



The Hartley Colliery Disaster 1862

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Norman Jackson is an acknowledged authority on mining engineering and industry restructuring including the environmental impacts, and played a leading role in the closing down of the North East coalfield in a safe and environmentally acceptable manner. Since leaving BCC he has embarked on a successful career as an independent international management and mining consultant and has worked in association with many clients over a number of years on projects in the coal industries and as an expert witness to the Courts. Norman has delivered this lecture several times on the anniversary of the Hartly accident, and has many connections with Hartley, doing his first pit shift at the adjacent Seaton Delaval Colliery in 1958. The research for this talk was carried out in the archives of the Institute in particular the account of one of our early members Mr George Baker Forster and the inquiry report prepared by J K Blackwell Inspector of Mines Midlands.

Mining In Northumberland

Mining in Northumberland has been carried out since Roman times with records of workings existing in 1236 in the town of Blyth. These earliest records of local mining in England show the Moorland Seam was worked along and near its outcrop westwards through Cowpen to Bebside. Site investigation boreholes within the township of Blyth have confirmed the existence of unrecorded coal mining at shallow depth. Fig. 1 shows the positions of many of the local shafts that had developed from the coast inland. The location of the Hester shaft and the important port of Seaton Sluice help to identify the area. The area is on the coast some 12 miles north of Newcastle. The principal cause of the Hartley disaster is of course the well-known fact that there was only a single access to the mine which was common practice for the period. Records show that when Hartley disaster occurred 10 of the 11 mines operating in the locality were single shaft mines. This slide is an example of one of the earliest bord and pillar workings quite clearly from a single shaft access. Two sites have actual plans of the workings. They are located near Bebside and further to the North and banks of the River Blyth. Fig. 2. has the spine road superimposed to help in the orientation for those knowing Northumberland.

For non-mining people we are now fortunate that opencast mining lets us look back at some of the early methods of mining just as it would have been at Hartley at the time of the accident. Fig. 3 is a photograph I took recently in the high main seam at Ashington Portland Burn site opencast mine site just North of Hartley. You can see quite clearly at very shallow depth some 10m below the surface the roadways which formed the coal extraction and the small pillars left to hopefully keep up the roof. The first reference to Old Hartley pits is made in the book History of Northumberland and this records the date of 1292. The location of these original mines is between the Briar Dene at Whitley Bay and the Seaton Burn at Seaton Sluice. National Trust at Seaton Delaval Hall now own much of the area. No record of the actual workings exists, but the plan extract shown in Fig. 4 indicates the positions of the various shafts that have been located over time.



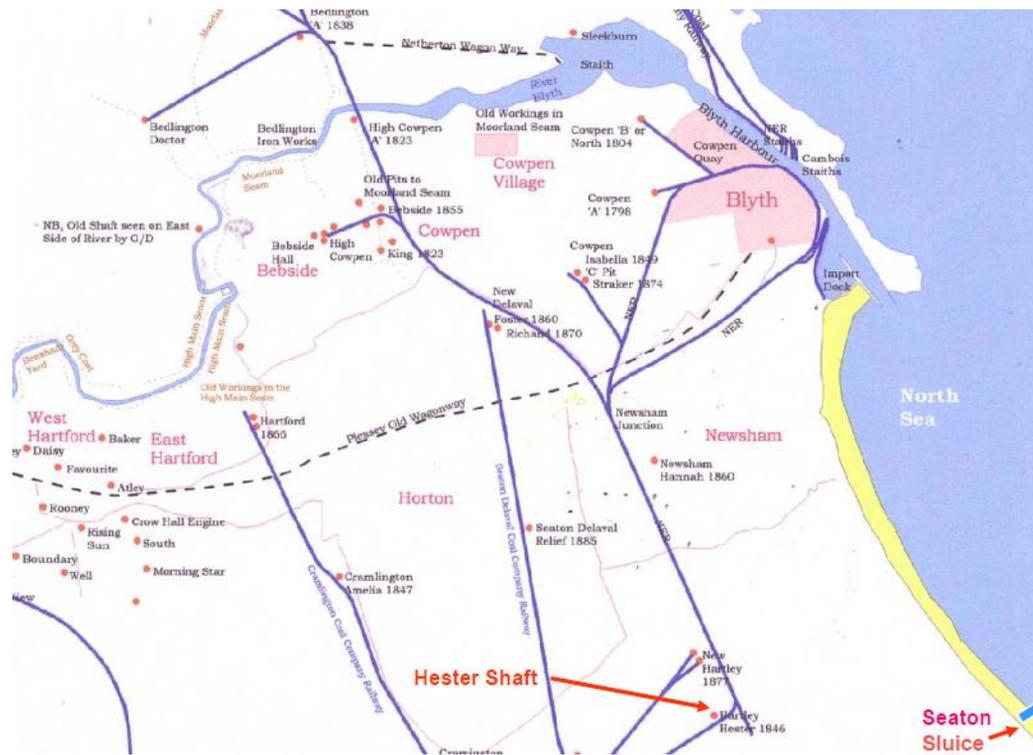


Figure 1: Positions of many of the local pit shafts that had developed from the coast inland.

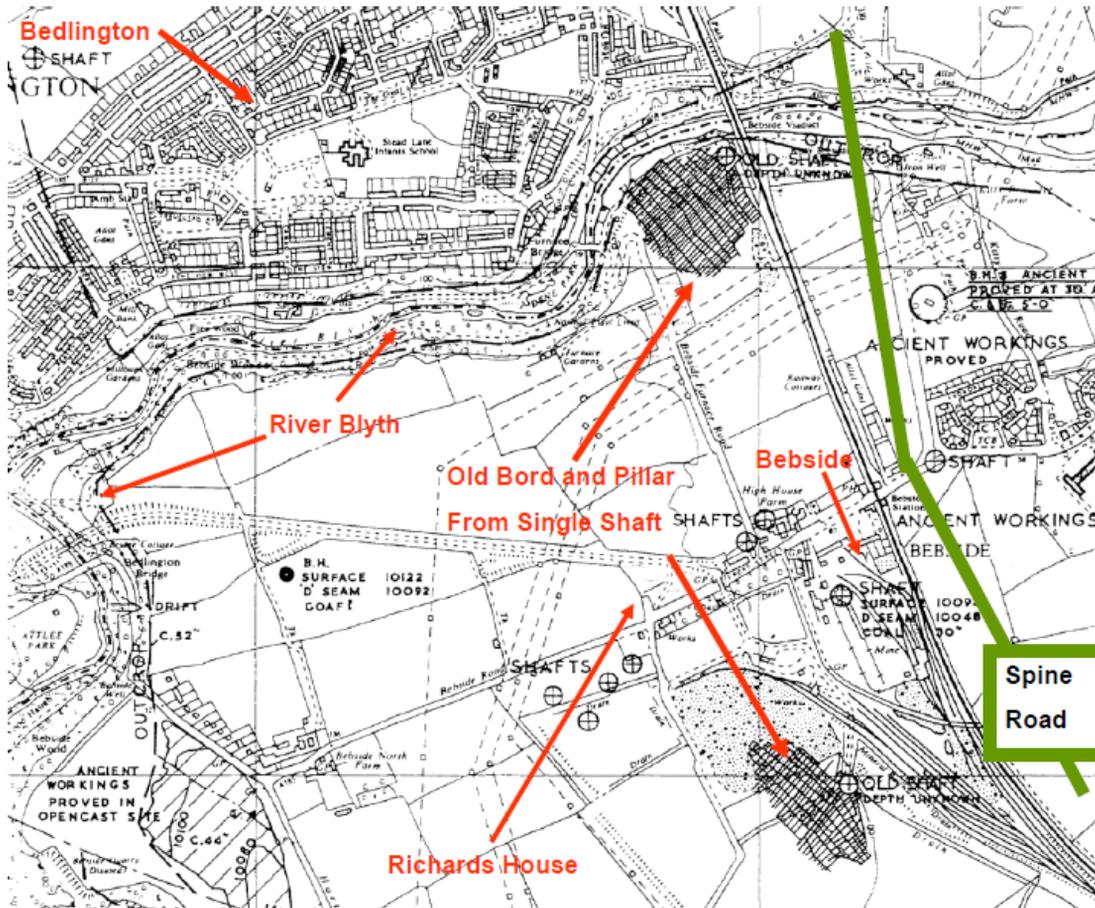


Figure 2: Map of actual workings from a single shaft.





In my opinion they were likely to have been single shaft operations but either by design or accident there can be no doubt many of the workings were interconnected. As a result, in 1844 these mines were inundated with water and abandoned. At that time Seaton Sluice was of huge importance as the main shipping point. If time permitted there is a complete paper that could be presented about events at this time. This period was the development of early steam engines as winders of coal and pumps. The small circles are the shafts, and, in many cases, there was at least one in each of the fields. It was decided to open a new mine and on 1st of January 1845 the sinking of New Hartley Hester Shaft commenced and reached the Low Main seam on 29 May 1846 at a depth just over 600 ft. My table shows the various data.

Seam	Depth In Fathoms	Depth in Feet	Depth in Metres	Thickness
High Main	37	223	68	4ft 6in
Yard	69	418	127	3ft 0in
Low Main	97	583	178	3ft 4in
Sump	100	601	183	

Table 1: Depths to the main seams at Hartley Colliery.

The rate of sinking averaging almost three metres per week which is a phenomenal rate of progress considering the primitive mining methods at the time. It was sunk by William Coulson and his team who will feature later in this paper. The first seam High Main was reached at 223 feet. The Yard Seam at 418 feet and the lowest the Low Main at 583 feet. The bottom of the shaft where the sump was all water was dealt with 601 feet. The shaft was driven at 12 feet 6 inch diameter and significantly was only brick lined to rock head about 30 feet down. The rest of the shaft was lined with wood and the significance of this will be discussed later. Records indicate large feeders of water from the shaft sides. The need for two shafts was well known at this time, it had been considered by the owners many times and rejected as being too costly. One comment from London Illustrated Times is worth quoting:

“One obvious method of diminishing risk to the workmen in coal pits is the provision of duplicate means of entry and exit. It cannot be pretended, indeed, that the catastrophe at Hartley Pit was needed to suggest this was a common-sense precaution. The habits of every animal that burrows in the ground to say nothing of the mining experience of men capable of reflection, must long since demonstrate the reckless negligence of congregating men in narrow galleries, running hundreds of feet beneath the earth’s surface without an opening for them in some other way for return to light, safety and home other than the single one by which they descend to their work”

A very sobering statement. Fig. 5 diagrammatically illustrates the general arrangements. The shaft was partitioned into two, separated by 3 inch wood planks to provide intake and return airways. The intake side contained the two cages which provided transport for men, materials and winding of coal. The return side incorporated the main pumping system for what was to become an extremely wet mine. In addition to the main shaft there was also adjacently a small staple shaft which was sunk to just below High Main seam utilised for pumping, but it was equipped with a small jack engine for access to that level. The means for communication within the main shaft and to the surface was three separate bell ropes connected to each of the three seams. These proved important later during the rescue of the men trapped in the cage. Whilst there is no description in any of the historic documentation of additional supports or buntings in the shaft, obviously, they were present to support the cage guides and the pump ranges. The 1852 Inrush in the period following the shaft sinking work was difficult with water proving a major problem like conditions that had caused the closure of the old collieries. On 14th of February 1852 an immense feeder of water inundated the mine. Like the recent incident in Wales the mine had intersected some old workings which were filled with a vast amount of water. The existing pumping system was overcome, it had proved totally inadequate and it was extremely fortunate that before the shaft was flooded that the men and horses working underground at the time were managed to be rescued. No doubt a very close shave.





Figure 3: The high main seam at Ashington Portland Burn opencast mine clearly showing 10m below the surface the roadways formed though extracting coal the small pillars left support the roof.

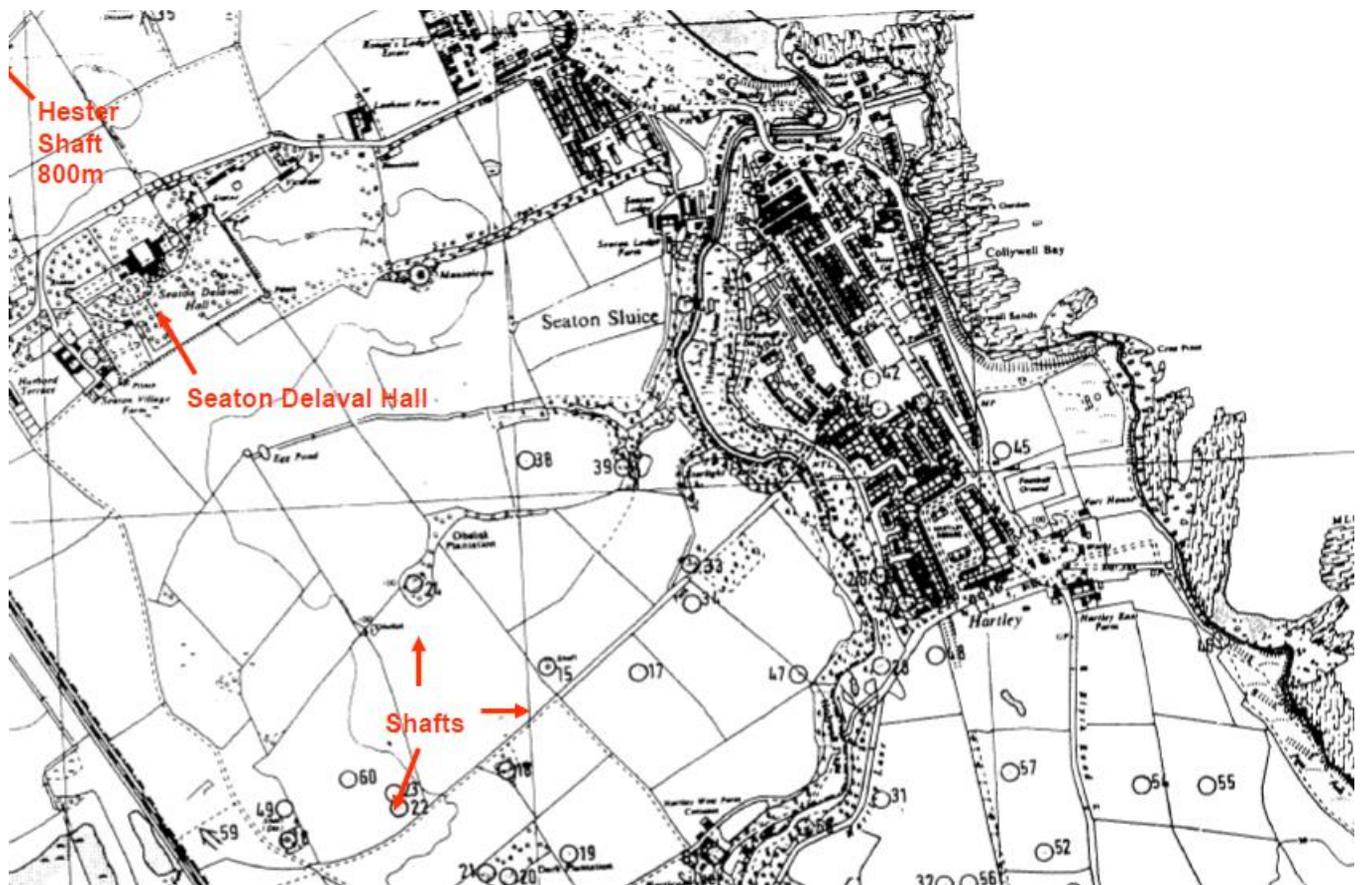


Figure 4: Map of the Hartley mine shafts.

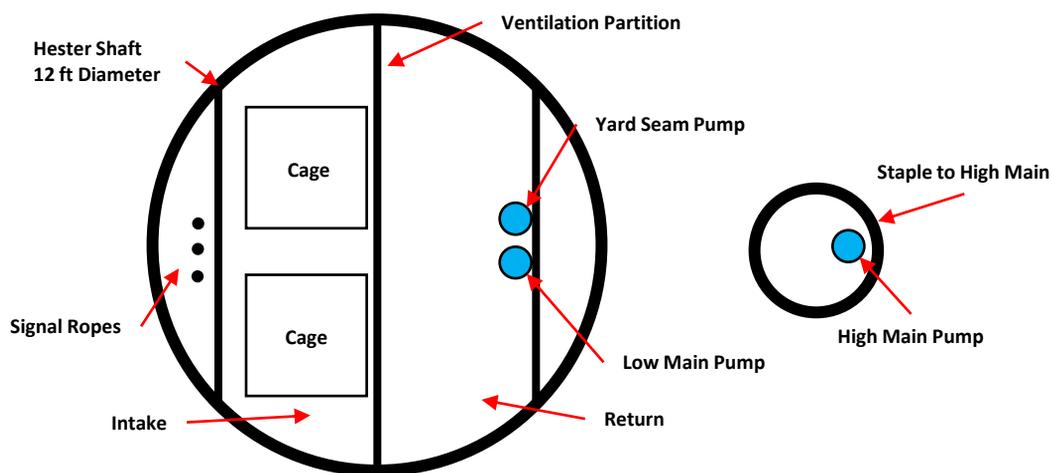


Figure 5: Plan view cross-section through the Main and Staple shafts.

The New Pumping System

At the time of this latest inrush coal was in tremendous demand and the mine owners immediately commissioned the installation of a new powerful pump. This was a huge machine of its time powered by a 400hp condensing steam engine. We are fortunate at the Institute to have a copy of the original drawing of the completed installation depicting the system before and after the accident. I have placed an enlarged copy of this drawing in the exhibition of Hartley artefacts in the library. It is reputed that when pumping at full capacity it could handle 1,500 gallons per minute. The obvious concern to present day mining engineers would be that there was no spare pump and therefore how could proper maintenance schedules be carried out. It is essential to have a broad understanding of the workings of the system to be able to picture what went wrong and I will give you brief resume. Figs. 6 and 7 show the surface and initial shaft arrangements:

- Pumping beam and counterbalance a single beam operating three pumps
- 35 feet long 42 tonnes in weight
- Effectively a 3 stage pump low main to yard seam.
- Yard to High Main and High Main to surface via the pump staple
- The pump rods were made of hard wood, 12 inch square and 21 feet long initially and the middle and low set 10 inch square. They were made of memel, which is imported Polish oak, British oak being in short supply due to the demands of warships. They were joined together to form a column either by iron plates but possibly chains to allow some flexibility. It was calculated that some 55 tons of weight was suspended from the beam.
- The pump rods or spears were classified in two ways. When they were within the pump barrels they were obviously in water and known as wet spears.
- Where they were outside the barrels mainly at the top section of the shaft they were known as the dry spears. Obviously here they were open to the elements and the changes in temperature always present in a mine shaft.
- The pump barrels cast iron and riveted plate. The lower pumps 24 inch diameter and the upper set 30 inch diameter. They were huge and heavy pieces of equipment.
- The pump action was a simple plunger mechanism with the water on the downward stroke pushing open the valves.
- The weight of water was closing the valves on the upward stroke. The slide shows simplified bucket system on the left showing the overflow arrangement between the lower low main and Yard Seam mid shaft pump. The right side indicates the transfer arrangement.

Can you imagine the nightmare of this very heavy equipment being installed, suspended and maintained within the shaft? Having spent a year during the miners' strike as part a small shaft and winder maintenance team thus aware of the dangers, I have the utmost admiration for the skill and ingenuity of the engineers of that time.

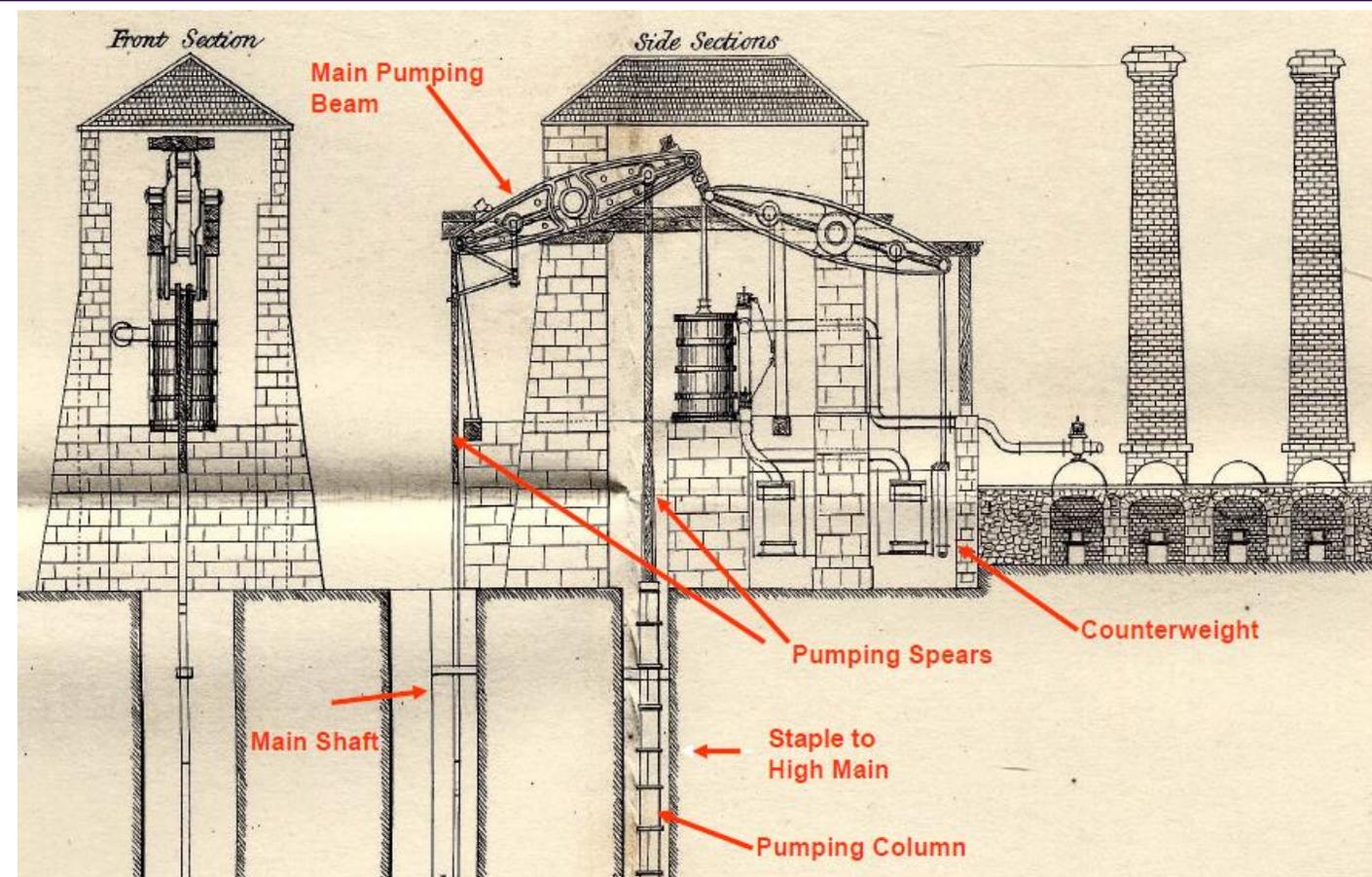


Figure 6: Schematic of the new pump system at Hartley Colliery in 1862.

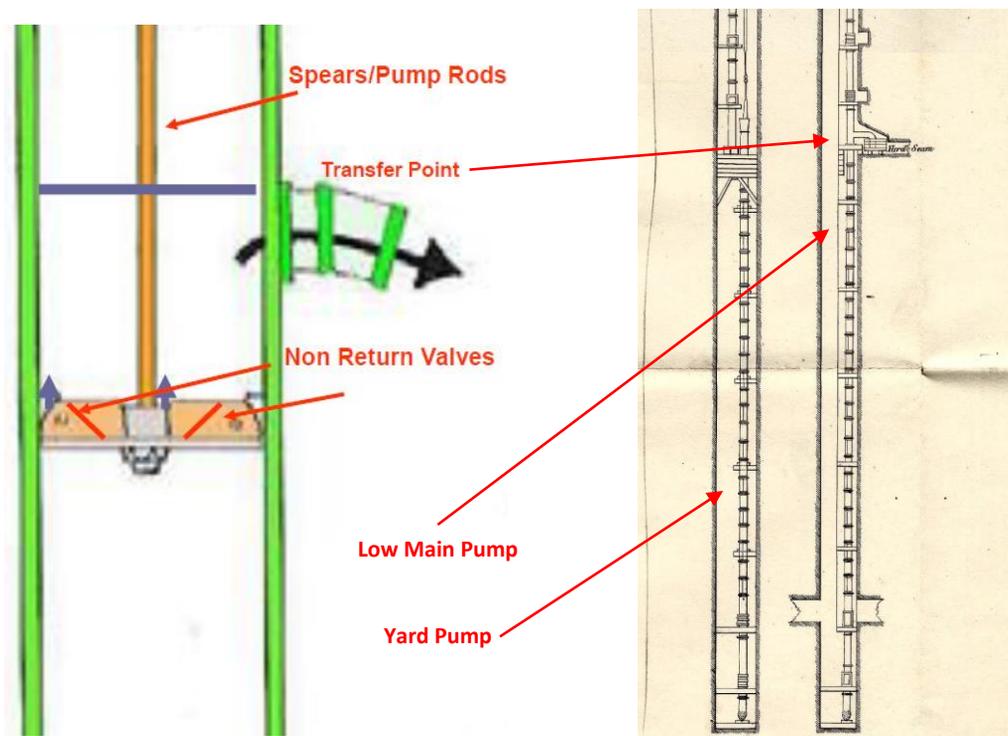


Figure 7: Schematic of the pumping system within the shaft.



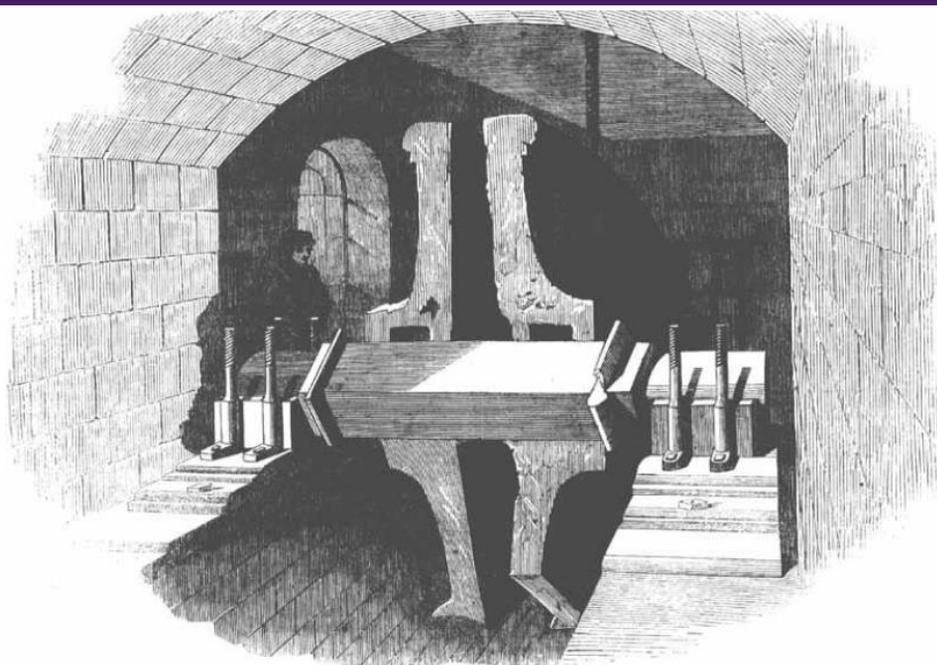
The Accident and Rescue

I would like you now to picture the additional wood and iron in a highly congested 12 feet 6 inch shaft. Installation and access of the pumping equipment was enabled by an auxiliary jack engine winch which was very important in the rescue attempts that were to follow. On 16th January 1862 it was a normal winters day. The main change in shift was taking place and as was normal practice the men and boys changed over roles underground and as a result twice the normal number were present at this time. The back shift had gone down and the foreshift still in the pit, as we now know, totalling over 200 men. Some 17 men had been wound to the surface and eight men were in the cage, four in the top deck and four in the bottom, when suddenly without warning the main pump beam snapped in two (Fig. 8) and immediately was pulled down the shaft. I would like you to imagine the picture of devastation that beam disappearing down the shaft would present, the noise of breaking timber and falling iron as the shaft partition and pumping system was carried away. The people at the shaft top and winding engineman's initial thoughts were for the eight men in the cage with the winder coming to an immediate stop as the beam hit the cage. It transpired that half the main beam, some 21 tonnes had met the cage between the High Main and Yard Seam about 30 feet below the High Main, completely blocking the shaft with debris (Fig. 9).

No electronic signals to assist, the only way to communicate was just shouting down the shaft. A rescue attempt was immediately implemented with a party of men going down the pumping staple lowered down by the jack engine and began clearing the wreckage that had formed at the High Main inset. By mid-afternoon they had managed to get the jack rope in the main shaft through the debris but before this they had managed to lower a light from the High Main inset down to the survivors. The first of many disasters then occurred. The jack rope was lowered down and guided to the cage with a loop attached. One man, Sharp, got in but unfortunately coming up he got stuck in debris, was pulled out of the loop and fell to his death. This was the first known casualty. Two men were then successfully brought to safety. It is right that we pay tribute to one of the first heroes Tom Watson a coal hewer, who was in the cage with the other survivors. Hearing the cries for help from a dying man suspended below in the debris, he got out of what remained of the cage (Fig. 10) and using the shaft signal ropes lowered himself down and stayed and prayed with the man until he died. Watson the third of the only survivors subsequently climbed back to safety and provided important evidence at the inquest and he explained that it was not until 10 o'clock at night that he was rescued. The rescue attempt for the men below began to proceed and by now the viewers and other officials had been alerted and assembled in the High Main where they immediately began erecting temporary scaffold in the shaft to prevent debris falling. During the Thursday night they managed to get the cages to the surface which allowed the rope to be taken off the winder and used to lower men down to begin clearing the shaft.

On Friday the 17th of January, rescuers descended the shaft (Fig. 11). Now that the cages were removed it was possible for rescuers to descend the shaft being lowered down in slings, where the size of the problem really began to emerge. The ventilation brattice structure, supporting wood beams pump rods and pumps had formed a complete blockage immediately above the Yard Seam furnace drift. The difficulty of this operation should not be underestimated. A continuous stream of water from the broken pump ranges and shaft feeders poured down on men working, with only candles and oil lamps for light. There was no proper ventilation and smoke and fumes were coming up from the remains of the furnace fire. During the day the initial colliery rescue team was joined by William Coulson and his team of shaft sinkers (Figs. 12, 13). It appears that they happened to be passing on a train heading north to another shaft sinking. When the train stopped at Hartley Station and they saw the commotion and immediately offered their services. I am not going to attempt to give full details of William Coulson's achievements in mining, sufficient to say in addition to the Hartley Hester Shaft he was responsible for sinking 84 other shafts in the Northern Coalfield at that time. I will only comment that shaft sinking is one of the most dangerous jobs in the industry requiring strength, skill and tremendous ingenuity. The extended Coulson family was heavily involved in mining over a long period and in my research, I found 26 members of the family were killed in mining accidents.





THE BROKEN BEAM OF THE PUMPING-ENGINE.

Figure 8: Drawing of the remains of the broken Main Pumping Beam within the pumphouse.

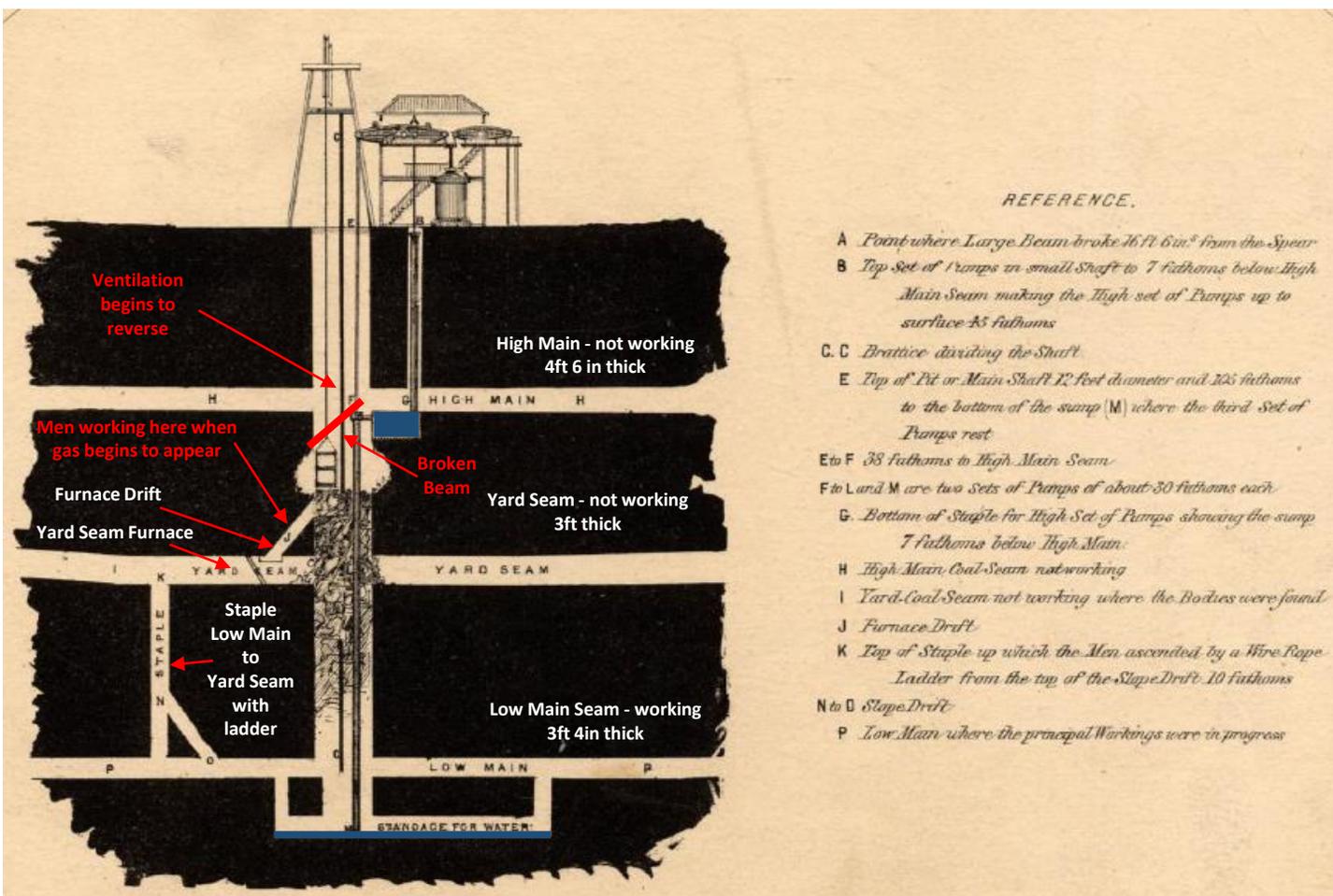


Figure 9: Section depicting the accident.

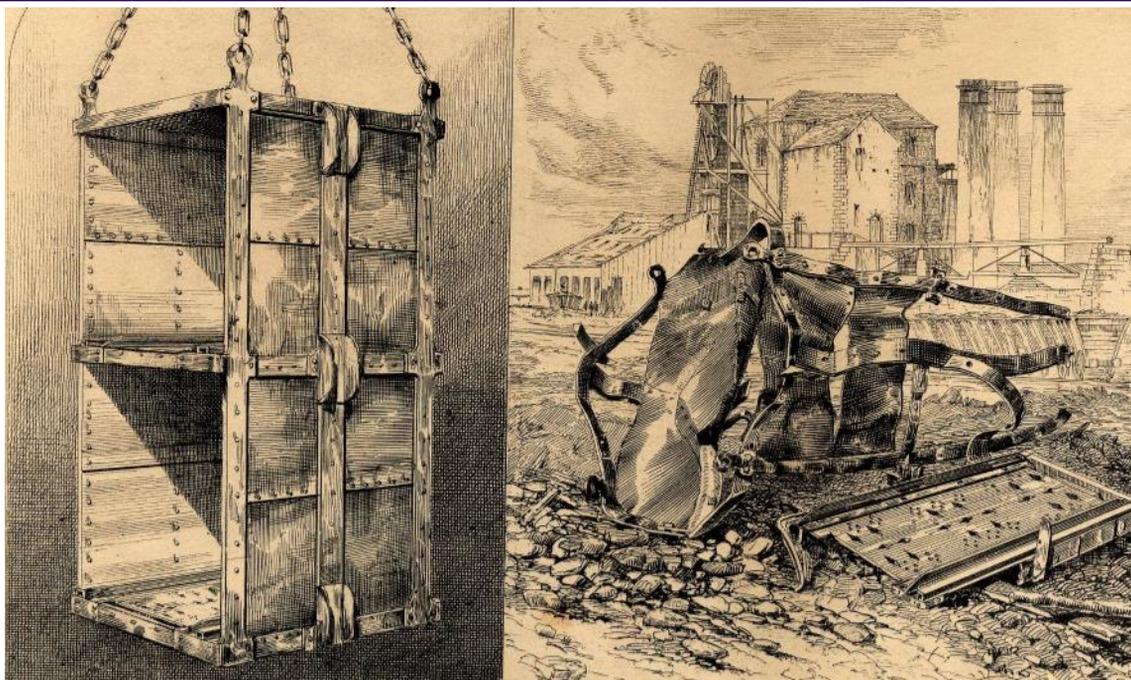


Figure 10: The cage used at Hartley Colliery before (left) and after (right) the accident.

There appears to have been some delay for the parties involved in the initial efforts to realise the significance of Coulson and it was not until mid-afternoon on Friday 17th of January, that Coulson was asked to head up the rescue attempt. His first task was to descend the shaft alone for his first assessment. His evidence indicates that the shaft was totally obstructed some 30 feet above the Yard Seam. There appears to have been no shortage of volunteers of both management and men wishing to help. The list of viewers reads like a who's who of the mining world with our own Nicholas Wood being recorded as offering his advice. Men from many mines in the locality were present in huge numbers and the pick of these were organised into teams working for two hours at a time clearing the debris up to the High Main where it was stowed into old roadways. Periodically all work was stopped as sounds could be heard from the trapped men below. Being so successful, Coulson had gathered around him a very experienced band of sinkers. Everyone a professional sinker in his own right, among them his own son William and Geordie Emerson his right-hand man. Billy Shields and Davy Wilkinson were there; these were the sinkers that arrived at the colliery on that bleak and cold day and offered their services to try and save the entombed unfortunate men. They, along with many other skilled men from adjacent mines formed the core team of rescuers.

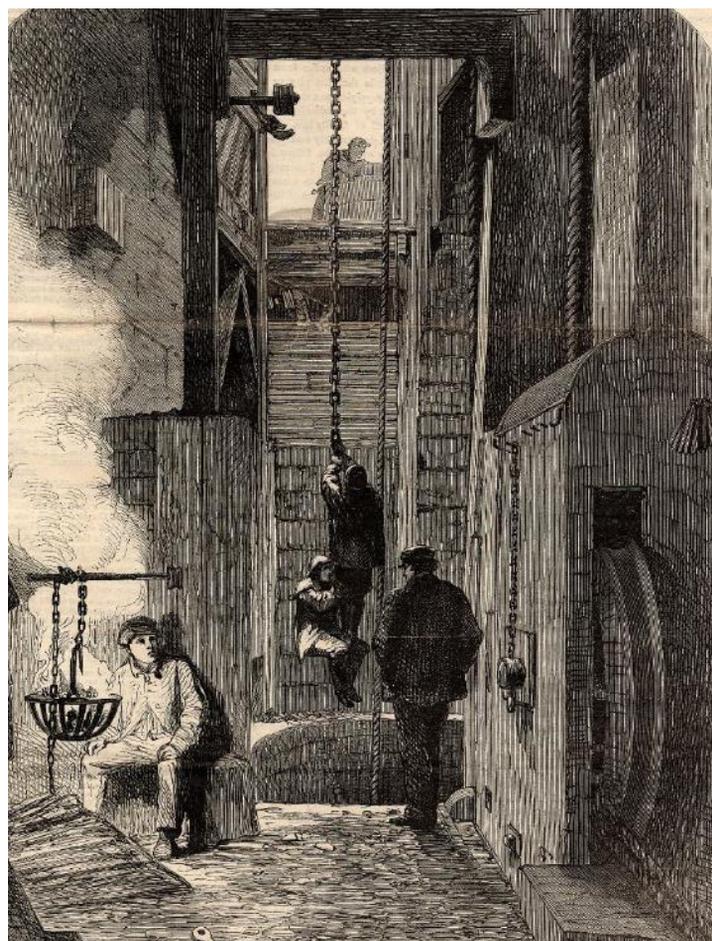


Figure 11: Descending the shaft.



Figure 12: Mr Coulson – Superintendent of the exploring party.

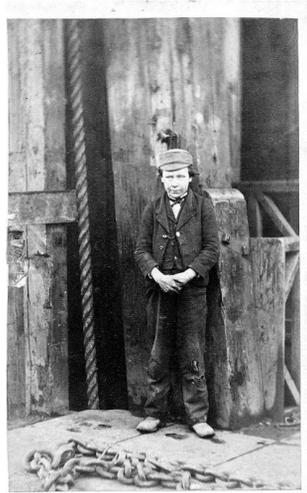
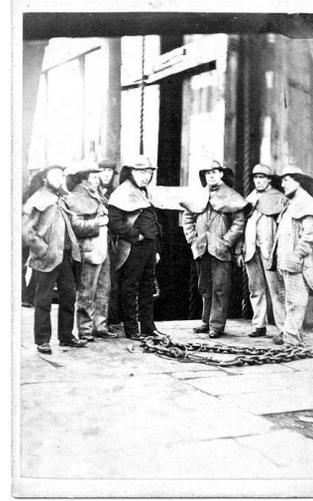


Figure 13: Members of the rescue party.



Figure 14: Families waiting for news.

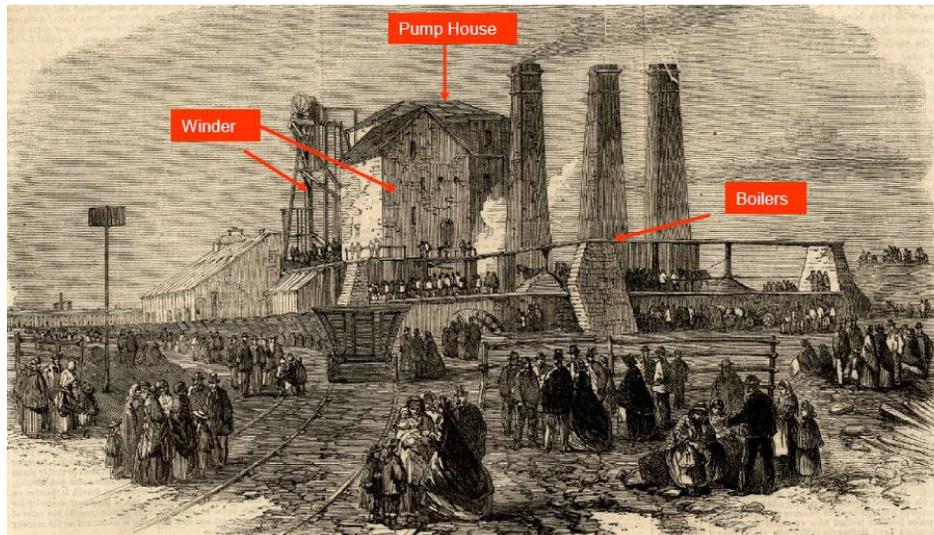


Figure 15: View of Hartley Pit.





The work of clearing the shaft continued with tolerable success with much of the timber reduced to matchwood. They worked from temporary scaffolds loading into buckets attached to the jack engine rope raising the debris to the High Main where other teams stowed it into old roadways. During the day unfortunately, the sides of the shaft began to break away and the falling stone proved too dangerous to continue and a 12 hour delay ensued whilst stays were put in to support the cavity. The lack of proper lining in the shaft had become evident. During this time the tension and anxiety of those waiting at the surface was building (Figs. 14, 15). On Sunday 19th of January in the morning, it was assessed that a point some 30 feet above the Yard Seam had been reached. Temporary support above this level was now deemed adequate for work to proceed and the sinkers began to excavate debris round the side of the pumps to try to reach the top of the furnace drift. This was to try and bypass the blockage and thereby shorten the access to the Yard Seam. The debris at this point was so solid that progress was slow, and the jack engine was attached directly to the jammed material and the large pieces hauled out. Picture the difficulty of relaying verbal messages to the controller of the jack engine at the surface. Many other schemes were contemplated to try to speed up the operations at this time including trying to get down the inside of the pump casing, but these ideas were all dismissed, quite rightly, as being impractical. Hopes were high now as it was felt that access via the pump connecting passages would allow early access to the Yard Seam.

No great change in the method of work during the day as access to the Yard Seam was progressed and it was expected entry would be made by nightfall. Up to this time it was thought that the men below were in no great danger apart from being tired and hungry. It was known that an escape route was well established from the working seam, the low main up a vertical staple shaft equipped with a steel ladder, a climb of about 100 feet. This staple had been sunk on the instruction of the Mines Inspectorate some years earlier to allow escape from the lowest seam if the mine flooded (Fig. 9). Sadly, there was no further connections between the Yard Seam to High Main. Sounds from the men had been clearly heard on Friday. Mine staff had assured the sinkers that the normal mine gasses of CO, CO₂ and methane were not a problem and that the men had access to fresh water and a quantity of oats was present for the ponies which would provide sustenance. Unfortunately, during the day, a new enemy began to emerge. Movement of air in the shaft began to change, a vapour thought at first to be smoke was observed coming out of the pumps and began to force the limited fresh air out of the shaft. During the night, sinkers began to be affected by gas showing symptoms of sickness and nausea when they came to the surface. It was thought at first it was likely to be stythe gas, but as the lamps were not extinguished by it and in fact the flames increased on the lamps, it was deduced that it had to be the deadlier carbon monoxide. Early in the morning, preparing to enter the Yard Seam, the workers extracted a large timber blockage and immediately large volumes of gas began to emit resulting in all men having to withdraw including those in the High Main. All the men were declared extremely ill. It became immediately obvious that the brattice had to be re-established and extended down to the Yard Seam and ventilation re-established before work could resume safely.

The complexity and ingenuity of this operation should not be underestimated. In addition to the brattice work one of the boiler fires was connected to the High Main staple via the crab engine rope duct to increase the ventilation pull by using the chimney heated column of air. The fate of the men and boys trapped below was obviously now of increased concern and press reports indicate considerable unrest at the rate of progress, indeed the thronged crowd at the mine were threatening Coulson and his men to the extent the local preacher was required to intervene and calm proceedings (Fig. 15).

During the day, work was sufficiently advanced for the sinkers to make a small entrance into the furnace drift, but they found the gas so strong it was some time before they could affect entry. Three miners: Bill Adams from Cowpen, Rob Wilson and Thomas Cousins from Backworth took over and entered the furnace drift. They found evidence of men having put out the furnace fire and forced their way into the drift and had begun to clear a way out. The would-be rescuers then proceeded into the drift and soon the worst fears were confirmed: all men and boys - 199 of them were found dead. The plan used at the inquest confirms the positions where they were located (Fig. 16). The various messages found confirmed the events that had taken place.





As suspected James Amour, the backshift overman, a highly respected and no doubt extremely brave man in horrendous circumstances, had assembled his men and boys and had led them all via the staple up to the Yard Seam to await rescue. No doubt their final resting places was where the last remains of fresh air was present. It is difficult to imagine the awful scene facing the rescue team where there were whole families of men and boys clasped together as they died. Many of the messages of these religious people record the various deliberations as they prepared to die. Having ascertained that there were no survivors it was decided that it was necessary to make the shaft more secure to ensure recovery could proceed in a safer manner. Thursday and Friday were occupied in carrying out additional shoring up of the shaft sides and supporting the pumps which had fallen across the shaft. The shaft at this point probably because it did not have a brick or stone walling, had formed a cavity some 30 feet wide (Fig. 17). Debris, of course, was extremely heavy with columns of the cast iron pumps in a dangerous condition. Huge beams of timber were lowered down and secured to prevent further movement. Gas continued to be an intermittent problem and of course decomposition of the bodies had begun. It was originally thought that the best solution for recovery was for the bodies to be confined underground, but this was deemed not to be practicable as the coffins would not be able to pass the obstructions remaining in the shaft.

By 10 o'clock on Saturday 25 January all was ready to bring the bodies to the surface, fresh air had been established to the Yard Seam level and it was deemed safe for the recovery to begin. Forster, in his paper given at the Institute in March 1862 records the following statement, "As some of the bodies were considerably decomposed, it was deemed necessary by medical men to have a good supply of chloride of lime and for everyone who was present to be supplied with a pair of strong leather gloves". The first body reached the surface at half past ten (Fig. 18). Parties of men from other collieries were utilised to bring the men from the positions they were found to the shaft where they were met by the sinkers who travelled in the shaft guiding the bodies past the remaining obstacles.

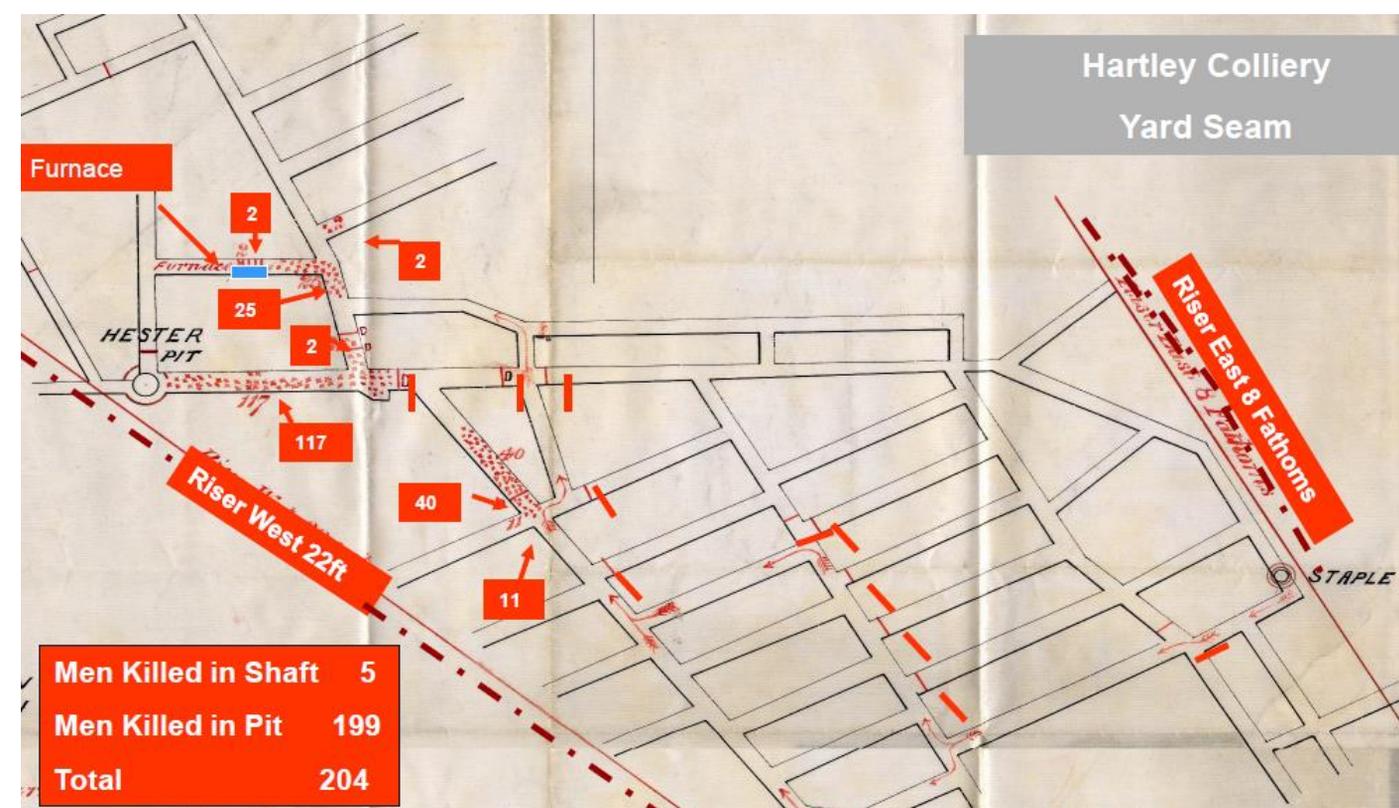


Figure 16: The accident plan.



The awful job continued for 17 hours until half past three on Sunday morning of the 26th of January when all the 199 bodies in the vicinity of the shaft were brought to the surface. A misunderstanding had arisen as to exactly how many were underground at the time and search of the available workings was carried out. It was thorough and extending to the low main staple which was found to be flooded to within 70 feet of the Yard Seam. It confirmed that the bodies of all those trapped had been recovered. There is little reference to the 43 ponies that perished other than the fact they would help to reduce the available fresh air. Animal lovers of today would no doubt adopt a very different view to attitudes pertaining at that time. It is hard to imagine the scene when the last body was recovered. Almost every house in the locality contained a coffin and in some many. Huge crowds had gathered on that awful Sunday 26 January and preparation had already been made for a mass grave to be prepared at Earsdon Church. A poem by Cook written sometime after contains a verse that describes the scene better than any words I can write:

*“In every house there was a bed
 And coffins black with silent dread
 We looked within the cottage doors
 There lay the twos and threes and fours
 Into the end house of the row
 Lay seven coffins there behold
 With seven Liddle’s stiff and cold
 I saw them piled together
 Lying one upon another”*

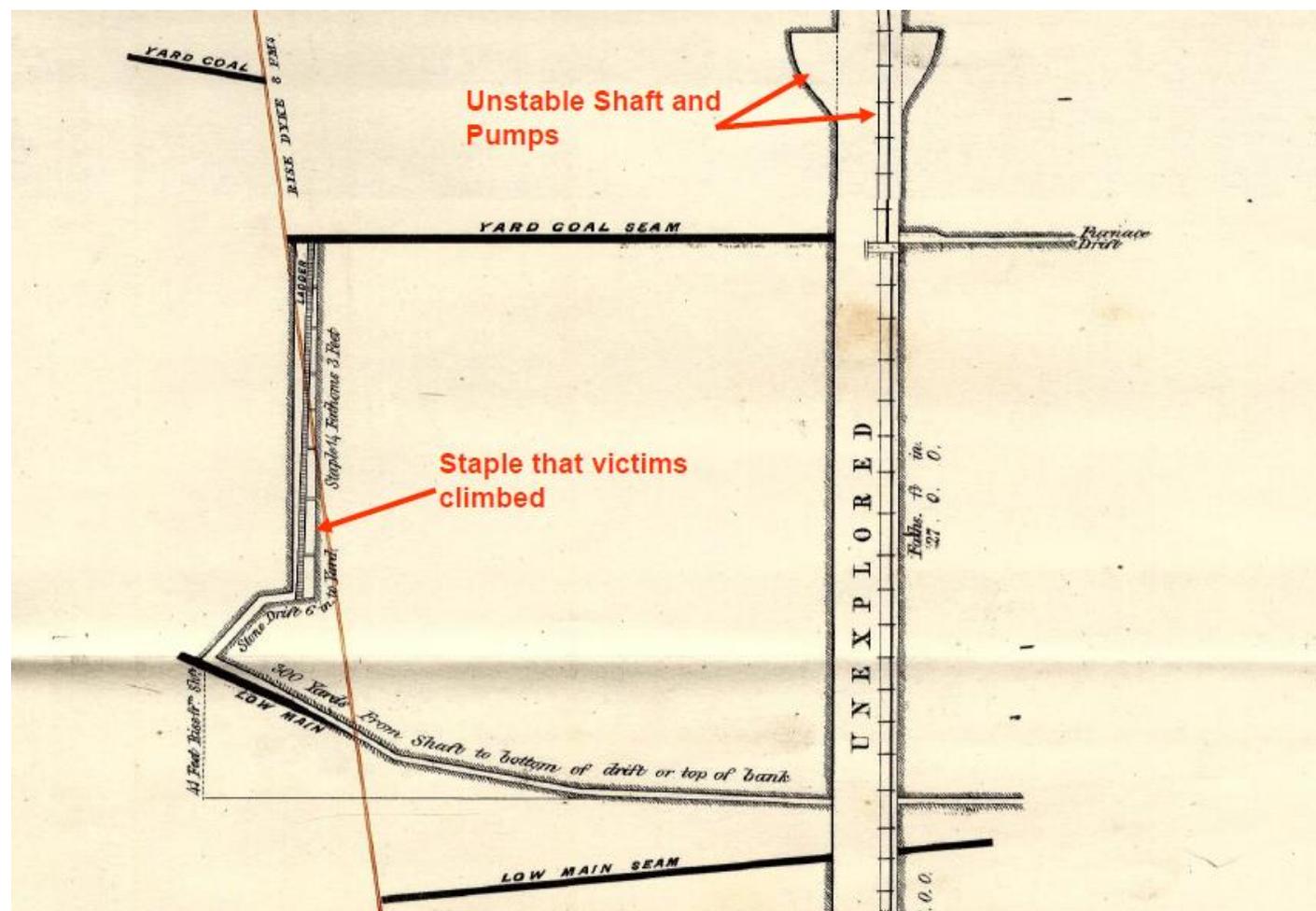


Figure 17: The situation in the mine on Thursday the 23rd and Friday the 24th of January 1862.



Figure 18: Recovery of the bodies.

Figure 19: The funeral procession.

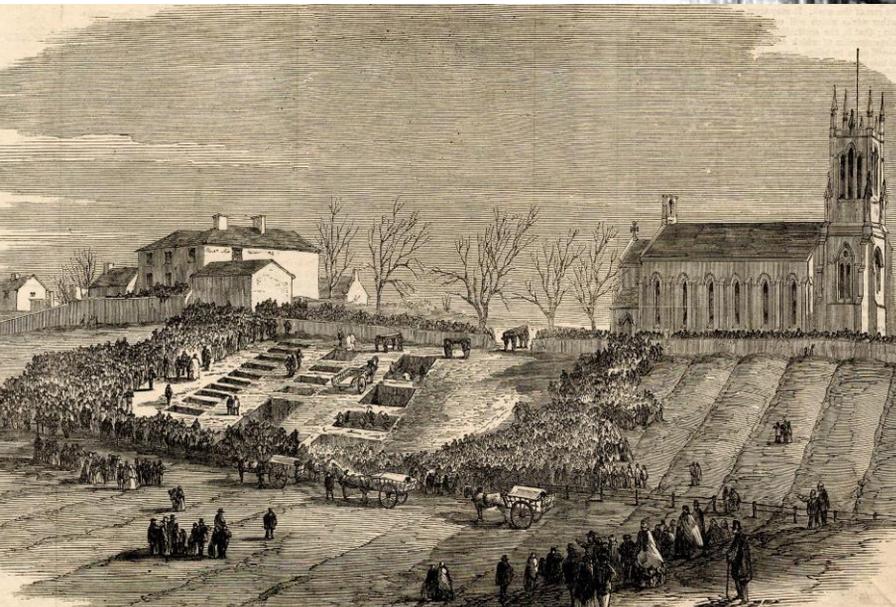


Figure 20: The burial at Earsdon Church.





The records of the scenes of this tragedy can only be gleaned from press reports of the time and the London Illustrated News and the Newcastle Courant provide graphic descriptions and this slide indicates the funeral procession which covered some three miles (Fig. 19) with the last hearse still at Hartley when the first was arriving at Earsdon. A small number of bodies were interned at Cramlington, Cowpen and Seghill. The existing graveyard was not big enough to support the number of graves required (Fig. 20). It already contained 75 miners from the Burradon Pit explosion which had occurred some two years earlier. An extension was required, and a gap was made in the churchyard wall to the adjoining field. Some 50 men employed digging graves worked nonstop from dawn Saturday until dark on the Sunday evening. Digging was still proceeding as the bodies were being buried.

As the desperate work to clear the shaft was proceeding and hope still existed, the inquest on the five men killed in the shaft was opened. It took place on Monday 20th of January 1862 at the Hastings Arms Inn. The inquest was held before the coroner Mr Stephen Reed. Mathias Dunn, Mines Inspector for Northumberland, gave evidence as to the cause of death and details of which are recorded in the Newcastle Courant June 1862. The recorded verdict was given that the men in the shaft were accidentally killed by the breaking of the engine beam and the falling of the same into the shaft. The main inquest on the entombed, was held on the 3-6 February 1862. It was held in the United Methodist Chapel, Seaton Delaval, with the coroner again Mr Stephen Reed. Mr Kenyon Blackman, a highly respected mining engineer of national repute was ordered to attend by the then Home Secretary. His role was to assist the coroner on technical matters and ultimately produce a report on the proceedings. Amongst many other witnesses, Mathias Dunn HM Inspector, Messers T E Forster and G B Forster, mining engineers, viewers and early members of this Institute gave evidence.

Some of the evidence makes very harrowing reading with many of the aspects of the injustice of the time relating working conditions very apparent. The immense bravery of the attempted rescuers provides sobering thoughts. In summary the verdict reached reads “As a result of the engine beam breaking, falling into and blocking the shaft, the men died from inhalation of gas being entombed in the Yard Seam as all access to escape was cut off”. The jury also recorded their views on three issues:

- All collieries should have at least a second shaft or outlet to afford workmen a means of escape.
- In future all beams of colliery engines should be of malleable metal instead of cast metal.
- The jury take notice with admiration the heroic courage of the viewers and others who devoted their skill and energy to do everything possible in the attempted rescue.

It is perhaps wrong to single individuals or groups out, but I have my own thoughts on those I would like to mention as I have read the evidence:

- Tom Watson who survived, climbed down the shaft and prayed with a dying man.
- James Amour, a highly respected back overman, who no doubt calmly led his men from the low main seam up the staple ladder to Yard Seam, where he assembled them in families to await rescue that sadly came too late.
- The men and boys whose suffering is difficult to comprehend no doubt assisted by the brave souls who conducted the prayers for their rescue.
- The immense courage William Coulson and his team, the medics and volunteers from Hartley and other collieries.
- The viewers who carried the ultimate responsibility and direction of often superhuman efforts. Many of these people received later recognition in the form of gold, silver and bronze medals. My thought would be, all deserved the highest of commendation.



One group of men I feel I haven't mentioned yet are the members of the medical profession who made a valuable contribution to the awful task. The Hartley Colliery surgeon, Dr Anthony Davison, together with other local Doctors Dawson and White for Newcastle, Dr Pyle and his son of Earsdon, are recorded from the outset as being present day and night treating the various injuries and gas inhalations that occurred. Mr Ambrose a surgeon who happened to be on a ship in Blyth at the time was in attendance together with Doctors Nichol, McAllister and Ward, these men volunteered to go into the furnace drift if required. One of the awful duties for them was to assist in the identification of the victims and pronounce on the cause of death. No post-mortems were carried out or gas analysis, and in a detailed letter to the Lancet by Dr Davison, he describes fully his assessments as the cause of death by gas inhalation.



Figure 21: Miners medal awarded after the accident.

In the aftermath of the tragedy there was huge national interest and indignation as to the cause. This feeling was led by the press at the time with Illustrated London News, Newcastle Courant and the greatest voice in the world, The Times, highlighting the issue. *"The scandal that, because of cost the mine owners had failed to provide a second means of egress"*.

- The campaign of the miners is really a separate paper and really is a fore runner of what was to become mining unions. It highlighted the huge social issues that existed and lack of safety due to profit motives on behalf of owners.
- The Mines Inspectors reports highlighted the shortcomings of the existing systems and emphasised the need for change in the legislative process.
- The influence of the North of England Institute Mining Engineers is also important as they effectively conducted their own inquiry into the tragedy and effectively lobbied for change.

The result of the tremendous pressure exerted by all parties had its effect on Government and an Act amending the law relating to coal mines was passed on the 7 August 1862.

"It is unlawful for the mine owner to employ persons in such mines unless there are at least two shafts or outlets separated by natural strata not less than 10 feet in breadth".

The shafts were required to provide distinct means of ingress and egress to persons employed in the mine and was applicable to all mines on 1 January 1865. This special Act was consolidated in the coal Mines Regulations Act of 1872.



Figure 22: Seaton Sluice.



Figure 23: Memorial Garden, New Hartley.



Figure 24: St Albans Church, Earsdon.



Figure 25: Monument to the Hartley Disaster.



Memorial to the Disaster

Should my paper have raised interest with people not knowing the locality or indeed be aware of the strong local feeling that still binds people together, can I suggest you take a short trip around some of the sights I have mentioned. Perhaps it will complete the picture I have been attempting to describe.

Start at Seaton Sluice, the harbour where much of the coal was shipped (Fig. 22). The village is now a peaceful little fishing harbour. In front of the Kings Arms is an information plaque giving a brief history. Nearly 150 years ago, it was a site of a major industry with the local coal being shipped in large quantities to many receiving ports. It was also home of the then famous Royal Hartley Bottle Works. Cross over the Seaton Burn and take a short drive up the avenue past the former coal owners' house Seaton Delaval Hall. You should take time to read the book "The Gay Delavals". The story of the powerful Northumberland family owning land and coal mines. The estate which owned much of the land and coal royalties was ultimately taken over by Lord Hastings. On his death much of the estate passed to National Trust in lieu of death duties.

After the hall, turn right and in a short distance you will be at the Memorial Garden in New Hartley site of the Hester Shaft (Fig. 23). The garden was improved in 1976 by funding from National Union of Mineworkers and local contributions. It's now a peaceful haven and you will readily find the fatal shaft and engine house area. Each year the Memorial Committee is to be commended for its endeavours in organising concerts, church services and other events as a reminder of the past events. Take your time to reflect, but take a short journey to the pretty village of Earsdon. St Albans Church is on west side (Fig. 24). Don't be misled by the monument at the entrance of the churchyard, head round the church towards the sea and you will find the Hartley monument (Fig. 25). It is not difficult to find, and you will find it quite moving.

On the four sides all the names are listed and perhaps the most poignant is this one that I have highlighted. The tragic Little family. Take note of the ages, the youngest merely 10 years old. For anyone wishing to obtain more facts, visit the Mining Institute and perhaps if you don't already volunteer, come along and assist. Our librarian Jennifer and her huge band of helpers will welcome you with open arms. The records here are unique. In conclusion, I would like to close with a verse from George Cook's poem, The Hartley Calamity:

*"Ten Score lives have proved it true
The one shaft system will not do
The horrid system one way out has slain its hundreds there's no doubt
May Hartley in the memory live
A death blow to the system give"*

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