

SESSION 7 - THE COAL INDUSTRY

1) OWNERSHIP

MAP OF NORTH EAST COAL FIELD

Coal, iron, lead and other minerals, including small quantities of silver, have been mined in the North East since Roman times.

The first shipment of coal by sea from Sunderland was recorded in 1395 and from the Middle Ages the coal industry became increasingly important to the prosperity of the region.

By the early 19th century almost all of London's household coal came by sea from collieries on the banks of the Tyne and the Wear.

The landowner held the right to extract minerals from beneath his land, or manor. Throughout most of our period, the greatest owners of coal manors in Northumbria were the Bishop and the Priory of Durham (later the Dean and Chapter of the Cathedral).

Along with many other landowners, the Bishop and Priory preferred to lease the extraction rights to individuals or companies in return for rent and royalties, rather than undertake the mining themselves. Landowners also gained revenue from granting wayleave to extractors allowing them to transport the coal across their land.

Some old landowning families, such as the Lambtons (*the Earl of Durham*), Vane Tempest (*Marquis of Londonderry*), Bowes (*Earl of Strathmore*) and the Delavals *did* mine their own coals.

In the mid-18th century, the collieries on Tyneside were dominated by an association of coal-owning families, including the Bowes, Liddells, Ords and Montagues, who joined together to overcome wayleave difficulties and became known as "The Grand Allies".

In addition to their own coal manors, the Allies created a local monopoly by taking on expensive long leases for neighbouring manors. However, they lost their dominant position as pits became exhausted and competition from other parts of the Tyneside coalfield grew.

By the 1830s, only a handful of coal royalty owners were still mining their own coal. Technology had advanced and deep mining required huge financial investment beyond the means of most landowners. John Lyons of Hetton bankrupted himself attempting to cut through the magnesian limestone cap to exploit the vast reserves beneath the East Durham plateau.

Partnerships and companies involving local landowners, urban businessmen and London speculators, were being formed to raise the necessary capital.

The South Durham coalfield was dominated by Quakers, such as the Pease family, who had extensive banking, commercial and industrial interests in the area.

By the mid-1840s Londonderry and Lambton were almost the only aristocratic coal-owners left in the region, though most of their wealth came from mines leased from the Dean and Chapter of Durham. By that time, companies such as John Bowes & Partners, Pease & Partners, Robson & Jackson, and William Carr & Co had overtaken them in size of operation.

The dramatic change in ownership and the industrial scale of mining resulted from the great advances in technology during the 18th and 19th centuries that had created demand for coal and had also allowed the physical expansion of the coal industry.

2) THE NORTH EAST COALFIELD

The North East Coalfield slopes from west to east. In West Durham, for instance, coal seams can be found exposed at ground level, while at Chester-le-Street the most productive seam lies at about 500 feet and at Wearmouth on the coast the seams are at least 1,700 feet below the surface.

The quality and type of coal varies greatly within the region as well.

Collieries in north-west Durham produced hard coking coal, the Newcastle, Team Valley and East Durham pits worked soft coal for household use, in the lower Tyne area it was gas coal and Ashington mined steam coal.

Pits in north Northumberland, like Whittle Colliery at Shilbottle, produced particularly high quality household coal that was even supplied to Buckingham Palace. Whittle had re-opened in 1967 under private ownership and closed in 1996.

The appearance of new markets for these different types of coal resulted in further expansion of the industry in the region until by 1900 the pits of Northumberland and Durham were producing almost 25% of the nation's output.

From its earliest days until the end of the 19th century, the expansion of the North East coal industry took three forms:

- VERTICAL EXPANSION
- LATERAL EXPANSION
- EXPANSION OF MARKETS

3) VERTICAL EXPANSION

Land Sale versus Sea Coal Mines

Vertical expansion means, of course, the sinking of ever-deeper shafts and exploiting of lower seams of coal.

In the western uplands, seams close to the surface could be exploited by bell-pits or drift mines. These "land sale" mines were very small, employing only a handful of men, often only for a few months at a time to augment their main employment in agriculture.

The coal was brought to the surface by horse-powered "whim-gins", which had ropes passing over pulleys fixed over the pit mouth then wound round a large drum revolving horizontally some distance away.

SEE ILLUSTRATION OF WHIM-GIN

It was not worthwhile to transport their low-quality small coals over long distances to the navigable rivers, so they only supplied local demand, as the name "land sale" implies.

Until the early 19th century, the London coal trade was supplied almost entirely by sea from Tyneside and Wearside collieries. The mines were located close to the mouth of the Tyne and the Wear, so that the coals could be transported in bulk quite easily by river and then down the coast by sea – hence they were called "sea coal" mines. They were three to ten times bigger than land-sale mines, usually consisting of three or more pits, and they were much more expensive to operate.

Because they were situated close to the navigable lower part of the Tyne, these mines were prone to flooding.

Also, the closer the mine was to the coast, the deeper the coal seams lay beneath the surface.

Threats of Exhaustion

By about 1690 the upper coal-seams of the collieries on the Tyne and Wear were becoming exhausted and the lucrative London trade seemed doomed.

SEE ILLUSTRATION OF A NEWCOMEN “WHIMSY”

Help came in the nick of time in the form of Newcomen's steam pump that allowed deeper pits to be kept from flooding.

Steam pumping engines spread to the North East from the Cornish tin mines to give a new lease of life to the pits on the Tyne and the Wear.

The first in the region was installed before 1714 at Oxclose Colliery near Chester-le-Street. These engines, known as “whimsys”, allowed deeper seams to be kept drained and ventilated. By the 1750s, steam engines were also being used to raise coals from the pit shafts.

A Second Exhaustion Crisis was threatened by 1770, but technology again came to the rescue.

The work of engineers like Bolton and Watt enabled improved steam engines to tackle the water-level in the lower seams, and helped overcome other technical problems too.

These more efficient pumps, together with the use of cast-iron "tubbing", allowed shafts to be sunk through wetter ground near the mouth of the Tyne, around Wallsend.

SEE ILLUSTRATION OF VENTILATION SHAFT

Artificial ventilation for these deeper pits was provided by the introduction of fire furnaces that created a draught of hot air that passed up the ventilation shaft and created a circulation of air through the workings.

Fatfield Colliery near Chester-le-Street was the first to have a fire-furnace installed in 1832.

19th Century Advances

North East sea-coal mines were worked by a method known as pillar and stall, which left pillars of coal standing to support the roof in the pit workings.

With reserves running low, mine owners wanted to exploit every part of their collieries.

However, robbing the coal pillars resulted in creeping pockets of gas in the old workings. The problem was partly overcome by a combination of the improved steam pumps, fire-furnaces, air-tubes and directing the air through the workings by means of brattices, a system known as coursing.

Explosions were still common in the gassy or "fiery" pits. The Felling Colliery Explosion of 1812 caused the deaths of 92 men and boys and led to demands for the development of a miners' safety lamp.

IMAGE – DAVY LAMP AND GEORDIE LAMP

In 1815 George Stephenson, the engine-wright at Killingworth Colliery, demonstrated his safety lamp to the Literary and Philosophical Society (Lit & Phil) of Newcastle upon Tyne in December 1815.

Sir Humphry Davy was working on a different design of safety lamp and this was first used at Hebburn Colliery in January 1816.

The Davy lamp and Stephenson “Geordie” lamp made working in "fiery" pits very much safer and improved versions continued in use into the 20th century.

The Magnesian Limestone Cap

The last great obstacle to vertical expansion was the hard cap of Magnesian Limestone that overlays the coal seams in East Durham.

Not until 1822 had shaft-sinking techniques improved sufficiently to penetrate the cap and open up the large coal reserves beneath the East Durham Plateau.

IMAGE – HETTON COLLIERY 1822

Technological advances in shaft-sinking, pumping, ventilating and safety measures had made **vertical** expansion possible, but **lateral** expansion was still restricted by the ability to transport coal cheaply over long distances.

4) LATERAL EXPANSION

Waggonways

Coal could be profitably carried only short distances from a colliery to a navigable river, using horse-drawn wagons.

The first wooden-railed waggonways were probably built in about 1608, in the Bedlington area.

IMAGE OF WYLAM WAGGONWAY

The introduction of iron rails in the 1760s improved the efficiency and cost of transporting coals across relatively flat terrain and by the late-18th century a network of waggonways had grown to link mines with riverside staithes up to 8 or 10 miles away.

IMAGE OF WAGGONWAY TO STAITHES

At the staithes, the coal was loaded onto flat-bottomed barges or "keels" to be floated downstream to the large collier brigs lying at the river mouth.

IMAGE OF STAITHES AND KEEL BOATS

Transport over hilly ground was a much more difficult and expensive enterprise, which effectively ruled out the profitable exploitation of inland coalfields.

IMAGE OF CHAULDRON ON INCLINE

The problem was partly overcome by the introduction of self-acting, or gravity inclines. The first was built at Benwell in 1797.

In 1805, the first stationary steam engine was employed to haul wagons up an incline from the Team Valley at Birtley to the high ground at Black Fell, from where horses could be used on the flat sections.

Mixed systems like this allowed remoter mines to be connected to the network of waggonways.

The Steam Locomotive

The development of the steam locomotive provided the next great advance in the lateral expansion of the coal industry.

The real home of the steam locomotive was the village of Wylam where, in 1813, William Hedley constructed a steam engine that replaced horses for hauling coal-waggons from the mine to the River Tyne.

PHOTO – PUFFING BILLY IN 1862

Hedley's "Puffing Billy" locomotive, built in 1816, was still working when this photograph was taken in 1862

George Stephenson was born in Wylam and worked with his father, who was engine-man at the local colliery. George became engine-wright at Killingworth Colliery and built his first locomotive there in 1814.

IMAGE – BRUNTON STEAM HORSE "TRAVELLER"

Though able to do the work of a number of horses over short distances on the flat, those early engines did not have the power or traction to negotiate steep gradients.

Several engineers attempted to improve the performance and pulling capacity of these locomotives.

In July 1815, a demonstration of an experimental engine designed by the Derbyshire engineer William Brunton went disastrously wrong when the wrought-iron boiler exploded killing 13 onlookers and injuring many more.

A melancholy accident happened at Messrs. Nesham and Co.'s colliery, at Newbottle, in the county of Durham. The proprietors had provided a powerful steam engine, called the iron-horse, for the purpose of drawing ten or twelve coal wagons to the staith at one time; and this being the day on which it was to be put in motion. A great number of persons belonging to the colliery had collected to see it; but unfortunately, just as it was going off, the boiler of the machine burst. The engineman was dashed to pieces, and his mangled remains blown 114 yards; the top of the boiler (nine feet square, weight 10 cwt) was blown 100 yards; and the two cylinders 90 yards. A little boy was also thrown to a great distance. By this accident fifty-seven persons were killed and wounded, of whom eleven were dead on the following Sunday night.

Another Wylam man, Timothy Hackworth, improved the design of locomotives and track sufficiently to allow steam engines to completely replace horsepower on the colliery waggonways.

In 1822, Hetton Colliery was the first to operate a railway built to be worked entirely by steam locomotives and stationary steam engines.

Even then, self-acting inclines and stationary engines continued to operate on some lines until well into the 20th century. The Bowes Railway was designed by George Stephenson in 1826 to link Springwell Colliery in North West Durham with the staithes at Jarrow. Parts of the line continued to operate until 1974. A section of the Bowes Railway has been preserved as the only working example of a standard gauge cable railway in the world.

MAP – BOWES RAILWAY

MAP – BOWES RAILWAY PHOTO, GATESHEAD

TABLE – Cost of Coal Haulage 1815

The use of steam locomotives dramatically reduced the cost of land carriage of coal.

MAP – STOCKTON & DARLINGTON RAILWAY, 1827 (route of present line shown in red)

The Stockton and Darlington Railway opened up the south-west Durham coalfield around Auckland from 1825, and its success led to the investment of massive amounts of capital in railways built in the main to carry coal and iron from the mines to the industrial works or to coastal harbours.

The remotest coal-producing districts, such as Consett and Stanhope were now able to reach their market at reasonable cost.

REGULATION OF THE VEND

With each major advance in vertical or lateral expansion, increased production resulted in a consequent fall in coal prices.

As the cost of sinking and operating deep mines grew, so the colliery owners wanted to maintain the price of coal, which inevitably meant controlling the amount of coal produced.

In the mid-18th century, The Grand Allies attempted to monopolise the collieries on the Tyne but, by the 1770s, there were other major players in the London sea coal trade and in 1771 a coal-owners' cartel was set up, called the Regulation of the Vend.

The aim of the Vend was to maintain prices and profits by limiting output.

Regular meetings were held between representatives of the collieries on the Tyne and the Wear, and the Tees after 1834, to divide the projected volume of sales between the rivers. The representatives on each river then distributed the Vend among individual collieries and fortnightly meetings were held to determine the actual tonnage to be sold by each colliery, based on the current prices and sales in London.

Differences of scale among the various coal-owning companies posed a serious problem. Generally speaking, the Wear collieries were of larger capacity, with deeper seams but greater production costs than those on the Tyne.

At times the Vend collapsed, resulting in periods of free competition. Sometimes this free-for-all brought prices in London below the actual production costs. Great coal-owners like the Marquis of Londonderry could afford to force down prices to bring competitors into line.

The Regulation system was only really effective when it was working in the interests of all the coal owners and the Vend finally collapsed in 1844, by which time the London sea coal trade represented only about 10% of the market for North East coal.

5) EXPANSION OF MARKETS FOR COAL

The London Household Coal Market

During the 18th century, there was an increasing local demand for coal for iron-works and lime-kilns, though household coal remained the major market.

Large coal fetched the best prices, but there was a great deal of breakage during its haulage up the shaft and transportation to the staithes, then its transfer onto keel boats and into the holds of the collier ships and finally unloading in London.

To ensure only the best quality coal was shipped to London, it was necessary to sort the coals at the pit-head. The introduction of wooden screens from the 1780s made this process far more efficient, but resulted in a large stock of small coals for which there was little worthwhile demand.

Gas Lighting

The development of coal-gas lighting in 1803 created a substantial demand for poorer-quality coals. This greatly improved the profitability of pits in the old core coalfield on Tyneside, that were now able to sell their small coals to local industry as well as their large coals to the London market.

Railways

The next boost to the coal industry came with the railway locomotive and the steam ship.

As well as enabling the coal to be transported more efficiently and cheaply over long distances, steam engines created their own demand for coal.

Iron Working

The manufacture of railway engines and track, and steam ships required large quantities of iron and the development of the iron-working industry in the region led a massive increase in demand for coking coal.

The expansion of the railways in the 1830s and 1840s allowed previously remote iron-ore deposits to be worked profitably, particularly when they were located close to sources of coking coal, as was the case in north-west Durham. .

Bricks, Tiles, Pottery, Glass and Chemicals

From the 1780s, expanding industrial activity and the move from rural to urban communities generated a huge increase in population in the east of the region. This resulted in a need for building materials.

Many collieries in Durham were sunk in clay areas, and brick or tile works were profitable additions to coal-mining enterprises.

The processes of glass and pottery-making, too, required large quantities of coal, and new coal-using industries became established in the region, such as the manufacture of chemicals like alkali and soda crystals.

The "John Bowes"

IMAGE OF THE "JOHN BOWES" AT EAST INDIA DOCKS

The railways linked North Eastern collieries with their markets and generated their own huge demand for coal, but they also brought competition from the Midlands and other inland coalfields. This meant that the London trade was no longer monopolised by Northumbrian sea coal.

In 1852, the launching of the "John Bowes" at Charles Mark Palmer's shipyard at Jarrow signalled the region's fight back to reclaim its traditional southern market.

"John Bowes" was the first commercially successful iron-hulled, screw-driven collier. She cost as much as ten wooden colliers to build, but in a five day return trip to London from the Tyne she could accomplish the equivalent of a month's work for two sailing brigs.

North East coal could again be shipped to southern England at prices competitive with the costs of transporting coal by rail.

Steam colliers also opened up a huge worldwide market for Northumbrian steam coal, resulting in new coalfields being exploited around Ashington and Easington from the 1890s.

Vertical Integration of Industrial Enterprises

IMAGE – CHARLES MARK PALMER

Charles Mark Palmer was a Tyneside colliery owner.

His businesses were a classic example of a growing trend in the region in the 19th century towards vertical integration of industrial activities.

In the 1840s, Jarrow was just a small village; within 50 years, the population exceeded 40,000, most of whom depended on Palmer's collieries, ironworks, mills and shipyards for their livelihood. By 1900, Palmer was able to claim that his businesses could carry out the whole process from "iron ore to finished ship".

There are other examples of vertical integration such as the Weardale Iron and Coal Company, Bolckow and Vaughan and the, Consett Ironworks, each of which owned their own iron ore and coal mines, smelting plants, blast furnaces and mills.

Ironically "John Bowes", the vessel that began Palmer's shipbuilding enterprise, renamed and now carrying general cargoes, sank in a storm in 1933, the same year Palmer's company collapsed as a result of the Great Depression, causing mass unemployment in the town and resulting in the famous Jarrow March.

PHOTO – JARROW MARCHERS

6) LIVES OF THE COAL MINERS

The pitmen were always considered to be a race apart from the rest of the laboring classes.

John Buddle, an influential self-made coal-owner and mining engineer from County Durham, considered pitmen to be a regional labouring elite:

In 1835, he wrote: **“I use the word ‘pitman’ in contradiction to ‘collier’. If a man comes to me for a situation as overman, or any other situation of responsibility, my first question is ‘is he a regular-bred pitman?’. We speak of a good pitman as we would do of a good seaman. A collier is a man who works the coals, therefore we have a middling good pitman, a thorough good pitman, and a pitman, which latter are the highest degree.”**

Buddle believed the pitmen to be almost a race apart, as he explained in his 1830 report on the State of the Coal Trade: **“What we have to guard against is any obnoxious legislative interference in the established customs of our peculiar race of pitmen. The stock can only be kept up by breeding – it never could be recruited from an adult population. It is like bringing lads up to the sea – only a pit lad’s life is incomparably better and more comfortable than the sailor’s. But if our meddling, morbid humanity mongers get it into their heads that it is cruel, unnatural, slavery to work in the dark, and to be imprisoned for 12 hours a day in the pit, a screw in the system will be let loose.”**

In 1842, A Royal Commission was set up to investigate conditions of employment of women and children in Coal Mines.

In his contribution to the debate, Buddle argued: **“If boys are not initiated before they are 13 or 14, - much less 16, 17 or 18 – they will never become colliers.”**

Unlike in Yorkshire and Lancashire, women did not work underground in the North East coalfield.

IMAGE – TRAPPER AND PUTTERS

Boys were generally used as “trappers”, operating ventilation traps in the pits. When they were older, perhaps about 14 years, they graduated to the job of “putter”, pushing the coal tubs along the underground waggonways, or rolleys.

The Royal Commission discovered a variety of experiences of young men working in the Durham coal mines such as Nichol Henderson, a putter at Monkwearmouth Colliery:

“Age 16. Is bound a a putter, but unable to put yet. A year ago the horse ran away and knocked him off, trailed with the wagons. Off work for 10 months. Is lame now and will always be lame. His leg was set wrong at first. One leg is shorter than the other. The pit makes him sick. Was very healthy before. Has been here for nearly six years. The heat makes him sick. The sulphur rising up the shaft as he goes down makes his head work. Feels worse when he first goes down at 3 o’clock in the morning, when he comes up at six in the evening he feels sick. It is nearly seven o’clock when he gets home. Very seldom when he gets home can he eat very much, this is from the heat and long hours down the pit. Gets to bed at different times, generally lying down by the fireside first. Mother calls him about 3am, when he feels very sleepy and often so sick that he cannot eat when he gets up. Sometimes he can eat his bait down the pit, sometimes not.

About half a year since, a lad, John Huggins, was very sick down the pit and wanted to come up, but the keeper would not let him ride and he died of fever one week later.

Knows some boys who have been sick in this way, and of three boys who were killed when the rope broke as the corve was going down, and they fell to the bottom of the shaft, the rope falling on top of them.”

An alternative view was put by Henry Morton, manager at Biddick Colliery: **“Works at one of the Countess of Durham’s collieries. Thinks that the usual employment of children in coal mines is perfectly consistent with their health. Making very good wages, they are enabled to have a good and sufficient maintenance. Working at the night shift does not make much difference, the air and ventilation being the same at one period as another.**

Within an experience of 14 years in the Countess of Durham’s mines has not observed any instances of prejudicial effects from the hours, or mode or place of working. Has never heard of boys straining or rupturing themselves in these pits. Does not think any alteration in the hours of labour necessary for children. Would not object to a law restricting children from going down the pits before 10 years old, but would rather leave it to the discretion of the viewer to accept or refuse them. Any such law would press heavily on parents who had large families. Any medical or educational certificates would be totally unnecessary. Parents are anxious to send their children to school, but they have no good schools, and boys might obtain instruction after going to work. Does not think that the work in the pit incapacitates them to receive instruction after the day’s labour, especially with regards to putters, who usually only work 8 hours.

There is no prospect of any mode of carrying on collieries so as to dispense with the labours of very young children, any restricting law that should create a scarcity of children would prevent many pits from being carried on beneficially.”

IMAGE – VICTORIAN COAL HEWER

Alexander Ball, a putter at Monkwearmouth Colliery gave his evidence: **“Aged 18 and 4 months, makes about 3s a day. Gets up at 4am, goes down the pit at quarter past 4. Begins work at 5. Has breakfast before he goes, takes bait in a bag with him and a bottle of coffee. Has that about 11am, cannot stop before that if the hewer has hewed many coals. Eats the rest when he wants it or takes it in his hand as he is working. Loose (shift ends) at 6pm. Has worked at Hebburn and Wallsend. The first thing he does every morning is to prepare the tub by taking off the drags, then goes in-bye, perhaps a mile, to where the hewers are at work. There, with the help of the hewers, fills the tub, then puts it along the tramway, perhaps 70 yards, then returns for another.**

Went down Walker pit when he was 9 years old. Was a healthy boy, is well now generally, but is sometimes bad in his inside. Sometimes cannot walk well for this pain. Sometimes it comes on at home, sometimes in the pit. Monkwearmouth is a very hot pit: hotter than Wallsend, Hebburn or Walker..... All work quite naked (except the drivers, trappers and flatmen) with the exception of a front covering of flannel and shoes. The putting is hard, but the hardest thing is the heat, and the hours are very long.”

7) THE PITMAN'S BOND AND MINERS' WAGES

The coal miners were hired annually, like agricultural workers and they signed a contract, or Bond with the coal owner.

Mr Bryers, the Delaval Estates superintendent, wrote in 1801 with a description of the annual binding time: **“The pitmen at those places (on the Tyne) are hired for 12 months. Particular time of year in Autumn, called the binding time, which continues about a month, exhibits a succession of drunkenness and confusion (to say nothing worse) equally inconsistent with the interests of the proprietors of mines as to the peace of society. Public houses are opened for the reception of the workmen of the respective collieries, and should recruiters from other collieries make their appearance, violence too often follows.”**

REFER TO EXAMPLE OF PITMAN'S BOND, DELAVAL COLLIERIES, 1770

At times the terms of the Binding had to be improved to secure sufficient good pitmen.

There was a period of agitation among North east miners in the 1770s. In April 1778, all the Hartley men struck and by June they were threatening to “pull down the office, burn the corves, pull down the gins, and pull up the waggon-ways.”

Such was the competition for skilled miners that Lord Delaval had to concede his pitmen's demands.

Scarcity of labour during the French Revolutionary and Napoleonic Wars led to fierce competition for miners at the annual Binding.

By 1800, the miners were able to hold out for exorbitant amounts of binding money.

In 1802, the Delavals were offering 4 guineas per man, but they were outbid by Cowpen Colliery offering 7 guineas. This was soon increased to 10 guineas. On the Tyne, binding money of as much as 20 guineas was being offered, equivalent to some £3,000 in today's money.

In 1805, the coal owners formed a Coal Trade Committee of the Tyne and Wear, and co-operated to standardize binding money at 3 guineas for hewers who were householders and £3 13s 6d for bachelors, and one guinea for bachelor drivers.

The following year, binding money was reduced to one guinea per man and the Coal Trade Committee reorganized labour relations in the mines, abolishing many of the customary benefits, for example:

“Is Thomas Dixon, underground horse-keeper, to have a flannel shirt and drawers? From the witness of the colliery they had always been allowed a shirt and drawers.”

“Is Nicholas Chapman to have grass for cows and galloways at £1 each?”

Sir Francis Eden's study of the poor in Newcastle in 1797 placed pitmen on a par with masons, joiners and other skilled craftsmen earning 15s a week.

Average rates of pay for hewers rose from 3s a day in 1800 to 6s a day in 1808, a net gain of 70-80% after allowing for inflation.

Hewers were paid per score, for every 20 corves they filled. “Headway” work advanced the coalface and was paid by the yard and there were other special rates for work such as “stenting” (creating openings for air circulation between headways) or for working in particularly wet areas of the pit.

ILLUSTRATION OF COAL CORVES

These corves varied in size.

In the 18th March 1843 issue of the Gateshead Observer, Ben Embleton was quoted as saying: **“In one colliery, there was once a corve so big that it held 41 pecks: and woe to the poor hewer who got this unconscionable corve, for it was sure to clean him out! At last, a sly pitman asked the viewer, as a favour, to make him a present of the corve, that he might use one end for a cow’s byer and the other for a piggery. The corve never showed its face in the pit again.”**

Wooden corves began to be replaced by iron tubs in the 1830s.

Putters were paid by the distance they pushed full tubs on the rolley-ways, for example 6d per score of corves for basic runs of 80 yards, plus 1d per score for every 20 yards over that distance.

Pit-pony drivers were paid by the day.

Effects of Over-production in 1830s and 1840s

The standard of living for coal miners deteriorated with the ending of the Napoleonic Wars, the consolidation of the Coal Trade Committee and the over-production of the 1830s due to new coalfields being opened up.

Between 1842 and 1844 hewers' earnings dropped by 23%, putters' rates by 26%, drivers' wages by 10.5% and trapping for boys rates by 21%.

The 1830s and 1840s were a particularly bad time, but when in work the pitmen generally enjoyed a higher standard of living than most workers as shown in the Poor Law Commissioners' Report of 1842: **"As far as regards their outward appearance, perhaps few classes among the laboring population are in a better condition than the colliers of the northern district. After working for 8 or 10 hours in the pit, they come home to wash themselves thoroughly and sit down to a plentiful meal. Their houses are in general clean, roomy and well furnished. You can scarcely enter one which does not contain a good 4-post bedstead, a mahogany chest of drawers and a clock. Each householder lives rent free, paying only 3s per week for the leading of his coals. A small plot of ground for potatoes is commonly attached to each dwelling and large families, if provident, make a bargain with their employers for grass for a cow."**

There is a record of the weekly expenses of a miner's family in Bishop Auckland in 1842:

Man, wife and two children – 20s wages per week.

Expenditure:

1lb blasting powder	1s 0d
1lb candles for use in coal pit	10½d
Soap	7d
1½lb sugar	1s 1½d
2oz tea	6d
¼lb coffee	7d
21lbs bread	2s 0d
Yeast, salt, pepper	4d
7lb beef	4s 1d
Pint of milk per day	9¼d
¾lb butter	1s 0¾d
1 lb cheese	8d
Tobacco	8d
	<hr/>
	14s 11d

House free, coals 3d per week.

Surplus of wages for beer, shoes, clothes and other extraordinary charges.

Strikes

Lower wages and a series of other complaints associated with the terms of the Bond led to a series of severe strikes in the 1840s.

Mine owners pressed for the date of the annual binding to be changed from October to January, and later to April. This broke the miners' advantage of negotiating the Bond in the period before the heavy winter demand for coal.

There was also a move to extend the number of days of "idle time" before miners would be paid at a set rate when pits were closed temporarily for economic or practical reasons and fines for bad measure, separation of stone and other forfeits were being increased.

A miner in the Thornley strike of 1843 complained: **"I don't think a man can get a living if the Bond is to be carried out in its strictness. I will go to gaol before I will go to work under such a bond."**

Improvements in working conditions did follow the 1842 Royal Commission and the Mines Act introduced in 1855. The Mines Act required collieries to produce general rules for their workers.

Then, in 1869, the first miners' union was formed in Durham.

The impact of coal mining on the region was described by William Howitt during his visit to County Durham in 1860:

“When you get into the Bishopric of Durham, going northward to Newcastle, you begin to see tall engine-houses and vastly tall chimneys, breathing into the sky long black clouds of smoke. You hear groans and whistlings, and numerous unearthly sounds around you. These engine-houses contain those great steam engines that work the coal mines; and these noises proceed from pulleys and gins, and railways and other industrious instruments for raising and conveying away the coal.

As you get into the country nearer Newcastle, all these operations – these grunting and wailings – these smokes and fires – increase upon you. Here you pass one of those tall engine-houses that you saw in the distance, with its still taller chimney hoisting into the sky its slanting columns of turbid smoke.

You now see a huge beam, protruding itself from the upper part of the engine-house, like a giant’s arm, alternately lifting itself up and then falling again. To this beam is attached the rod and bucket of a pump, which probably at some hundred yards deep is lifting out the water from the mine, and enabling the miners to work there otherwise it would be all drowned in subterranean floods.

Or you see a great beam suspended from its centre, and elevated aloft on a proper support, wagging its ends alternately up and down, and up and down, with that busy and whimsical air which has obtained for it the name whimsy. This is performing a similar operation by a different contrivance.

Then, again, these huge engines are at work whirling buckets down into the deep shafts for coal. For two or three hundred yards down a hideous gulf into the bowels of the earth are they sent, with a rapidity which to a stranger is frightful, to their labour, and pulled up again after its performance, to daylight at last.

All this time these great engines, of perhaps 200 horse power, are groaning and crying over their toils like condemned Titans, and the wheels and pulleys that they put in motion are singing and whistling lamentably, like so many lesser spirits doomed to attend their labours.

Then you see buckets of coal emerge from the mouth of the pit, and immediately by self-agency run away, empty themselves into a waggon or boat, and come back empty and ready for a fresh exploit. Then, as you advance over the plain, you see a whole train of waggons loaded with coal, careering by themselves, without horse, without steam engine, without man, except that there sits one behind, who, instead of endeavouring to propel these mad waggons on their way, seems laboring hopelessly by his weight to detain them.”

IMAGE – HESTER PIT, NEW HARTLEY AFTER THE DISASTER, 1862

New Hartley Pit Disaster

Pit disasters and loss of life were all too frequent occurrences throughout the history of North East coal mining.

One of the worst accidents took place at New Hartley, near Seaton Sluice, in 1862.

The Hester Pit had been sunk in 1846. From the beginning it was a “watery” pit and powerful pumping engines were required to keep flooding at bay.

On the morning of Thursday January 16th 1862, at about 10.30am, the massive beam of the pumping engine suddenly snapped and one half plunged down the shaft. As it fell, it tore away the wooden brattices and the stone lining of the shaft, blocking the single exit from the pit.

The accident could not have happened at a worse time, when almost the entire male population of New Hartley above the age of ten was underground during a change of shifts.

The disaster claimed the lives of 204 men and boys. The oldest was William Fairburn, aged 70, and the youngest was ten year old James Duffy.

60,000 people turned out to watch the funeral procession on Sunday 26th January. The coffins were taken to the parish church at Earsdon, four miles away, and the first cart had arrived at the church before the last one left New Hartley.

The Hartley Disaster resulted in a new Act of Parliament that made it illegal for a new mine to be sunk without at least two separate shafts.

8) THE COAL INDUSTRY IN 1900

The steam-coal district of South East Northumberland was the last part of the North East coalfield to be opened up, in the 1890s. In its heyday, Ashington gained the reputation of being the “biggest pit village in the world”.

At the beginning of the 20th century, over 220,000 men were working in some 400 pits in the North East coalfield, producing 55 million tons of coal each year. This represented a quarter of all the coal mined in Britain.

PHOTO – WEARMOUTH COLLIERY

Monkwearmouth Colliery, the last deep mine in County Durham, closed in 1994, ending 800 years of coal mining in the county and Sunderland Football Club’s Stadium of Light was built on the former pithead site.

PHOTO – ELLINGTON COLLIERY

Northumberland’s last colliery, Ellington, known as the “Big E”, closed in January 2005 and the long reign of “King Coal” ended when the final shift at Britain’s last deep mine, Kellingley Colliery in Yorkshire, came to the surface in December last year (2015).

PHOTO – HOUGHTON LODGE

PHOTO – BOWBURN LODGE

PHOTO – DEAN AND CHAPTER LODGE

PHOTO – MONKWEARMOUTH LODGE

PHOTO – HOUGHTON PIPE BAND (LUMLEY 6th LODGE)