with Tuberculosis Meningitis which led to lifelessness, loss of weight, headaches, convulsions and death. Harsh winters in conjunction with these illnesses caused death rates to significantly increase. Jonathan Bell of Brocca Bank lost his wife and ten of his children between 1786 – 1804, three of them dying in the same week in September 1788. Regardless of how tough these people were, one cannot imagine how this impacted on the families left behind.

Many people could not afford doctor's fees and used local remedies. In the 1800's to treat an ill child could cost the equivalent of a miner's wage for a whole month. The local doctor was also the dentist, but a cheaper alternative was the blacksmith's shop.

The women behind the miners also had a hard life, maintaining a home, farming work, looking after the children, repeated pregnancies, worrying if their husband would spend their wages in the alehouse, bearing the brunt and possible violence when demanding where the next penny was coming from. It is hard to imagine sitting in a dark, draughty, dismal hovel, hardly any coal for the fire, no food for you or your starving, crying children, waiting for your weary husband to come through the door and witness him sadly shake his head to indicate that still no ore had been found. And this could be repeated day after day, month after month. Women held the family together, often in appalling circumstances and they played a vital role in the mining community. Many working on the dressing floor, hard manual work, and widows had no choice.

The community was very close knit, many would never venture outside of the dale. Families would look out for and help each other in hard times, regardless of how little they had themselves.

Miners were rough and ready, lawlessness, swearing and drunkenness were common, bare fist fights were a great source of entertainment. Over a 25 year period from 1820 Muker Parish Register records that 88 men died aged between 21 – 30 years, and the village stocks on Reeth Green were seldom empty.

Education was important in Swaledale. In the early 19th Century in Angram there was Mrs Cope's Charity School of girls, a separate school for boys and for adults, the Cobbler's Evening School where pupils paid to attend, there were no books and the teacher chalked the lessons onto the stone floor.

Religion:

The Methodist church allowed people, despite their misery and poverty, to have hope and dignity. Attendance could be two or three times on a Sunday regardless of how far the walk was.

In the early 19th century, Mrs William Coates of Gunnerside had 13 children and despite a meagre diet, went without sugar and butter so she could put pennies into the chapel collection box. Her husband was a strict Sabbatarian and refused to ride his horses to get to his preaching appointments, believing horses too needed to rest on Sundays; so he walked to Keld, Hurst, and Seal Houses in Arkengarthdale, often returning home soaked to the skin or frozen to the marrow' (Hardy: 1998)

In 1934 the cost to build Muker Chapel was kept under £96 as all the local men and miners gave their time for free. In 1815 Hurst chapel was built for £250 and the debt was not repaid until 1893. It was a place to meet friends and family, to have hope and be able to forget life's hardships for a few hours.

Decline

The nineteenth century was a time when a few large partnerships of local people worked large areas of the dale. A depression from 1829 resulted in many small mines having to close. Larger companies were able to survive through having sufficient capital, cutting men's wages and setting miners to carry out maintenance work on roads, extending or walling levels.

Miners were always at the mercy of market demand and prices, in 1830 when there was a slump Edward Broderick, of Spring End, set up a building project to replace the wooden bridge at Silk Wood outside Gunnerside in an attempt to provide work for the miners and keep the community together. The 1830 slump coincided with poor harvests and a severe outbreak of sheep rot. This was devastating for mining families.

Between 1816 -20 exports of lead from British mines averaged 18,000 tons per year (a third of total production), however from 1829 -33 this fell to 10,000 tons per annum due to increased Spanish production, a reduction on the import duty of lead and a general downturn in industries that used lead.

From the mid 1830's the main mines were being run profitably by local investors; the Jacques of Easby, Tomlin of Richmond and Knowles of Low Row. These men had the

advantage over the larger companies of having generations of knowledge about the Swaledale mining field which had been passed down from father to son.

Although the industry did pick up again, by 1863 Sir George Denys declared the Surrender Mines' exhausted' but his decision to drive the Sir Francis level in Gunnerside Gill in 1864 restored some hope amongst the remaining mining community. A depression in the 1880's caused many mines to close, either due to the ore being exhausted or the high cost of having to drain out workings rendering them unprofitable. Also by this time Britain was importing twice as much lead as it was producing, and so dropped from being the world's major producer in the 1820's to fourth in the global league table.

Between 1885 and 1894 output from Swaledale mines fell by 82% from 1,622 tons to 291 tons. Added to this the price of lead collapsed to £10 per ton in 1893, a huge difference to the early 1860's price of £22 per ton.

By 1887 miners were having to leave the A.D. Company as they and their families were approaching starvation.

Some miners had their small holding to help them survive and make a basic living, and some made a success of farming but many had no option but to uproot their family and seek work in the Durham coalfields, Lancashire textiles mills or set sail for America where many Swaledale folk established mining communities. They would only have bedding, sacks of Havercake, cheese and butter for the long journey. On arrival they settled in the Midwest joining those who had made the journey in the 1830's , some prospered and even established their own mines in this new world.

One can only imagine how heartbreaking it must have been, to sell off the few meagre belongings they had, say goodbye to their friends, family and community, knowing they would never see them again. In the early 1830's Tom Reynoldson left Gunnerside to travel to Nelson, to seek work in the cotton mills. He apparently 'got as far as Satron, looked back at Gunnerside with longing and wept as he saw the small stone built village nestling under the hills'.

Chert mining began in Swaledale in 1904 and many ex-lead miners moved onto this, using the old ways of working. A productive mine was based on Fremington Edge and it was the last mine in Swaledale, closing in 1954.

The impact on Swaledale was immense; between the censuses of 1871 and 1891 Swaledale lost nearly half its population in 20 years, In 1851 Melbecks had a population count of 1,661 by 1898 it had reduced to 300, and in the school year of 1881/2 more than half of Reeth School pupils left the dale.

In 1821 lead mining provided work for around 2000 people in Swaledale (67% of the total population), by 1881 just 2.8% of the population were still employed in lead mining. Hillside cottages and smallholdings were abandoned, entire hamlets deserted. It is hard to believe that in 1851 there were 41 houses in Booze in Arkengarthdale and 66 houses in Hurst.

Summary

Many miners did not want the same life for their children. James Harker gave his son some sound career advice *" Whatever thu dus, keep sky for thee roof".* Yet for others they found great pride, hope and excitement in their work.

Once these hills and moorlands pulsed with the intense activity of lead mining, the footpaths that walkers enjoy today once carried the hopes and dreams of weary miners to their dark places of work. Perhaps it is fitting to end with the words of John Hardy; writing of his final visit to the engine room in the Sir Francis workings in 1981 he wrote:

' I reflected on what would have been happening in this place 100 years earlier. It was here that the men gave their all to make the mine a success, and the place would have been a hive of activity with the sound of muffled explosions and the rumble of the ore laden tubs on their way down to the dressing floor. . . . This place was full of heroes long forgotten, and surely never had such a level of activity been recorded in a Swaledale mine. Now the engines . . . lay entombed and silent. A flame that had once burned so brightly in Swaledale had long since been extinguished. We took one last lingering look around the now desolate place and gladly retreated.'

Helen Guy

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