

**GARNANT. Cwmaman, Glamorganshire. 16th. January, 1884.** The colliery was the property of the Garnant Collieries Company and John Haigh was the manager of the colliery and had been in the post since July 1882. The colliery was worked on two shifts with about 136 men on the day shift and 50 on the night shift. The night shift left work between three and four in the morning and the day shift went in about 7 a.m.. On the day of the accident the day shift was going to work three hours earlier so that the colliers could attend a funeral.

David Jenkins, the banksman at the colliery arrived for work at 3.30 a.m. on the morning of the accident ready for the men to commence work at 4 a.m. The engineman was already there, the night banksman was still here and some of the men had already descended when he arrived. When he got to the bank, he saw that the hitcher and two or three men were ready to go down and Jenkins lowered them. Doors were then put round the cage as a horse was to be lowered and this was done without incident.

The next winding was the one on which the accident occurred. Jenkins saw eight men enter the cage and Thomas Michael lowered them without the permission of Jenkins. The signal was given to the signal man who lifted the cage off the keeps. Jenkins did not know who gave the signal. Thomas Michael was near the level and Jenkins gave the signal to stop. There was a bang and the cage disappeared down the shaft.

All the victims were listed a colliers. They were:-  
David Roberts aged 36 years, wife and 4 children.  
Thomas Bevan aged 35 years, wife and 3 children.  
William Lake aged 29 years, wife and 3 children.  
Thomas Richard aged 35 years.  
John Evan Jones aged 32 years, single.  
John David James aged 21 years, single.  
Evan Roberts aged 16 years.  
Thomas Roberts aged 14 years.  
Daniel Rees aged 12 years.  
Edward Morgan aged 14 years.  
Thomas Michael, left a wife.

The inquest into the deaths of six of the men was held at the Raven Hotel, Garnant by Mr. James Rowlands, the District Coroner and all interested parties were represented. The bodies were identified by John Davies, the overman at the colliery. He had arrived at the colliery about ten minutes after the accident when the cage containing the bodies had been brought to the surface.

The 'keeps' were found to be in good order and there had been no complaints from the men about the cage which had been used as a horse cage and had a cross bar fitted with bolts for tying the horse's heads. The morning of the accident, though dark, there was nothing to interfere with the banksman seeing the top of the shaft. There was evidence that the rope was of good quality material and was in good condition.

David Jenkins of Prospect Place, the banksman at the colliery had been employed there since 1874 gave his account of the accident. He said-

"I arrived at the colliery at 3.30 on the morning of the accident to be ready for the men to commence work at 4 o'clock. the engineman was here ready. the night banksman had not left when he came and some of the men commenced to go down before he arrived. When I got to the bank I saw the hitcher and two other men ready to go down and I let them down. A horse and a man went down next. Doors were put round the cage for the horses. The next load were the men who were killed. I saw only eight go into the cage. I did not let the cage down, Thomas Michael did so. I did not give him authority to do so. The signal was given to the signal man who lifted the cage, opened the keeps and passed it down. I do not

know who gave the signal. The cage caught when the top of it was level with the collar board of the top of the shaft. Thomas Michael had turned aside a little and I gave the signal to stop. Michael had the handle of the level loose before the cage stopped. The engineman stopped at once but the breakage and the knock came together. The lever was easy to work and came to its place with a sharp pull."

Thomas Bartlett, a haulier, said he saw the men go into the cage and Thomas Michael, who had been in the job for only a week, operate the lever

Mr. Wales, the Inspector thought the rope had broken due to it being weak at the point of breakage and not strong enough to carry the load and not by any jerk or fall. The rope was fully examined by experts who gave their evidence at the inquiry. They were of the opinion that the fracture was caused by a sudden load.

The Coroner summed up for an hour and a half and the jury, after a similar period of time, returned the following verdict-

"That the accident took place due to the breaking of the rope caused by a jerk, the cage having caught the fangs (or keeps) in consequence of the mismanagement of the lever working them. We consider the conduct of Thomas Michael reprehensible but not culpable."

The Coroner said that the verdict was one of 'Accidental Death' and the public who were present appeared to regard the result as satisfactory.

#### **NAVAL. Llantrissant, Glamorganshire. 27th. January, 1884.**

The colliery was the property of Mr. Moses Rowlands and Mr. William Morgan with Daniel Daniels as the manager. The downcast shaft was at the northern extremity of the Parish of Ystradyfod and was sunk to 413 yards. The upcast shaft had a ventilating fan was at the southern extremity of the Parish of Llantrissant and was about 440 yards deep. Both shafts were sunk to the Six Feet Seam and were about 1,100 yards apart. The shafts were joined by a main heading which met at a fault and effectively divided the colliery into two parts.

The working on the north side of the fault were entirely in the Six Feet Seam. On the south west of the fault third seam was thrown up 35 yards and below this the seam on the south west a Nine Foot Seam was found which was about on the level of the Six feet on the north east side. Where was a heading across the fault, from the north east side of the fault in the Six Feet Seam, ascending into that which was thrown up 35 yards on the north west side. Access was also gained from the incline into the Nine Feet workings lying below the up thrown Six Feet Seam.. the workings were on the longwall system and were of considerable dimensions.

The colliery was worked on two shifts consisting of 328 men and boys by day and 167 men and boys at night. At the time of the explosion there were 11 men in the pit and it was not the custom for more to be underground on Sundays.

The coal at the colliery was a seam coal which was dry and dusty and was of a fiery nature. At the working faces, blowers were common and the daily report books made frequent mention of small bowers in the three months previous to the explosion but no outbursts had been noted. Accumulations of gas had been found by the Assistant Inspector, three times in the previous twelve months and on two of these occasions, the men had been withdrawn from one stall on the advice of the Inspector.

The mine was ventilated by a Guibal fan, made at Penycraig and placed at the top of the upcast shaft and on the 16th. January the air current was measured at 88,035 cubic feet per minute and the expert opinion was that it was properly distributed through the mine. Clanny lamps were used in the mine.

On Saturday 26th. January, the day before the explosion, the barometer was unusually low and the manager telephones the overmen to tell them to be extra careful and repeated the warning to the day officers between 1 and 2 p.m. when William Williams was present. At about 6.20 a.m., seven men were let down the downcast shaft

and four others down the upcast shaft simultaneously. At about 6.40 the explosion was heard And every one in the pit was killed and all the horses also died.

About half an hour later a rescue party descended and three members of this party suffocated and the rest withdrew. It was not until the 30th. January that an exploring party penetrated the workings and the bodies were recovered.

The men who died were-

David Jones aged 52 years, fireman,  
Fred Neydd aged 44years, ostler,  
John Escott aged 27 years, ostler,  
William Williams aged 61 years, fireman,  
Oliver Jones aged 33 years, ostler,  
James Seville aged 49 years, ostler,  
Solomon Edwards aged 42 years, ostler,  
John Heycock aged 42 years, fireman,  
John Heycock aged 19 years, collier,  
John Price aged 43 years, fireman and  
Thomas Davies aged 46 years, contractor.

On the 30th. January. a formal inquest was opened on two of the bodies by Mr. Thomas Williams, Coroner and Mr. H. Grover, Deputy Coroner in whose respective districts parts of the colliery were situated and was continued on the 28th. and 29th. February. The adjourned inquest was attended by Mr. T. E. Wales, Her Majesty's Inspector of Mines and Mr. Randell, Assistant Government Inspector.

After the inspections of the pit after the explosion it was decided that the explosion originated in the intake level between Simon's heading and Penybont heading where a shot had been fired in the stone roof of the main level. The explosion swept through the whole pit with gas kindled at the point where the shot was fired and the blast gained force as it passed through the pit until it rushed with great force through the main return airway and hurled itself against the stables at the south eastern extremity of the colliery. The stables were completely demolished.

The proof that the explosion was caused by a shot was stated in the report by the following facts-

- a). The party that descend the pit of 27th., January had the intention of firing shots.
- b). William Williams, fireman, was one of this party and it was his job to fire shots.
- c). His dead body was found at about the distance from the spot a man would naturally retire after lighting a fuse.
- d). The hole for the shot was drilled and charged the day before.
- e).The charge was not fired until the party descended."

The mine was dry and dusty and it was known that there was gas present from frequent blowers at the coal faces. The attention of the management had been drawn to these blowers by the Assistant Inspector. In his evidence to the great explosion at the same colliery in 1880, Mr. Wales, Her Majesty's Inspector stressed the dangers of firing shots in the Welsh steam coal collieries and in a report by Mr. Wright, the representative of the Secretary of State, emphasised the defects of the Naval Steam Colliery in respect to firing shots.

At the inquiry, two fireman Thomas Beddoes and John Ingram said that shots were fired when there were as many a sixty men in the pit. The manager admitted that he left the firing of shots to the discretion of the firemen or shotmen and that he did not always know when shot firing was going on. At a date which was not exactly clear but was not more than three months before the explosion, Thomas Beddoes fired a shot in the same level less than 20 yards from the spot where the fatal shot was fired. The effect of this was to light and fire a shot which ad been charged near by. This was probably due to some gas being fired and after this Beddows refused to fire shots near this pace. This

ought to have indicated to the manager that the place was dangerous and he should have forbidden shotfiring.

Alfred Lyttleton stated-

“Having regard to these circumstances, I do not think that in no respect to the firing of the shot which caused the deaths of 11 men, the manager has been guilty of such criminal negligence as to justify a prosecution against him for manslaughter.

I think, however, that knowing what he did the manager displayed grievous want of judgement in ever permitting shots to be fired at all at that spot and in according such permission to the firemen did that which in such a colliery no prudent and skilful manager would have done.”

At the close of the inquiry the jury found the following verdict-

“(a) We are agreed that Thomas Davies’s death was accidental. It was caused by the explosion. We are also agreed that the explosion was caused by a shot fired by the late William Williams. But we beg to add that the manager should have given the shotman more explicit orders not to fire the shots at that particular time and place

(b) Daniel Thomas’s death was accidental, and was caused by suffocation. Paragraph 9a), dealing with the cast of Thomas Davies is applicable to the 11 men who were in the pit at the time of the explosion. Paragraph (b) is applicable to the three rescuers who descended into the pit shortly after it.”

Mr. Lyttleton suggested an amendment to the Special Rules concerned with blasting. He suggested that-

“1). The duty of shotfiring shall be confined to one or at most two officials of special competency.

2). No blasting shall in any case take place unless every person is out of the pit whose presence is not absolutely necessary for the operation.”

#### **PENYCRAIG. Penycraig, Glamorganshire. 27th. January, 1884.**

The colliery was owned by Messrs. Rowlands and William Morgan. A serious disaster occurred on Sunday at the Penycraig colliery with the loss of fourteen lives and a large number of horses were also killed. The explosion occurred at 4 a.m. when fortunately the four hundred men who worked in the mine were not at work as it was the custom at this and other collieries, to fire the shots that had been prepared on Saturday on a Sunday when the risk was less and it was thought that the explosion had been caused by the firing of these shots.

Twelve officials, five firemen and seven ostlers had descended to inspect the colliery and the latter to see to the horses. The sound of the explosion was heard at a great distance and very soon, despite the early hour there was an anxious crowd gathered at the pit mouth. Mr. Daniel Thomas, an Albert Medallist, First Class, the owner of the Dinas Colliery, was one of the first to arrive at the scene and soon got a gallant party of volunteers to descend the pit. After going some distance, they found that the guides of the cage were damaged, and with great difficulty and risk to their lives, they got round the obstacle and eventually reached the bottom in safety.

The explosion took place at the Naval Steam Colliery resulting in the loss of fourteen lives of which eleven died from the results of the explosion and three from suffocation. The three who died from suffocation were members of the rescue party who went to the pit as soon as they could to recover the bodies of the eleven killed in the explosion but became the victims of the gas in the mine. One of the three was Mr. Daniel Thomas, the owner of the Dinas Steam Coal Co. who was awarded the Albert Medal, 1st class, for the bravery that he displayed in the recovery of the miners at the Tynewynedd colliery in April 1877.

Her Majesty’s Inspector of Mines, Mr. Wales, gave the following tribute to this man in his report:-

“For many years I knew Thomas well and met him under trying and dangerous circumstances and were I to allow the present opportunity to pass without publicly recording my high appreciation of his sound judgement and unselfish acts of bravery on these occasions I would ill discharge my duty to the memory of one whose name will always be dear to me and to the mining population of South Wales.”

The bottom of the shaft was a scene of utter devastation but without hesitation Daniel Thomas set off into the working with Davy lamps. They were met with the most appalling sights and very large falls of roof and eventually Daniel Thomas, Thomas Lewis, Morgan Howell, David Pascoe and Edward Watkins reached the stables. Daniel Thomas and Thomas Lewis were the first to enter. They found that all the horses were dead and there were two bodies there, one of an undermanager and one of an ostler. Steps were taken immediately to remove the bodies of the men to the bottom of the shaft.

After this was done Daniel Thomas, Thomas Lewis, John Jones, Thomas Morgan, Edward Watkins, called ‘Ned Adare’, Morgan Howell and David Pascoe and one or two others went into the workings. They had to climb over immense falls. John Jones, who was described as a powerful young man, knew that his father was in the pit and went six hundred yards into the pit and Daniel Thomas urged him to come back. He did as he was told.

Sometime later when a fresh party went down the pit to help with the operations they found John Jones and Thomas Morgan lying unconscious in the dust of the roadway. They were dragged to the bottom of the shaft. Thomas Morgan said Daniel Thomas had returned part of the way leaning on his arm but he had fallen to the floor and shortly afterwards Morgan had been overcome by the gas and fell to the floor.

A party of about twelve men under the direction of Her Majesty’s Inspector of Mines, Mr. Galloway and Mr. Daniel, the manager of the Penycraig Colliery went down and they were down the pit for about an hour and were driven back by the gas and with the coming of the night when the air got denser, movement and breathing underground became more difficult and dangerous..

Mr. Galloway insisted that they all went up the pit and they were greeted by an anxious crowd at the pit head who were waiting for news but all that could be told them was that there was utter devastation underground and that the sixty or seventy horses were dead. No traces of human bodies had been found nor any voices had been heard.

The ventilation fan had been damaged and had to be repaired before any further operations could be mounted. The great falls and the position of the other shaft made any natural ventilation impossible and there was a great danger of another explosion.

During the night, repairs were made to the fan and a party went down the downcast shaft on Monday morning. They went five hundred yards into the workings and came to a wall of rubbish. It was known that Daniel Thomas and his companion fell on the other side of this wall on Sunday and it was thought that his body would be found.

There was a hope that the rescuers would be found alive as there was some ventilation passing to that part of the pit and a party of workers headed by Edmund and Isaiah Thomas who were brothers of Daniel Thomas started to cut through the wall which was several yards thick.

At the surface, Mr. Thomas Wales, Her Majesty’s Inspector of Mines for South Wales arrived at the Colliery at 1.p.m. and with Mr. Moses Rowlands, one of the proprietors of the mine, reported to the crowd that the explorers had cut five yards through the wall but it was thought that it was ten yards thick and not as had originally thought, four yards thick. and the crowd settled to an anxious wait.

At 2.30. a.m. the news came to the surface with the sad news that the bodies of Mr. Thomas and Davies had been found. Eleven yards of the wall had been cut through when the Mr. Thomas’ body was reached. He had been suffocated and had fallen sideways with his lamp still grasped in his hand. About one hundred and fifty yards away there party found the body of Thomas Davies face downwards. The features of the men

were described as being peaceful as though placid in sleep. Both bodies were tenderly taken to the pit bank where Mr. Thomas was wrapped in canvass and carried on the shoulders of colliers to his house. Jones was recovered senseless but not dead with Morgan clasped in his arms. They were sent to the shaft and got up with great difficulty.

A party went down the Penycraig downcast shaft on Monday at 10 p.m. but had to return after an hour. The stench coming from the carcasses of the dead horses was overpowering and there was still a lot of gas in the mine.

The body of Thomas Davies was found terribly burnt and the operations went on at the pit during Tuesday with the efforts concentrated on getting the dead horses removed and buried on local coal tips. By Tuesday the fan was working and the foul gasses were swept out of the mine and the Body of Edward Watkinson one of the rescuers was reported to have been found in the workings but there was still gas in the working and the operations were suspended.

On Wednesday at 11 a.m. a party went down the pit and two bodies were found eighty yards into the workings. The bodies were brought to the surface and an inquest into the bodies recovered was opened on that Wednesday.

On Friday Mr. D.H. Daniels the manager and Mr. Edwin Randall the Deputy Inspector of Mines for South Wales explored the part of the mine where the three ostlers and William Williams, the fireman, had been found.

It was learned that on the morning of the explosion William Williams and another fireman named Daniel James had to fire a blasting hole each. Daniel Jones had overslept and had not gone down the pit. The holes that they ad to fire been repaired on Saturday afternoon, Mr D. Daniels and Mr. Edwin Randall found that the hole that it was William's duty to fire had been fired and shattered the rock. It would have been his duty to fir the hole that James was to have fired and it was significant that he had not reached that hole which was in a different part of the mine. The hole was found still charged as it had been on Saturday night.

William Williams body was found seventy yards in a straight line from the hole he had fired and it was inferred that the blast from that shot had hurled him to that spot. What was not explained was that he, an experienced and intelligent man had fired the shot had not discovered the fiery condition of the atmosphere in the mine. On the Saturday night the barometer was very low and the manger gave special instructions to be most careful in all parts of the workings.

Work went on in the pit on Saturday and the two Heycocks father and son were found in separate stalls and wee at the time of the explosion engaged in visiting alternate stalls so as to finish the examination more quickly. The father and son were untouched by the fire and the watch of the elder had run down. David Jones was badly burnt.

With the ventilation improved due to the repairing of the fan, Mr. Randall, the Deputy Inspector descended on Tuesday and they found the bodies of Lewis and Watkinson, Mr. Thomas's two companions lying some way from the spot where Mr. Thomas' body was found. They had missed their way and had been suffocated by the afterdamp. The Queen expressed her warmest admiration for Mr. Thomas's gallant conduct and conveyed Her sympathy to his relations.

Those killed in the explosion-

David Jones aged 52 years, fireman,  
Fred Neynd or Nugent aged 44 years, ostler,  
John Escott aged 27 years, ostler,  
William Williams aged 61 years, fireman,  
Oliver Jones aged 33 years, ostler,  
James Seville aged 49 years, ostler,  
Solomon Edwards aged 42 years, ostler,  
John Heycock aged 42 years, fireman,  
John Heycock aged 19 years, collier,

John Price aged 43 years, fireman, and  
Thomas Davies aged 46 years, contractor.

The explorers who died-  
Daniel Thomas, aged 35 years, colliery proprietor,  
E. Watkin aged 35 years, an overman from Dinas and  
Thomas Lewis aged 34 years, undermanager.

Dr. Evan N. Davis said that most of the dead were burnt but only in the case of Fred Nugent could death be put down to violence.

The widow of Daniel Thomas of Dinas one of the three rescuers suffocated is about to dispose of the collieries and money that is subscribed shall be applied to the founding of a scholarship at the South Wales College.

The inquest was held jointly by Mr. T. Williams, Coroner for Merthyr Tydfyl and Mr. H.L. Gromer Deputy Coroner for Cardiff, at the Butchers Arms in Penycraig and was held nominally on the body of Thomas Davies, one of the victims. The accounts of the inquest give a great deal of detail on the events leading up to the explosion and many of the people who were in the mine at the time gave their experiences. The Hon. A. Lyttleton represented the Home Office and Mr. J. Simons of Merthyr appeared for Messrs. Rowlands and Morgan, the proprietors of the colliery.

Mr. Thomas Burns was the first witness. He was a mining engineer of Bryncethin, Bridgend who had assisted in the exploration of the colliery after the explosion. He found all the lamps locked and, as he was told, he found that there had been a shot fired in the workings. This shot had been fired by the fireman Williams and he had been killed by the shot which had probably ignited some gas near the roof. On a previous occasion Williams had refused to fire a shot because he thought it dangerous.

There was a very large cavity near the place where the shot was fired and he should not have fired the shot without examining this place for gas. He did not think that a prudent man, knowing that there was a cavity in the roof and the state of the barometer on that day, would have fired a shot.

Mr. Daniel Herbert, the manager of the mine was the next to give evidence. He had been the manager for only seven months and he thought that the cause of the explosion was due to a shot. He said shotfiring was left to the direction of the under manager and the officials. There was nothing unusual on the day of the explosion except the very low barometer but a warning had been issued to the officials. The manager made it clear that although there were indications that it would be dangerous he did not know until after the event that shots had been fired but he had not issued any orders forbidding shots in the mine at that time.

Mr. Randall, the Deputy Inspector, testified that on several occasions previous to the explosion, he had found the ventilation of the mine defective and men had to be withdrawn. Mr. Wales the Chief Inspector of Mines for Wales and Monmouthshire said he was of the opinion that Williams's shot had caused the explosion. Mr. Wales continued-

"In my opinion it was injudicious on the part of the manager to allow shot firing in those parts of the colliery spoken to by the firemen in their evidence, but to allow shot firing on the main level after Beddoe had refused to do so some months before was to my mind most reckless conduct on the part of both the owner and the manager.

In my evidence at the inquest into the deaths of the men at the colliery a few years ago, I stated that shot firing should be strictly prohibited in all collieries working in the South Wales steam coal. had that recommendation been carried out the explosion and the consequent loss of life would not have occurred. I would strongly recommend that shot firing should be strictly prohibited in the working of this colliery in the future.

I hope the present sad calamity will act as a warning to such colliery managers as are now allowing shots to be fired in the working of Welsh Steam coal. If such a dangerous practice is allowed, it will sooner or latter in all probability result similar calamities.”

David Davies, a stoker at the downcast shaft was at work at the time of the explosion. The men descended about 6 to 6.30 am and he acted as banksman. He heard a loud report through the shaft at 6.40 am but did not see any flame come up the shaft.

Fred Bedding, a fan man at the colliery. The colliery was ventilated by a Guibal fan that turned about 98 r.p.m. and had been made at the colliery and had worked at the pit for four years and was at the fan close to the upcast shaft on the morning of the explosion. He acted as banksman and had instructions not to let any blasting powder down the mine and to refuse permission to any person who was under the influence of drink to descend the pit. He told the court that three men went down the pit at 6.20 am and at 6.30 Solomon Edwards descended. At twelve minutes to seven in the morning there was a loud report and he saw that the pit was full of sulphur but he saw no flame but some of the things at the mouth of the pit were blown about and he had a very lucky escape when a wall fell down and knocked him down and pinned him to the ground. He was able to get himself out uninjured.

Thomas Beddoe was the night fireman and the results of his inspection on the shift before the explosion he had entered in his book that there was a small blower but the mine was in good condition. Blowers had been found in the No.1 and 2 headings some days before. On Saturday 11th. a brattice was broken down and an accumulation of gas had taken place but it was cleared by 7.30 p.m. He was authorised to fire shots but no shots were fired on Saturday. He had met Mr. Daniels, the manager of the colliery, who told him to be careful as the barometer was falling. During the shift he knew a shot had been fired that night. It was a hot that some men had asked him to fire but he had refused to do so because he considered it dangerous. There were cracks in the roof and it was known to be a dangerous place. He knew that the shot had been fired there after he had refused to fire. It was fired by William Williams who was killed and this was considered to be the cause of the explosion.

Beddoe went on to give a good account of the work that was done and the dangers faced by shotfirers at the time. He related that on a previous occasion he had seen a flash from a shot when there were eleven shots to be fired. He fired one and his butty another but a third went off accident. On the following day, two holes were cleaned and the other six found. He told the overman about this. He said it was usual to fire shots between the shifts when there were not many men in the mine. Alfred Ingrham was the fireman on the night shift said he had known similar occurrences.

James Hayward was a labourer in the mine and he said the mine was good in a good condition when he left the pit at 2 a.m. on Sunday and no shot had been fired in the time that he was down the mine. Morgan Howell was the overman in the Six Foot seam and went down the pit after the explosion at 8 a.m. on Sunday with Daniel Thomas and the other explorers and described his experiences to the inquiry. Daniel Thomas, Thomas Lewis, an overman, Edward Watkins, Thomas Morgan and John James made up the exploring party that left him and others saying that they would proceed as far as they could into the workings. Of the five that went forward into the workings only John James and Thomas Morgan returned alive. Howell had a lucky escape when he became unconscious and was rescued by a party that were following. David Davies, the overman, stated that the air was good in the colliery.

Mr. Thomas Burn, a mining engineer from Bryncethin Bridgend, gave evidence on the state of the pit and he saw no reason why a shot should not have been fired on Sunday if the ventilation was good and there was no gas on examination.

John Carson, assistant to Dr Davies, gave evidence about the injuries to Solomon Edwards and David Jones. He had also seen the bodies of David Thomas and Edward Watkins and he come to the conclusion that they had met their deaths by suffocation.



Daniel Herbert Daniel, had been the certificated manager at the Naval Steam Colliery for seven months. He went down the pit two or three times a week and sometimes every day depending on the circumstances. He provided the official's report books to the court in evidence. On the morning of the explosion he was away with friends at Caerphilly when and he got a telegram from Mr. Williams informing of the disaster. He returned at once and went down the pit on Sunday evening with Mr Barr and saw the place where the shot had been fired. He thought that this was the cause of the explosion.

David Davies, overman, was in charge of six dynamite balls which were ready for use in the pit and there were no signs that they had exploded but after the explosion the door to the place where they were stored was blown off.

Mr. E.W. Randell, the Assistant Inspector of Mines described his visits to the pit prior to the explosion and had been to inspect the pit after the explosion and agreed with Mr. Burns and Mr. Daniel that the gas was forced out by a shot. He did not think it prudent to fire shots at that place in the circumstances since there were cracks in the roof that could lodge gas.

Mr. T.E. Wales, Her Majesty's Inspector of Mines attributed the explosion to the firing of Williams's shot and that the gas came from the old workings in the north and west side. The Inspector was critical of the manager to allow shotfiring but to allow firing in the main level after Beddoe had refused to fire a shot was reckless on the part of the owner and the manager.

In evidence at the inquiry into the explosion at the same colliery a few years ago Mr. Wales had stated that shot firing should not be allowed in all collieries working Welsh Steam Coal. He recommended that in future, ripping should be done by hand which he knew would be slow and expensive.

The jury retired and deliberated for one and a half hours and returned the following verdict.

"We agree that the cause of Thomas's death was accidental. We also agree that the explosion was caused by a shot fired by the late William Williams but we beg to add that the manager should have given the shotfirer more explicit instructions in shot firing at that particular time and place."

The same verdict applied to the ten men killed in the explosion. Mr. Grover, the Coroner, asked what were the verdicts given with regard to Daniel Thomas and the other explorers.

The jury returned the following verdict on these men, 'Death by suffocation resulting from the explosion.'

**NIDDRIE No.7 Pit Portobello, Fife. 24th. May, 1884.** An accident occurred at the colliery which caused the deaths of seven persons. About 5 a.m. while eight men were descending the No.7 mine, one of them saw signs of burning as if the friction of the dry rods had set the wood on fire. When he reached the landing he told a man on the side of the cage who had also noticed it. None of the others in the cage had seen it and it was decided that he ought to ascend and tell the officials while the other men went to their working places. He stated off to the surface and although only ten minutes had passed, he had great difficulty as he passed through what was then smoke and flames. He told the officials and when they tried to get down the shaft they could not for smoke and flames.

The flames soon reduced the headgear to ruins at the No.7 shaft which was the downcast and the smoke that was made was carried to the workings. Most of the men left the pit when they smelt the smoke and escaped through the No.12 shaft which was within 20 yards but 16 others were not so fortunate. They ascended to the rise workings where conditions were cooler and after making one or two ineffectual efforts to get the 220 yards to the shaft, they remained where they were with their lights burning. They burnt for

about 10 hours and they made no further attempt to escape. When they were reached after 10 hours it was found that seven had died from the effects of smoke and gas.

The men who were reported to be still in the mine were, William Hamilton and his son, J.B. Kerr and his son, Alexander Ferguson and his son, Patrick Corigan, single, Fleming and his son, John Warrington, McCartney and Paton. A party which descended between two and three o'clock and discovered the missing men in a cross cut. The men had only realised the danger too late to get through the smoke to safety. There was a ladder about 100 fathoms further on up which they went until they could get no further before they were overpowered. they were found unconscious.

Those who had lost their lives were:-

John Middleren aged 16 years.

George Hid aged 16 years.

Neil Paton aged 22 years.

David Kerr aged 18 years.

Michael Scanlon aged 14 years.

David Smith aged 24 years.

William Hamilton aged 50 years who left a wife and ten children.

It turned out that the smoke had not been in the workings for more than an hour because as the fire took hold in the No.7 shaft, it became an upcast. The Inspector commented-

"If the men had persevered with their efforts to reach the shaft I think it is highly probable that they would all have escaped."

#### **HALL END. West Bromwich, Staffordshire. 6th. September, 1884.**

The colliery was worked by two shifts, one during the day and one at night, in the New Mine Coal Seam. On the 28th. August a fault was reached and it was thought safe for the men to work near the fault. On the afternoon of Saturday, 6th. September, 17 men were working on the night shift, went down the shaft at 3 p.m. and went to work in various places pointed out to them by the deputy night overman. They all worked with naked candles until 4.30 a.m. when the working face suddenly became enveloped in flame. Twelve of the miners were burned and seven died later from their injuries in West Bromwich Hospital.

On Sunday September 7th., Mr. Scott, H.M. Inspector of Mines for the district with Mr. Pickering, Assistant Inspector and Mr. Edward Philips, certificated manager and part owner of the colliery, made a detailed inspection of the explosion area. There had been a great volume of flame but the violence had been very slight.

The men who died were-

Charles Durnel, bandsman aged 42 years who died on the 9th September.

Edward Hughes, loader aged 31 years, died 11th. September.

Edward Lawley, pikeman aged 30 years. Died 18th. September. William Burkes, aged 54 years, bandsman died on the 13th. September.

James Broom, pikeman, aged 44 years, died 16th. September.

Ben Tranter, pikeman aged 42 years. died 17th. September. Charles Dancer aged 36 years, pikeman died 17th. September.

Those who were injured-

Thomas Page Will Percival George Adams Ben Green and Samuel Jones.

The inquest into the deaths of the seven men was held at the Town Hall, West Bromwich from the 1st to the 4th, October. It proved that the ventilation of the mine was

satisfactory and no inflammable gas had been found in the seam since it was first worked in January 1884 up to the time of the accident. The mine had been inspected and the results of the inspections entered in the Report Book required by the Coal Mines Regulation Act, 1872 which proved the face.

Evidence was also given that the night overman or his deputy were in the habit of going round the workings with a safety lamp before the men started work although such inspections were not required by the Act. It was admitted that the New Coal Seam was the most fiery in the district and was liable to give off large quantities of gas but Mr. Scott had conducted experiments at the mine at various times during its eight months of working. On one occasion, the ventilation was closed down for three hours and no trace of gas was found.

There was insufficient evidence to say what exactly happened in the disaster since so many men who were at the scene died but there was an area where the signs of fire were greatest. It was difficult to determine how the gas accumulated in the workings but the barometer was falling on the day of the accident.

The jury brought in a verdict of 'Accidental Death' but added that they thought the owners were culpable of not compelling the men to work with safty lamps and that the officials culpable for not using caution in the execution of their duties. The Inspector commented that there was no question of any person or persons connected with the mine being criminally responsible for the deaths of the miners and the accident was due to the use of naked lights.

Mr. Grosvenor said in his report-

"I think I ought to say that, in my opinion, lamentable accidents of this nature are likely to continue unless the use of safety lamps is made compulsory by law in all seams which, in the opinion of the Inspector of Mines for each district, are likely to give off inflammable gas, and thereby cause danger to life if naked lights are used in them and I think that the existing Act should be amended so as to enable this to be done by an Order from the Secretary of State and the recommendation of the Inspector for the district, without going through the cumbrous formalities of arbitration, as is not required by section 54 of the Coal Mines Regulation Act, 1872, unless it should appear to the Secretary of State that an arbitration in any particular case desirable or necessary."

#### **POCHIN. Glamorganshire. 8th. November, 1884.**

The colliery was the property of the Tredegar Iron and Coal Company and sinking had started in 1879 five miles from Tredegar. Mr. T.H. Stratton was the manager. There were two shafts, the downcast 18 feet in diameter was sunk near the south eastern extremity of the colliery and the upcast 16 feet in diameter was 55 feet to the north of the downcast. Both were sunk to a depth of 316 yards and joined by a heading.

The workings to the north of the main intake were entirely in the Yard Seam which was about three feet thick was the main seam that was worked and on the south of the main intake a comparatively small portion were in the Big Seam. The ground of the colliery sloped considerably from the south eastern extremity northwards to the bottom of the downcast shaft which was the lowest point of that district. Water frequently accumulated in the levels but flowed down to the bottom of the downcast shaft. This water had known to interfere with the ventilation before pumping engines were constructed the year before the disaster.

In the northern districts of the colliery, the strata between the coal seams was thinner than in the southern districts and the coal was worked on the longwall system but not to any great extent. The colliery employed 375 men and was worked in a single shift of 330 men. At the time of the explosion which occurred on a Saturday evening, only 14 men were in the pit.

As in all the steam coal collieries in South Wales the coal at the Pochin Pit was fiery and dusty and apt to give off large volumes of firedamp not only from ordinary working but often in large blowers. Gas had been found within three months of the explosion but no dangerous accumulations had been noticed and no criticism had been levelled at the colliery by the Inspectors.

The colliery was ventilated by a Guibal fan 40 feet in diameter. at the top of the upcast shaft which passed an average of 80,000 cubic feet per minute through the mine. The last occasion on which the measurements were made and recorded was on the 8th. November when it showed that 73,892 cubic feet of air per minute were passing into the west colliery. The record book was supposed to have been signed by D. Davies, the overman but were in fact signed by the weigher in Davies' name. This was irregular and was a breach of the Mines Regulation Act, 1972.

At the time of the accident, Clanny and Meuseler lamps were used but after the disaster Meuseler and Marsant were used and the Clanny lamps were discarded. There was lamps station at the top of the pit and another below ground in the main intake. Two paraffin lamps were hung on each side of the shaft at the bottom of the downcast, one at the entrance to the intake and the other at the entrance of the level which ran to the east.

Nothing appears to have occurred on the day of the explosion which attracted any notice or suggested any warning to any of the officials at the colliery. the barometer was not low, the early morning examinations had shown no gas and so great was the confidence and general security that was felt, that a competent shot man fired shots between 2 p.m. and 5.45 p.m. in a large portion of the working faces.

The examinations were made at 2.30 a.m. by Benjamin Philips and James Philips, both fireman and at 6.15 p.m. by David Davies, overman. neither of the firemen examined or were in the habit of examining, either the standage district or the old workings called the Old Deep. The overman and manager said that the standage was examined for water but the Old Deep was not examined at all.

At 2 p.m. on the 8th. November, David Thomas took over the charge of the pit. There were not more than 25 men underground. With the exception of Thomas, two surveyors, the pump engineman, the lampman and the ostlers the 25 were cutting bottoms and stowing and other general repair jobs. By 9 p.m. all but 15 had left the pit. One of these men, W. Williams was in the lodge room at the time of the explosion at 9.15 p.m. and was rescued alive, the remaining fourteen lost their lives as did every horse in the colliery.

Between 2 p.m.. and 5.45 p.m., Thomas was firing shots in various positions. After careful examination he had found a small quantity of gas in only one place from a hole in the roof and he did not fire a shot there. G. Owen who was in charge when Thomas left, had the authority to fire shots if they were required but there was evidence that he did so between 6.30 p.m. and 9.15 p.m.

The effects of the explosion destroyed the engine house and the fan was blown to pieces. large pieces of timber were thrown 100 yards away. Explorers went down but could not stay long as there was no ventilation but they located four bodies.

About two hours after the explosion there was a large crowd at the pit and ropes had been placed round the shaft to keep people away. a man named Pugh, stated to be under the influence of drink, offered his assistance which was refused by the officials. He rushed forward and fell down the shaft and was skilled. All forty three horses in the colliery were killed. The damage was quickly repaired and the pit re-opened on Tuesday morning.

The bodies of the fourteen men were found in the positions where they were supposed to be working

Those who lost their lives were-  
Thomas Morgan aged 34 years collier.  
John William aged 20 years, collier.

Evan Griffiths aged 20 years, collier.  
Gwilliam Owen aged 34 years, collier.  
John Hamer aged 35 years, collier.  
William Evans aged 30 years, collier.  
William Havard aged 25 years haulier.  
John Jones aged 25 years, haulier.  
Thomas Lewis aged 35 years, labourer.  
James Preece aged 34 years labourer.  
William Scott aged 48 years. labourer.  
James Beavan aged 39 years, labourer.  
John Davies aged 46 years, roadman.  
Isiah Morris aged 28 years, roadman.

The effect of the explosion was violent at the air crossing in the main intake appeared to have been the centre of the blast.

The inquest was opened by Mr. Martin Edwards and all interested parties were represented. All the witnesses agreed that the ventilation of the mine was good and in fact it was passing more strongly just before the explosion.

Several shots had been fired on the north side by a man appointed for the purpose about 2 to 3 hours before. He followed the safe procedure of seeing that there was nothing smouldering after the shots. He did not fire one shot in a hole in the roof and the cartridge was afterwards found intact. The evidence seemed to rule out the possibility of the explosion being caused by shot firing.

Some matches were found in the pocket of one of the victims but although this was against the rules, there was no evidence to show that a man had been smoking. From the evidence of the wreckage it was evidence that the force of the explosion divided east and west on the main intake from an air bridge.

Several theories were put forward as to the origin of the explosion. Mr. Wales thought that gas had accumulated in the drifts to the deep of the south of the shaft and had been ignited by the hitchers who used unprotected lights at the bottom of the shaft while Mr. Bain and Mr Cadman thought that the point of origin was near the main road and radiated east and west. There were objections to all these theories and considerable charring and coking was found in the northern and western extremities of the colliery.

It was thought possible that the flame might have been forced through one of the Clanny lamps but the mine was dry and dusty and the dust only periodically cleared out. The Inspector thought that this had contributed to the explosion. He went on to say:-

“Until comparatively recently dust was not considered an element of danger in coal mining, but since exhaustive experiments by Professor Able and many scientific societies and private individuals both at home and abroad, it has been conclusive that small particles of finely divided matter, if mixed with a small percentage of explosive gas, or subjected to a small explosion, enormously increase its force and extent.”

The jury returned the following verdict-

“We find Thomas Lewis came to his death through an explosion of firedamp which occurred at the Pochin Pit on the 8th, inst. but how the explosion occurred we have no evidence to show.”

Saturday 8 November 1884.

Worcester Evening News

**TERRIBLE COLLIERY EXPLOSION.FIFTEEN LIVES LOST.**

A fatal explosion, including it is feared the loss of fifteen lives, took place at ten minutes past nine o'clock on Saturday evening, at Pochin Colliery, in the Sirhowy Valley, about

three miles from Tredegar, which belongs to the Tredegar Coal and Iron Company. The shock was felt at the signal box at Bedwellty pits, about a mile away, and as soon as the situation was realised the officials of the London and North -Western Railway placed an engine and van at the disposal of the colliery officials. Mr. Colquoun (the General manager), Mr. Stratton (the mineral agent), Mr.W.Hamilton (engineer), and others proceeded to the pits mouth, hundreds of persons at the same time hurrying thither from neighbouring cottages. It was known at the time that there were 15 men in the pit engaged in repairing the pit roads in addition to an engineman working an engine halfway down the pit. The cries of the latter were heard, and he was, after some time, rescued by an exploring party, which was organised under the direction of Messrs. Stratton and Reynolds. The force of the explosion had blown the engine house and ventilating fan at the pits mouth to atoms, some heavy pieces of timber being found a hundred yards away. The cage was closely jammed against the top, and the angled roofing was scattered in every direction. The exploring party were only able to penetrate a little way into the workings owing to the absence of ventilation by the destruction of the fan, and they only found four bodies in their first descent. Three of those identified, Gwyllym Owen, Evan Griffiths and John Daniels, but the fourth body was mutilated beyond recognition. It is considered as beyond doubt that the other eleven men are dead in the pit, as they would not live after the explosion.

The names of these men are:-

John Morris,  
Thomas Morgan,  
John Williams,  
William Evans Morgan,  
John Williams,  
Wyndham Evans,  
John Hamer,  
Thomas Lewis,  
John Bruce,  
William Scott,  
John Bevan,  
William Harvard,  
John Jones.

A fatal accident occurred about two hours after the explosion. Ropes had been placed round the pits mouth to keep back the crowds of friends and relatives of the unfortunate miners but one of these, a man named Williams stated to be under the influence of drink, offered assistance, but was prevented from approach-ing the pits mouth by officials. He, however, rushed forward again, evading them, and approaching too close fell down the pit. He was subsequently found at the bottom a mangled corpse. Great confidence was placed in the safety of this colliery as being one of the best ventilated pits in South Wales. Had the explosion occurred in the daytime, or on any other night except Saturday night, the consequences must have been much more disastrous, as between three and four hundred men are employed. The cause of the explosion is not yet clear. The ventilating pan was restored about midday yesterday and an exploring party again descended, and four other bodies were recovered, all in a dreadfully mangled condition. The workings are not very much damaged and it is expected work will be resumed early next week. Telegraphing at 10.30 last night a correspondent says: Forty-three horses which were in the pit at the time of the explosion are killed, and a large body of men have been to-day employed in digging a hole near the pit in which to bury them. The exploring party is still in the pit and, the ventilating fan is now working successfully, they are expected to recover the remaining bodies during the night. Several of the bodies already recovered were found in the main level, making

it appear as if they were trying to escape. The rescued engineman is progressing favourably.

**DIGLAKE. Audley, Staffordshire. 14th. January, 1885.**

The accident happened shortly after noon when the engineman at Boyle's shaft received a signal to draw up the cage. this he did and when it arrived at the surface, he knew something was wrong a the occupants were drenched with water. When questioned they said that water had entered the mine from the old Diglake workings.

In the mining village of Audley, the news spread quickly and crowds of men, women and children ran to the pit to enquire about their loved ones. It was soon discovered that there could be no descent of the Diglake shaft but rescue parties were organised to descend the Boyle's Hall shaft. The men below found their way to this shaft and had been quickly brought to the surface.

All afternoon the engines were busy and by 5 p.m., a hundred and fifty men had been rescued but it was estimated there were still about ninety men and boys still in the pit and they were supposed to be cut off by the water in the lower workings with little chance of escape.

Forty rescuers maintained their efforts. The were led by William Dodd, the undermanager of the colliery, who, when he heard of the disaster went into the workings and told the men to make their way to the Boyle's shaft. He dropped through a trap door and found himself up to his armpits in the water in the main dip. The current was so strong that he was swept forwards for about twenty yards and was saved by grabbing hold of a post. He made his way through the stream in the dark but the water deepened and he was forced to turn back. In the company with a miner they made their way to the air shaft but water was roaring down this. Almost exhausted, he sat down and found that the water had gone down a little as he set off up the main dip again. he heard voices at the top of the air shaft and made his way against the water, up some ladders. As he neared the top he lost consciousness but one of the men at the top grabbed him and prevented him falling down the shaft.

When he recovered a little, he took a lamp and went back into the mine. he had been in the workings for a few minutes when he heard a voice. He shouted, "*Where are you lads?*" The men recognised his voice and replied, "*We are here William and we are glad to see you.*" He led them put with his light and they reached the staple pit in safety and were drawn to the surface.

John Bolton tried to get into the flooded workings by swimming and he reached and rescued five boys who had taken refuge on an engine at the lower end of the pit. He had to carry them on his shoulders one after the other, through the deep water. He succeeded in rescuing about thirty in this way.

A young man named Sproston was working with his father and his brother and was carried away by the force of the water for several hundred yards. He was thrown into the arms of a man who helped him to a safe place and afterwards to the surface. The lad was the only survivor of a party of twenty six.

A miner named William Mayer was near the spot where the water first appeared. He said-

"I knew well what had happened and we made the best of our way to the pit shaft. I do not know how long it took us, for the distance was many hundreds of yards and we had to pick out the highest ways to escape the rising water that roared past us."

Mayer added that eleven men and boys were left behind and those who escaped ran a considerable danger in stopping to help one another. The boys cried and needed the most help and Mayer and his companions carried them through the workings. One lad was saved by being whirled along by the current with only his hair above the water.

Another miner, Joseph Bateman, escaped before the water, managed to get him and volunteered for the rescue. He remained at the bottom of the ladder in the upcast shaft and helped many of his comrades to safety.

It was reported that an old collier had given up and sank down exhausted, unable to go any further. A young man refused to leave him and pushed and dragged him to a safe place. Water rose and the old man was swept away to his death.

During Monday night, the pumps were constantly working and the exploring parties continued their work but no more survivors were found. The men were brought to the surface and the water continued to lower very slowly in the mine.

In the village, lights were seen at windows through the night and anxious wives and relatives stood at the pit head. Showers of rain and sleet added to their misery and several wives had brought bundles of dry clothes in the hope that the men would be brought up and not have to walk home wet.

As the new day dawned, men from surrounding collieries came to the pit to offer their help and about 10 a.m., a new party went down the pit to remove some wagons that were blocking the roads. The cage had been at the bottom of the shaft for only a few minutes when the signal was given to raise the cage. When it reached the surface, it contained the body of a man who was placed on a stretcher and taken to one of the out buildings to await identification.

The body was found near the bottom of the shaft, wedged among the wagons. A few hours later another body was found. It was that of Henry Rhodes, a boy aged 16 years. Through the night and the following day, the water in the pit rose and fell and it became obvious to those at the pit head that there could be no hope of anyone being left alive in the pit.

Large masses of debris blocked progress of the explorers and they worked to clear this but the progress was very slow and the women at the surface, who had spent thirty hours of painful vigil, were persuaded to go home. On Thursday it became evident that the mine would have to be abandoned for gas was being encountered by the rescue parties and by Friday the engineers decided to suspend operations when it was realised that a large volume of water could break through at any time and endanger the lives of those in the mine.

The decision was most painful to the widows and many refused to shut their doors in the hope that their loved ones would return. The Reverend John Paulii, the Vicar of Audley, told of the character of the men-

“Most of the entombed miners are my parishioners. I know them all, and a more respectable, steady and industrious lot of colliers I never knew. Among those still in the mine is Cartwright, the superintendent of the choir boys at the Audley Church and many others are members of the Bible Class which is held at the Church every Sunday. Cartwright’s wife, poor woman, was at the pit mouth from Monday morning until Wednesday, when I persuaded her to go home.

The houses where the miners lived are still as beautifully kept as in happier days, though the wives are worn out with anxiety and grief. One poor woman whose husband is down the mine had completely gone out of her mind. She is under the impression that she is taking a walk, and that her husband is with her.”

A Relief Fund was organised for the widows and orphans and the Queen telegraphed a message of sympathy to the bereaved and her admiration for the efforts of the rescue parties.

Her Majesty conferred the Albert Medal on William Dodd, the undermanager and at a meeting at the High Court of Foresters a few months later, it was decided to present ‘*Brother William Dodd*’ with an illuminated address ‘*in recognition of his heroic conduct in saving fifty seven members of the Order in the Diglake Colliery disaster.*’

**UNSWORTH. Sunderland, Durham. 18th. March, 1885.**



The colliery was the property of Sir George Elliot and was about seven miles due west of Sunderland with Mr. Moorland as the manager. There had been an accident at the colliery in 1850 when twelve and a boy lost their lives. The shafts at the colliery lead to the the Maudlin, Low Main and the Hutton Seams. The Maudlin was at one hundred and fifty seven fathoms and the Hutton was the deepest of the three at two hundred and seventy two fathoms. The explosion took place in the west pit of the Maudlin Seam and completely wrecked the shaft but the upcast was not damaged and gave access to the mine.

A few minutes before 9 a.m. that cage came up the shaft and several men entered. Suddenly there was a loud report from below and there was an uprush of air and dust from the shaft. The brattice in the shaft was shattered and the cage smashed. The miners who were waiting to descend fled. At the time the whole of the night shift were down the mine, some hundred and twenty men and boys.

The alarm spread quickly and crowds of people came flocking to the pit head. Men in flannel suits, knee breeches and leather caps came from neighbouring collieries to volunteer to help with the rescue operations. At the upcast shaft, a chain and kibble was rigged from the windlass and a band of men went down into the mine. At the pit bottom there were masses of wreckage, boarding, props, coal , stone and tools lay scattered about.

The explorers went to the West Pit and they had not gone far when they came across the first body which was scorched, disfigured and bruised. They found three men alive who were taken to the surface and tended by doctors who had arrived at the colliery. Others were rescued who had been scalded as if by a boiler explosion.

William Puttams, one of the explorers gave an account of the operations-

“When I got down the first thing that caught my attention was the state of the mine. Everything seemed upside down. Large balks of timber, twenty four inches thick, were split like pieces of matchwood. The boiler in the enginehouse was lifted from its place and about 200 yards further up there was a fall. It was terrible to look at. We crawled along the ground for about 200 yards but we could go no further. You can not imagine the fearful desolation I saw and what is more, I hope I will never see again. The tubs were turned upside down and some of the iron wheels were torn off. This will give you an idea of what a terrible explosion it must have been. I don't think there is any chance of saving any of the poor fellows down the pit.”

The explorers went forward over the mass of rubbish that came from the numerous heavy falls that occurred until they could go no further. they returned to the surface with the news that there could be no one left alive in the mine. Among the party were Clarence Lindsay and Elijah Donnelly who went into the return airways after finding the main way to the west pit blocked. On the way they met Richard Slee, master shifter, who volunteered to go with them. They travelled along the return air ways for about one thousand yards and they found the pit in good order and decided to turn back.

They had not gone far with Lindsay leading the way, when Donnelly was overcome by the afterdamp. Lindsay and Donnelly helped him but he became unconscious and the other two were feeling the effects of the gas. Slee then became unconscious and Lindsay was uncertain to try to drag them out or to go for help. He decided to try to drag them out but he had not gone ten yards when also was overcome. He fell and his lamp went out. He left them and crawled forward on hands and knees. he was found by another exploring party and taken to the surface where the Doctor Wilson revived him. Parties went back into the mine to look for Slee and Donnelly and after two hours they returned to the surface with the two bodies.

It was reported at the time that Mr. Lindsay had taken the precaution of putting iron nails in his mouth which he sucked. It was thought that the afterdamp made a carbonate of iron when it came into contact with the afterdamp and this saved his life.

Three years later Lindsay was appointed as Chief engineer at the diamond mines in Kimberley South Africa.

Those who lost their lives were-

T. Crake	Shifter	66
Moses Harlow	Shifter	41
Michael Quin	Shifter	53
Henry Hunter	Shifter	75
David Beveridge	Shifter	24
James Dawson	Shifter	62
John Ball	Shifter	68
James Clarke	Shifter	60
John Tumilty	Shifter	67
John McGrevy	Shifter	52
William Sparks	Shifter	62
Robert Richardson	Shifter	39
R. Harrison	Shifter	61
John Ingleby	Shifter	48
Samuiuel Brown	Shifter	47
William Brwn	Shifter	28
James Howarth	Shifter	48
T. McLaughton	Shifter	38
I. Outhwaite	Shifter	29
P. McQuillan	Deputy	47
M. Winship	Deputy	59
Jos. Greener	Deputy	
W. Carr	Deputy	36
Charles O'Neil	Chockdrawer	39
C. O'Neil jnr.	Chockdraewr	14
James Cook	Hewer	30
Martin Wallace	Hewer	43
Thomas Connell	Hewer	27
John Wood	Hewer	55
John Taylor	Putter	20
Thomas Kelly	Putter	21
John Dunning	Driver	17
Hugh Murray	Driver	16
James Walmesley	Waggonwayman	25
Thomas Wetherell	Waggonwayman	22
Ridley Taylor	Waggonwayman	39
R. Sysland	Horsekeeper	32
Thomas Dobson	Boiler fireman	18
William Howarth	Boiler fireman	20
R. Caldwell (Slee)	Master shifter	43
Elias Donnely	Back overman	41

The inquest into the disaster was conducted by Mr. John Graham, Coroner. Mr. C.S. Lindsay, assistant viewer of the colliery gave details of the system of ventilation of the Maudlin seam and after a long and exhaustive inquiry the jury returned the formal verdict:-

'Accidental Death' due to an explosion of coal dust and air, ignited by the shot fired at Brown's place in the stone drift."

The jury added the following rider:

"The jury wishes to say that they leave the question of shotfiring to be dealt with by the proper authorities."

### **GREAT FENTON. Great Fenton, Staffordshire. 8th. April, 1885.**

The colliery was owned by the Stafford Coal and Iron Company and William Robson was the certificated manager. The colliery was ventilated by a Waddel fan, 45 feet in diameter which delivered 120,000 cubic feet of air per minute to the mine and about 8,000 cubic feet per minute of this went to the Knowles seam which was one of several which were worked at the colliery. It was nearly 9 feet thick and very strong with no well defined cleat. The Knowles coal workings had two levels and went about 200 yards from the shafts. They were 9 feet wide except for the first part of the upper level which was 12 feet wide. The top coal was left as the roof and they were 6 to 8 feet high. The upper level which was the return opened straight into the upcast shaft. The explosion occurred in the Knowles seam at about 7 a.m. on the 8th. April.

William Dale, the underlooker at the Homer Pit, went down about 6 a.m on Wednesday and went through the Knowles Seam. He did not make an examination but went straight through to the level. he saw the fireman, John Bithel in the seam and left him there. Dale went to the jig crut on the south side of the Rag mine when he felt the explosion as a 'suck'. he went to the top of the jig where he met two men and guided them into the fresh air. There were no casualties in the Rag mine and all the men who were working there got out safely.

The manager was in the colliery office when he heard it and he immediately went down the Sunderland pit to see if all was right. He found it so and then he went down the Homer pit and found that in the Rag mine, he had to open doors to clear the smoke. He found Dale in the Knowles seam and with others they managed to get to the far end. The first thing they saw was the bodies of Edward and William Forrester in the bottom level. The manager asked William if a shot had been fired and he replied that there was not one fired there but there had been one fired in the other level. The manager had them brought out. he went on with David Bannister, the overman at the Sunderland Pit, who after the explosion, went into the workings of the Homer pit with a party. They went through the Rag mine and into the Knowles seam and recovered the body of Beech from the bottom of the jig crut. They then found the body of Daniels in the top level.

A party lead by Mr. Greatbatch, the colliery engineer found an accumulation of gas at the place where a shot had been fired at the top end of the level. The shot had partly blown out and partly done it's work and it was in the place where the Riley brothers were working. Both were killed. The fireman Bithel had charge of firing the shot and and it looked as though the shot hole had been bored too far. The powder for the shots was taken into the mine in canisters and two or three shots a day would be fired. The canister that Bithel had contained two charges, each weighing about three quarters of a pound. The canister would held five cartridges but there was no way of knowing how many Bithel took down on the morning of the disaster.

Those who lost their lives were-

Samuel Daniels aged 17 years, wagoner. He was very badly burned,  
James Beech, a boy who worked as a taker-off. He had a burnt arm and leg and a broken jaw,  
William Hammonds, a boy who worked as a hooker-on and was very mutilated,  
Edward Forrester, collier, J. Bithall, fireman, who was very badly burnt and died 15th. April,  
Joe Riley, collier who died from burns 9th. April,  
Rob Riley, collier who died from burns 9th. April and  
Tom Forrester, collier who died 18th. April from burns.

The injured-

Will Forrester, loader aged 17 years,  
Henry Hammond, puller-out,

James Nash, wagoner who hurt his arm,  
John Hooks, jigger who was badly bruised and  
George Cooper, jigger who was also badly bruised.

The inquest into the men's deaths was held at the Railway Hotel Fenton by Mr. John Booth the Coroner for North Staffordshire. All interested parties were represented. The first witness was Mr. Robson the manager who gave his description of the mine and the work that went on after the explosion.

Henry Hammond, a collier of Longton, was down the Homer pit at the time of the disaster. He went down about 5.50 a.m. with other men some of whom went into the Rag mine and others to the coal seam and saw Bithel at the lamp station. Bithel inspected his lamp but did not say anything to him. Hammond went to the bottom of the Knowles mine to push some waggons. His brother, who was killed was the hooker-on. He did not remember much about the explosion but was got out by a man named Henry Rogers, bruised and a little burnt. William Forrester was working with the two Forresters who were killed but none of the, tried the place for gas. He heard the shot being fired and saw smoke coming through the bottom driving that Thomas Forrester was making. He saw no flame and he thought two shots had been fired. As he got out of the mine he saw that the hay in the stables was on fire.

Mr. A.R. Sawyer, the Assistant Inspector of Mines for the district made an inspection of the scene of the explosion and gave evidence to the court and he gave a detailed account to the damage to the mine that was caused by the explosion. he came to the conclusion that the explosion had been caused by a blown-out shot. After hearing all the evidence the Coroner summed up and after half an hours deliberation, the jury found that the deceased men had met their deaths by accident through the firing of a shot and added a recommendation that all mines should be worked without shot firing as much as possible.

Mr. Wynne commented-

"Singular to relate, no attempt was made in this case to disguise the fact that a blown-out shot was the cause of this awful calamity. I mention this the more gladly as nearly every explosion due to this cause that I have the misfortune to investigate, the owners, agents, managers, deputies and workmen make bold attempt to throw dust in the eyes of the Inspectors during their examination and this is carried to a greater extent than formally, now that blasting in mines seems to be doomed.

Now that the mining community is more greatly represented, and that the voice of reason must be heard, it is not likely that the lives of working men will be allowed to be sacrificed to the silly notion that coals can not be got without the use of an element which must lead sooner or later to the destruction of human life."

#### **CLIFTON HALL. Manchester, Lancashire. 18th. June, 1885.**

The colliery was a Clifton about 4 miles from Manchester and within half a mile from Clifton Junction on the Lancashire and Yorkshire Railway. There were two shafts at the colliery which were started about 50 years before the disaster and for thirty years the Rams and other upper seams were worked at the colliery until the shafts were sunk to the Cannel Mine at 595 yards but that seam was not worked. There was a hooking-on place in the Trencherbone Mine at 534 yards. From that point the Trencherbone and the Five Quarters and Doe mines which were above were worked. The lower part of the shafts where there was no working was use as standing room for water and the water level almost reached the Trencherbone. The shafts were 10 yards apart. The winding shaft was also the downcast and was 10 feet in diameter and was fitted with wooden conductors and two cages. The other shaft was the upcast and was 9 feet in diameter. It had no internal fittings but there was a capstan engine with pulleys and rope ready for use in either of the shafts if required.

In addition to these shafts there was travelling way between this colliery and the Agecroft Colliery where there were two winding shafts. Both collieries belonged to the same owner and this way was not used for working the coal but only for the occasional use when repairs were being made to the connections to the shafts or engines at either colliery. The two collieries were kept separate by four separation doors.

The hooking-on place at the Clifton Hall colliery was in solid rock a little above the Trencherbone seam and there were large chambers for moving the tubs and for steam boilers, engines, offices, stables etc. the place was lit by gas that was piped down the pit from the surface. The level course ran east west and the strata dipped at one in three and a half. From the south side of the winding shaft a spacious level tunnel or stone drift, worked by an engine and an endless chain haulage, crossed through the dipping strata until the overlying Five Quarters and the Doe Mines were intersected. At each side of the shaft in the Trencherbone mine, there was an enginebrow or incline to the dip, where the lower workings were about 700 yards from the surface.

The seams to the rise of the shaft had been worked out some years before the explosion leaving only a large pillar in each seam for the support of the shafts. The dip workings in the Trencherbone mine also left a pillar to support the Agecroft and the Agecroft Hall shafts. There was also a continuous pillar left in all the seams against the Great Irwell Valley Fault which threw the strata down 1000 yards at the opposite side. The Doe or Dow Mine, was the top of the three seams that were being worked at the time of the disaster. It was sunk through the shafts at 422 yards. The seam was 9 feet 4 inches thick of which about seven and a half were of good coal. At the time of the disaster the workings were on the rise of levels driven from the end of the tunnel. Those in the east were almost worked back to the tunnel but those on the west side were about one and three quarter miles from the shafts. The Five Quarters Mine lay 14 yards below the Doe. It was a thin seam and was worked by tunnels from the Doe seam. The Trencherbone Mine, in which the explosion took place, was 98 yards below the Doe. It had a clean bed of fine splint coal about 6 feet thick and a roof about 2 yards thick of hard white sandy shale called white metal-stone and about a foot of worthless coal called California or Cally. Above that there was 21 yards of solid rock known as the Trencherbone rock.

These seams of coal were being worked near the middle of the section of the Lancashire series. Their characteristics varied in different parts of the coalfield so there was much difficulty in correlating them. between Radcliffe and Bury the Doe and the Five Quarters lay within a few feet of each other. At Clifton Hall they were 15 yards apart and at Little Hulton the upper part of the Doe seam became bass and only the bottom coal was good. At Tyldesley and Shakerley nearly all of it was bass and at Wigan it was supposed that it correlated with the Wigan Five Feet.

The Trencherbone underwent similar changes that were so numerous that it was doubted that the strata in this part of the coalfield was conformable. At Elton near Bury, the shaft was sunk to the Hinds or Cannel Mine, the Trencherbone was represented by only a trace of coal. At Little Lever, the bed including dirt bands, and at Outwood it was up to three yards thick and dipped at one in two and a half. At the west part of Clifton the white stone along with the California coal swells out at places to about 5 yards in thickness. At Kersley and Atherton the overlying rock meets the floor without there being any coal in between. Parts of the rock in this area are pebbly with fossil branches and red iron ore, like ground that had been disturbed or tipped. At Atherton, Westleigh and Westhoughton the seam is about 5 feet thick and the rock is less characteristic. At Wigan the Trencherbone Mine appears to correlate with what was originally known as the Wigan Nine Feet but later as the Wigan Six Feet.

Firedamp was found in these seams all over the coal field and the Doe Mine gave off a lot of gas when it was opened up. The seam was first sunk to in the Wardley Pits in Worsley and gave off so much gas that for a time it was considered unworkable. At Foggs Colliery in Darcy Lever when levels were being driven, a row of Davy lamps were

placed on the high side to burn off the gas and in the Trencherbone or Six Feet at Wigan there had been an explosion in almost every colliery. at Westleigh, the issue of firedamp was so strong that boreholes had to be put into the floor to a thin coal 40 feet below from which the flow of gas had to be stopped by means of a pipe and stop-cock when ordinary persons were working in the mine and it was thought by liberating the pressure in this way the cost of boring save by the lessened breaking of props. At Ladyshore in Little Lever there were issued when it was being opened out and the gas was piped up the shaft where it was burnt. At Outwood, while driving a tunnel through rock from the Doe to the trencherbone, an iron pipe had to be laid with branches from it to numerous crevices from which firedamp issued and the gas was piped away to the shaft where part of it was use for lighting and the rest burnt above ground.

John Knowles was one of the managing directors of the Company who controlled the Collieries near Manchester including Clifton Hall and Agecroft and Simon Horrocks was the old and trusted manager which acted as agent for these collieries. Mr. Johnathan Hall was the certificated manager and had previously been an underlooker at the Pendlebury Colliery belonging to the same owners. Under Mr. Hall two underlookers, one of them David Doxey, aged 45 years, for the Trencherbone Mine and the other, Thomas Worrall, for the Doe and Five Quarters. Under Doxey were five firemen, four during the day and one at night and under Worrall, five firemen, four of them by day and one by night. About 417 people were employed underground of whom 349 worked by day and 68 at night. Of these 100 were datallers, 50 of whom were in the Trencherbone and 50 in the Doe and Five Quarters.

Two steam engines worked in the mine, 12 horses, and engine brow, an endless chain road, 42 double and 43 single gigs or ginneys and 17 double and 20 single cranes. The ventilation furnace was 8 feet long and 9 feet wide and two fires in one of two large steam boilers. Only one of the boilers was working at the time of the disaster and the boilers provide steam for the two engines. The boilers were fed with fresh air and the furnace with the return air from the Trencherbone Mine. There as one air course in which all the return currents and escapes of fresh air were mixed before reaching the furnace. The furnace drift entered the upcast shaft a few yards above the Trencherbone Mine and the return air for the Doe and Five Quarters Mine went into the upcast shaft at the point where the Doe was sunk through about 100 yards above the furnace drift. The furnace was kept constantly lit, even on Sundays and it consumed 4 tons of coal and the boiler fires about 3 tons in 24 hours. One man and a helper, who wound the coal coal up a short brow, attended the furnace by day and one man by night. It was cleaned twice every night and was partially cleaned during the day. The total quantity of air was about 88,000 cubic feet per minute with 52,000 cubic feet for the Trencherbone and 356,000 for the Doe and Five Quarters. The air way of each working bay in the Trencherbone was made 6 feet high and four and half feet wide which was found to stand the best, but this was squeezed when the weight came on, to three to three and half feet.

The system of working the coal was to drive out roads to the far end and work the coal back towards the shafts by bays or faces. The bays in the Doe Mine were 8 to 10 yards wide, with one pack or gob wall which was three yards wide built next to the drawing road. The bays in the Five Quarters were 20 yards wide with the goaf behind, except drawing and air roads which were stowed full. The bays in the Trencherbone were 20 yards wide with two pack walls each 3 yards wide being built one on each side of the drawing road. These pack walls were built of roof stone and any other stone or dirt that was available. They were not throw together, but were built of stone walling on each side with the dirt stowed between them and at every 8 feet as the walls became extended the end was faced across with walling stone. This formed a continuous wall in 8 feet lengths by 9 feet wide. In front of these walls and at part of the faces of the bays, chocks built of wood 2 feet by six inches by six inches and ordinary wooden props were used. The brows were almost all worked to the rise of the face of the coal, and the coal was then

run down self acting gig-brows but some of the brows were worked upbrow from narrow tunnels driven downbrow, the coal being drawn by crane or windlass.

The fireman made their first rounds of the working places in the mornings and also in the evenings when a second shift was worked and examined with a safety lamp and if all was well, they allowed the men to pass the appointed station. At the station the miners lamps were inspected and they had to work with the lamps until the fireman returned and gave them an open light, after which all safety lamps, except those required for testing could be extinguished. The colliery was considered an open light colliery but people had to work with safety lamps where gas was found and near any place where the ventilation had become deranged. The lamps that were in use were Davy Lamps for the fireman and chiefly Davy lamps for the men but some used Clanny and a few the Bainbridge lamp. The men paid for their own lamps and candles.

Gas could be heard fizzing out in new openings in each of the seams but the ventilation diluted it at the point of issue and all issues of gas, large or small were reported in the Report Book under General Rule 2. Powder was taken into the mine in cartridges as required and these had to be kept in canisters or cases. The shots in the Doe and Five Quarters Mines were fired by competent person appointed for the purpose. In the Trencherbone the coal was divided into rhombic forms with smooth, slippery surfaces so that, when the weight was on the coal it could easily be worked in the bays and powder was not needed. The only parts where powder was being used was in the preparations of the levels and on those occasions the shots were fired by a fireman. In the dry parts of the mine the roadways were watered from tanks and about 300 gallons of water a day was used to lay the dust.

Work was going on as usual at 9.20 a.m. on the 18th. June 1885 when a loud report with smoke and dust came from the two shafts. This continued for a few seconds and some flame came from the downcast shaft. The ventilation current then reversed and the ordinary upcast became the downcast and continued to do so for about fifteen minutes. Black smoke came for 13 minutes and then changed to white for two minutes. After this both the currents in the shafts went back to their normal course.

Mr. Dickinson, Inspector for the District, was informed and he sent the news by telegraph to Mr. Martin, Inspector of Mines, and Mr. Turton the newly appointed Assistant Inspector. All three men had arrived at the colliery by the evening. On his way to the colliery, Mr. Dickinson found men coming out of the Agecroft Colliery who were suffering the effects of afterdamp and exhaustion in travelling from the Clifton hall Colliery. When he arrived at the colliery he found the winding cages fast in the downcast shaft and the manager along with Aaron Manley, carpenter, and George Hindley, blacksmith, at work using a capstan and a hoppet to loosen them. The cages appeared to be nearly at the meeting when the explosion took place, running at full speed when both received the full force of the blast and were held by their safety catches with the loose rope dangling.

The manager gave up his place to Peter Horsefield and the Inspector conferred with him and Simon Horrocks, the Agent as to the best way to proceed. Later Mr. Dickinson went into the pit six times assisted by Martin and Turton.

At noon the cages had been loosened and the shaft repaired sufficiently to be used and the manager, Mr. Horrocks, the agent and Israel Barker and Mr. Wallwork, managers from other collieries belonging to the same company, accompanied by Aaron Manley and Robert Ogden descended in the first cage. Mr. Dickinson commented in his report-

“It has not by any means so usual as it deserves to mention the names of the principle explorers, there being seldom, if ever, any lack of heroic devotion, even on less stirring occasions, when scarcely any except the few helpers know what has to be done, and they themselves do not consider it extraordinary but as on this occasion some of the principle ones have been selected for decoration, I have added my tribute by recording them here.”

At the bottom of the shaft the party found, amid the utter destruction, the underlooker of the Doe and the Five Quarters Mine, Thomas Worrall and his two fireman, Charles Parkinson and George Higson had arrived there first. They had been in the Doe Mine, near the end of the tunnel when the explosion occurred and with the help of a metal-stone man, had helped fetch the men from the extreme end of the workings and directed them to travel out of the Agecroft shaft. When the afterdamp had partially cleared, they made their way along the tunnel to the Clifton Hall shafts. They found that Mr. John Crook, manager of the Agecroft Colliery and one of his underlookers, Thomas Williams had arrived there soon after with a party of men who had gone in through the Agecroft shaft. This party had met casualties on the way and helped them. The manager and underlooker went on to meet Worrall. Crook and Worrall had done what they could for the dead and dying and put out a fire that they found at the ventilating furnace and the steam boiler.

It was then apparent to everyone that a terrible explosion had taken place in the Trencherbone Mine. The survivors from the bottom of the shaft were quickly sent out and all except one, who had a fractured skull, survived. Ten others were rescued from the extreme end and these were the only survivors from the Trencherbone. There were other survivors from the Doe and Five Quarter Seams.

Arrangements were made and the workings were explored as far as the falls and the afterdamp would permit. The parts a round the shafts and the enginebrow, having a rock roof were left almost intact but the No.1 East Level from the engine brow was found to have fallen and the rock above was grinding as though it had been shaken or a ground weight had occurred. The No.2 East was inaccessible because of afterdamp and so was the engine brow further down. The exploration was continued and air-crossings and the furnace were found to have been blown away and other loose objects were lying shattered. The steam pipe from the boilers was blown up the brow. In the levels and workings, props and chocks were blown out and the stone between the coal and rock fallen. The men seemed to have been struck dead, some at work and some eating their breakfast. It was obvious that a large body of gas had ignited and the flame extended through most of the workings. The main blast had come out of Nos.1 and 2 East divided in the engine brow, part going upbrow to the shafts and part going down and entering the other levels on both sides.

Work went on in making a way past the falls and temporary screens of tarpaulin were put in to replace the doors and crossings. Ambulances, made of two poles with tarpaulin between were used for carrying the bodies over the falls. Firedamp was found in the extreme rise working in No.1 and no.2 East and a fire was found under a fall on the west side. While the explorations was being carried on and before it was known if any part of the mine had been set on fire, the ventilation suddenly reversed and the explorers quickly got out by the travelling way to Agecroft. Brickwork loosened by the blast, had fallen in the upcast shaft and reversed the air. The fall of this brickwork also opened an old cut-through between the two shafts, through which the afterdamp passed from the upcast shaft and fouled the air in the downcast. This opening was temporally stopped with bags of hay and sawdust which kept the afterdamp on the upcast and allowed operations to go on until it was safe to light the ventilation fires. The bags were the taken out and new brickwork was put in but this caused a short delay.

Ten men were found alive at the extreme end of the Trencherbone Mine. They were in the No.3 East which consisted of three levels from the bottom of the engine brow but were not cut through to the level above, so that the flame and blast could not sweep round this part as it did in other levels but merely compressed the air in the intake and the return. On of the survivors, Samuel Travis, described that the pressure blew out their lamps and candles and when they tried to escape they were stopped by the afterdamp and had to return. They tried again with the same result at 2 o'clock at at 4.30 six of them were able to enter the engine brow and reached the shaft at 10 p.m. and four others



were helped out afterwards. The horse that was with them died from suffocation and exhaustion. The Inspector commented in his Report-

“The rescue of the ten men from the Trencherbone Mine shows that even under the most discouraging appearances hope should be sustained and efforts continued until facts are ascertained.”

Samuel Lambert, a miner who escaped, said-

“I was startled with the flash and a rumbling noise of the explosion and at once hurried towards the pit eye. It was with great hardship that I battled through the water and while thus engaged found a little boy who had fallen beneath the wheels of a waggon and was apparently much hurt. In response to the appeals of the lad, I took him and carried him for a considerable distance through the water. Before reaching dry ground I felt my strength failing and was forced to abandon the youth and the next moment I fell unconscious. I could hear the voices of the rescuers and I was brought out to safety.”

Besides these men all but nine of those employed in the Doe and Five Quarters escaped by the travelling way and one man who was close to the shafts. The total loss of life was 178. Of these 158 were brought out of the Trencherbone, dead and 11 from near the shafts were brought out alive but died at home and nine from the Doe and Five Quarters died from exhaustion and suffocation in the travelling way. 168 died from burns and injuries which caused shock and 10 from suffocation. Six of the 12 horses in the mine were also killed.

There were problems in identifying the bodies. One body was identified by Patrick Gavin as that of Thomas Slattery, his workmate and fellow lodger because the man's wife was too ill to make the identification. After the burial about 20 people identified another body as Slattery but Mrs. Slattery would not agree and the man was buried as 'Unknown'. As a result of this mix up one woman was left without the body of her son, Harry Marshall and she could not obtain Burial Money from the Colliery Club. The coroner suggested an exhumation unless the society would accept the evidence given by the manager as to the death. This was found to be satisfactory and an exhumation order was not issued.

A card was published by '*The Atlas Printing Co., Pendleton.*' "In Loving Remembrance of the following Unfortunate Men and Boys Who Lost Their Lives by the Terrible Exploison, at Clifton Hall Colliery, Pendlebury, June 18th. 1885," listed 176 victims but there are 178 in the Inspectors report.

Those who died were-

Thomas Hall, fireman aged 42 years, of 110, Prestwich View, Pendlebury, married with one child and identified by his brother, Moses.

John William Greenall, taker-off aged 16 years, of 73, Jane Lane, Swinton, single and identified by his uncle, John Massey.

David Doxey, underlooker aged 45 years, of 311, Bolton Road, Pendlebury, married with three children, identified by his daughter, Mary.

James Turner, fireman aged 34 years, of Irlam-o'-th'-Height, married with three children, identified by his brother-in-law, Samuel Mather.

Samuel Kilver, furnaceman's helper aged 14 years of 37, Downing Street, Swinton, single, identified by William Kilver.

John Colley, fireman aged 37 years of 9, Oak Street, Pendlebury, married with four children, identified by his father, William.

Richard Sedon, oiler of wagons aged 41 years, of 9, Hilton Street, Pendlebury, married but no children, identified by Maria Seddon.

John Constantine, stoker of boiler furnace aged 33 years, of Algernon Street, Pendlebury, married with three children. identified by his wife, Sarah.

Ralph Daniels labourer aged 65 years, of 46, Granville Street, Swinton married. with four children, identified by George Daniels.

Daniel Hardman, ostler aged 37 years, of City Walk, married with no children, identified by his wife, Mary.

William Reynolds, day wage man aged 20 years, of 183, Jane Lane, Swinton, single, identified by Sarah Slattery.

James Crook, coal miner, aged 40 years, of 56, Jane Lane, Swinton, married with eleven children and identified by Betty, his wife.

Thomas Collier, taker-off aged 19 years, of 7, Melbourne Street, single and identified by Joseph Sutton, a carter.

James Rothwell, coal miner, aged 23 years, of 20, The Deans, married with one child and identified by Sarah, his wife.

John Evans, engine driver, aged 25 years, of Rake Lane, Clifton, married with no children and identified by Thomas, his father.

William Turner, day wage man, aged 30 years, of Union Street, Pendlebury, married with one child and identified by Hannah Turner..

John Collier, bricklayer, aged 35 years, of 5, Folly Lane, Swinton, married with no children and identified by his wife Alice.

James Williams, coal miner, aged 27 years, of 25, Torrens Street, married with no children and identified by Maria Williams.

William Bradley, pony driver, aged 20 years, of 30, City Walk, Pendlebury, single and identified by his brother, Frank.

John Berry, jigger aged 16 years, of 66, Bolton Road, Clifton, single and identified by Ralph Berry a drugists assistant.

Matthew Brooks, wagoner, aged 16 years of 15, Algernon Street and identified by Caroline Lees, his mother.

Ralph Wadsworth, coal miner, aged 23 years, of Cavendish Street, Pendlebury, married with one child and identified by Mary, his wife.

Rueben Banks, jigger, aged 19 years, 9, Worsley Street, Newton, single and identified by Robert Banks.

James Feeney, coal miner, aged 21 years, of 8, Redmond Street, single, and identified by his brother, Thomas

William Jones, coal miner, aged 38 years, of 132, Bolton Road, Pendlebury, married with one child and identified by his sister, Ann Daiues.

John Eckersley, coal miner, aged 33 years, of 18, Hilton Street, single and identified by his brother Thomas.

James Tatlock, coal miner, aged 21 years, of 19, Old Street, Clifton, single and identified by his sister Jemima Rothwell.

Isaiah Griffiths, coal miner, aged 47 years, of Ling Buildings, Swinton, a widower with three children and identified by John, his son.

John Hardman, coal miner, aged 24 years, of 108, Turton Row, married with three children who was identified by his wife, Mary Ellen.

Edward Humphreys, coal miner, aged 28 years, of 132, Bolton Road, Pendlebury, single and identified by his friend John Jones.

William Henry Reed, filler and wagoner, aged 16 years, single and identified by John Edwards.

William Page, coal miner, aged 37 years, of 33, Eaton Street, married with four children and identified by Priscilla, his wife.

John Mellins, wagoner, aged 16 years, of 8, Holland Street, single and identified by Susannah Edwards who was described as a hostess.

William Ryder, coal miner, aged 48 years, of, 19, Grosvenor Street, married with seven children and identified by Sarah, his wife.

John Edwards, coal miner, aged 29 years, of 8, Holland Street, married with no children and identified by Susannah, his wife.

Thomas Percival Buck, coal miner, aged 18 years of Partington Lane, Swinton, single and identified by his uncle, James Berry.

John Henry Dunkerley, wagoner, aged 19 years, of Brindle Heath, single, identified by a friend, Ann Davies.

William Henry Edwards, coal miner, aged 20 years, of Bank Buildings, single, identified by his brother, Samuel.

William Franklin, wagoner, aged 23 years, of 5, Richmond Street, Clifton, single, identified by a friend, James Morgan.

John Mannion, coal miner, aged 25 years, of Holland Street, Swinton, married with four children and identified by his father, Michael.

Thomas Barlow, coal miner, aged 54 years, of 20, Carrington Street, married with six children and identified by Henry Ashworth, his son-in-law.

Frederick Barlow, coal miner, aged 23 years, single, Thomas' son.

Noah Barlow aged 20 years, single, Thomas' son.

Edward Roberts, horse driver, aged 19 years, of 26, Torrens Street, single, identified by Edward Roberts.

Thomas Mattox, coal miner, aged 22 years, of 22, Old Street, Clifton, married, identified by Elizabeth Merrick.

Thomas Barlow jnr., coal miner aged 30 years, of 22, Long Street, Swinton, married with one child and identified by Henry Ashworth, his brother-in-law..

Alfred Stazicker, wagoner, aged 16 years, of 10, Bold Street, Newton, single, identified by William, his father..

John Ryder, coal miner, aged 46 years, of Bridge Street, Pendlebury, married with three children and identified by William Hawxwell.

Ernest Edge, coal miner, aged 18 years, of 75, New Street, Pendlebury, single, identified by his mother Annie.

William Gee wagoner aged 18 years, of 30, Union Street, Pendlebury, single, identified by his father, John.

Peter Willcock, filler, aged 17 years, of 8, Irlam Square, Irlan-o'-th'-Height, single, identified by his father, Reuben.

Thomas Sackfield, wagoner, aged 13 years, of 32, Union Street, single, identified by his mother, Jane.

Thomas Edwards, coal miner, aged 27 years, of 30, Jane Street, married but no children, identified by his wife May.

Leonard Charles Barter, wagon-coupler, aged 13 years, of 9, Oldham Street, Pendlebury, single, identified by his step-sister, Elizabeth Grimshaw.

John Sackfield, coal miner, aged 48 years, of 32, Union Street, married with seven children, identified by his wife Jane.

John Quinan, day wage man, aged 20 years, of 23, Worsley's Buildings, single and identified by a friend, James Greenalgh.

John Hilton aged, coal miner, 26 years, of 5, Muirhead Street, married with one child and identified by his wife, Harriett Ann.

John Wolstenholme, coal miner, aged 25 years, of 6, Filton Street, Clifton, married with one child and identified by John, his father.

William Hilton, coal miner, aged 36 years, of 184, Whit Lane, Pendlebury, married. with two children and identified by his wife, Ellen.

Thomas Hilton, coal miner, aged 29 years, of 4, Muirhead Street, married with one child and identified by his wife, Ann.

Arthur Wallace, filler, aged 19 years, of 29, Union Street, single and identified by his mother, Sarah.

John Davies, coal miner, aged 26 years, of 29, Oak Street, Pendlebury, married with a child and identified by James Johnson, his brother-in-law.

James Dyson, coal miner, aged 38 years, of 43, Grosvenor Street, Pendlebury, married with three children and identified by his brother-in-law, William Andrews.

Samuel Williams, pony driver, aged 16 years, of 22, Pitt Street and identified by his step-father, George Gerrard.

Luke Gardiner, coal miner, aged 29 years, of 132, Bolton Road, single and identified by a friend, John Jones..

James Redford, coal miner, aged 21 years, of Spence Street, Irlam-o'-th'-Height, single and identified by a friend, Robert Redford.

William Johnson, coal miner. aged 32 years, of 4, Church Street, Irlam, single and identified by his father, Daniel.

John Riley snr., coal miner, aged 44 years, of 11, Bolton Road, married with six children and identified by his wife Alice.

John Done, coal miner, aged 34 years, of 3, Jackson's Buildings, married with three children and identified by his wife, Mary.

John Riley jnr., wagoner, aged 20 years, of 11, Bolton Road, single and identified by his mother, Alice.

Daniel Johnson, coalminer, aged 36 years, of Chalmer's Buildings, married with four children and identified by James Johnson..

Edward Davies, coal miner, aged 36 years, of 3, John Street, Jane Lane, married with three children and identified by Harriett Green

Walter Ewing, coal miner, aged 20 years, of 5, Park Street, Swinton, and identified by his mother, Emma.

Richard Cheadle, coal miner, aged 24 years, of Downing Street, Swinton, single and identified by A. Cheadle, his sister-in-law.

William Williams, coal miner. aged 30 years, of Cavendish Street, Pendlebury, and identified by his father-in-law, John Jackson..

Benjamin Bell, coal miner, aged 18 years, of 32, New Street, single and identified by Elizabeth Davies who lived in the same street.

Joseph Whitehead, coal miner, aged 30 years, of 19, Union Street, Pendlebury, married with two children and identified by his aunt, Betty Whitehead.

William Booth, wagoner, aged 17 years, of Harrol Gate, identified by his mother, Mary.

Kay Porter, coal miner, aged 40 years, of 53, Union Street, married with five children and identified by his wife, Ellen.

Joseph Price, coal miner, aged 29 years, of 35, George Street, married with five children and identified by Caroline, his wife.

Samuel Porter, wagoner, aged 14 years, of 53, Union Street, and identified by his mother, Ellen.

Samuel Dyson, coal miner, aged 24 years, of Rake Lane, Swinton, married with two children and identified by Thomas Dwyer, is brother.

John Dermody, waggon filler, aged 20 years, of 74, Harrol Gate, single and identified by Elizabeth Meredith, his landlady.

Herbert Grimshaw, wagoner, aged 15 years of 48, Union Street, single and identified by Ellen Grimshaw.

John Gretton, wagoner, aged 17 years of 11, Wellington Street, and identified by his mother, Naomi.

Henry Green, coal miner, aged 28 years of 28, Jane Lane, married with three children and identified by Harriett, his wife.

Edwin Greenhalgh, filer, aged 19 years, of 33, Union Street, single and identified by Peter Greenhalgh.

William Riley, wagoner, aged 17 years, of 11, Bolton Road, and identified by Alice, his mother.

James Kay, coalminer, aged 35 years, of 175, Jane Lane, Swinton, married with three children and identified by his wife, Ann.

Hamlet Taylor, coal miner, aged 36 years, of 9, Bury Lane, married with five children and identified by John Taylor, his brother.

John Taylor, coal miner, aged 44 years, of 22, Carrington Street, single and identified by his father, John

Thomas Williams, day wage man, aged 19 years, of 68, Stapleton Street, single and identified by John Corbett.

Samuel Vickers, coalminer, aged 56 years, of Thomas Street, Bolton Road, Pendlebury, married with six children and identified by James Dunn.

Thomas Dunn, coal miner, aged 26 years, of 13, Cotton Street, Clifton, widower who was identified by his brother, James.

John Hamlet Taylor, coal miner, aged 20 years, of 91, Manchester Road, Worsley, single and identified by his uncle, John Taylor.

Israel Atkinson, coal miner, aged 22 years, of 126, Bolton Road, Pendlebury, married and identified by his wife Eliza Ann.

William Mawdsley, wagoner, aged 16 years, of 32, Engine Brow, and identified by his uncle, William Roberts.

William Ashton, coal miner, aged 52 years, of 17, Moore Street, widower with two children and identified by John Astley.

William Parkinson, coal miner, aged 17 years, of 169, Jane Lane, Swinton, single and identified by his mother, Mary Ann.

Thomas Slattery, coal miner, aged 34 years, of 77, Jane Lane, Swinton, married with one child and identified by Patrick Gavin.

Peter Wolstenholme, coal miner, aged 25 years, married with one child and identified by Margaret, his wife.

George Hall, day wage man, aged 42 years, of 9, Oldham Street, Pendleton, married with three children and identified by Eliza Grimshaw.

Joseph Davies, coal miner, aged 26 years, of 32, New Street, Pendleton, married with three children and identified by Eliza, his wife.

George Loader, coal miner, aged 22 years, of 44, Lonsdale Street, Swinton, single and identified by Arthur J. Loader, his brother.

Thomas Bradley snr., coal miner, aged 45 years, of 4, George Street, Pendlebury, widower with four children who was identified by Thomas, his son.

Thomas Hotskiss, wagoner, aged 14 years, of 23, Thomas Street, Pendlebury, single and identified by Mary Jones.

Enoch Jones, coal miner, aged 29 years, of 23, Thomas Street, Pendlebury, married with four children and identified by his wife, Mary.

Henry John Penny, day wage man, aged 29 years, of 14, Worsley Street, Newtown, married with one child and identified by his brother-in-law, Jesse Smith.

Patrick McHugh, coal miner, aged 38 years, of 140, Bolton Road, Pendlebury, single and identified by John Watkins.

Joseph Dyson, coal miner, aged 25 years, of 4, City Walk, Pendlebury, married with two children and identified by Harriett Davies, his mother-in-law.

Joseph Colley, coal miner, aged 35 years, of 81, Clifton Terrace, married with three children and identified by Esther, his wife.

John Davies sen., coal miner, aged 56 years, of 4, City Walk, Pendlebury, married with two children and identified by his wife, Harriett.

John Davies jnr., wagoner, aged 15 years, of 4, City Walk, Pendlebury, single, identified by his mother, Harriett.

James Blomerby, coal miner, aged 47 years, of Bank Lane, Pendlebury, married with three children and identified by his father-in-law, John Ratcliffe.

George Worthington, coal miner, aged 33 years, of 17, Cobden Street, Pendlebury, married with four children and identified by his wife, Mary.

Henry Mattox, coal miner, aged 23 years, of 1, Cobden Street, Pendlebury, married with one child and identified by his mother, Elizabeth Merrick.

David Davies, coal miner, aged 20 years, of 4, City Walk, Pendlebury, single and identified by Harriett, his mother.

John Sutton, wagoner, aged 26 years, of 7, Melbourne Street, married with two children and identified by his wife, Elizabeth.

Robert Crossley, coal miner, aged 32 years, of 70, Harrol Gate, Swinton, single and identified by his brother Samuel.

James Vickers, coal miner, aged 22 years, of 3, Thomas Street, Clifton, single and identified by his mother, Ann.

George Maddon, wagoner, aged 21 years, of 9, Birkdale Green, single and identified by his aunt, Ellen Massey.

Thomas Staley, coal miner, aged 23 years, of Pott Street, Newtown, single and identified by John Sharples.

Joseph Derricot, coalminer, aged 39 years, Harrol Gate, Swinton, married with four children and identified by Mary, his sister.

James Edward Pugh, coalminer, aged 20 years, Harrol Gate, Villas Swinton, single. and identified by his brother, John

Thomas Seddon, coalminer, aged 37 years, of 2, Hilton Square, Pendlebury, married with five children and identified by his brother James.

William Hall, day wage man, aged 25 years, of 432, Twenty Row, Pendlebury, married and identified by his wife, Eliza.

Thomas Morris aged, coalminer, 40 years, of 66, New Street, Pendlebury, single and identified by William Seddon.

Alfred Parry, day wage man, aged 31 years, of 15, Holland Street, Swinton, married and identified by his wife, Jane.

John Atkinson, coal miner, aged 40 years, 60, New Street, Pendlebury, married with six children and identified by his brother-in-law, James Seddon.

John McCarthy, wagoner, aged 17 years, of 24, Saxby Street, Irlam-O'th'-Height, single. and identified by Elizabeth Robbins.

John Dyke, coal miner, aged 34 years, of Muske Buildings, Swinton, married with no children and identified by John Stevens.

William Henry Merrick, filler, aged 19 years, of 56, Oak Street, Pendlebury, single and identified by his uncle, William Merrick.

James Hughes, wagoner, aged 20 years, of 15, Cobden Street, single. and identified by John Stevens.

Charles Edward Gaskell, coal miner, aged 20 years, of 46, Bolton Road, Clifton, single and identified by Sineon Gaskell.

William Wardle, coal miner, aged 34 years, of 60, Bury Lane, Swinton, married with four children and identified by his wife, Mary.

William Darby, filler, aged 23 years, of 60, Jane Lane, Swinton, single and identified by Sarah Darby.

John Smethills, coal miner, aged 32 years, of 22, Alice Street, Swinton married, with six children and identified by Mary Jane Smethills.

Jospeh Clamp, coal miner, aged 44 years, 8, Bridge Street, Pendlebury, married with six children and identified by Herbert Wild.

Thomas Robbins, coal miner, aged 38 years, of 24, Saxby Street, Pendlebury, married with six children and identified by Elizabeth Robbins.

Walter Blower, coal miner, aged 28 years, of Victoria Terrace, Stone Acid, married with one child and identified by Albert Blower of St. Augustine's School House.

Samuel Sharples, coal miner, aged 34 years, of 56, Bolton Road, Clifton, married with seven children and identified by Richard Sharples.

John Yates, coal miner, aged 26 years, of 6, Knowles Square, married with three children and identified by Alice Yates.

Samuel Matthews, coal miner, aged 21 years, of Cobden Street, Pendlebury, single and identified by Thomas Stevens.

John Taylor, wagoner, aged 16 years, of Harrold Gate, Swinton, single and identified by Thomas Wallwork.

Daniel Porter, coal miner, aged 35 years, of 50, Union Street, Pendlebury, single and identified by James Porter.

William Porter, wagoner, aged 15 years, of 53, Union Street, Pendlebury, single and identified by Ann Porter.

John Howell, coal miner, aged 21 years, of 7, Moore Street, Pendlebury, single and identified by Harriett Worsley.

William Rushton, wagoner, aged 17 years, of 19, Birkdale Grove, Swinton, single and identified by James Rushton.

Samuel Leach, coal miner, aged 37 years, of 54, Union Street, Swinton, widower and identified by William Stavely.

Edward Sofield, coal miner, aged 29 years, of 5, Moore Street, Pendlebury, married with one child and identified by his wife, Rachael.

James Hopwood, aged 15 years, of 17, Burying Lane, Swinton, single and identified by James Hopwood.

James Warren, wagoner, aged 17 years, of 42, new Street, Pendlebury, single and identified by Samuel Warren.

Sanuel Eaves, day wage man, aged 27 years, of Cavendish Street, Pendlebury, married with a child and identified by John Eaves.

John Evans, coal miner, aged 25 years, of 25, Spencer Street, Pendlebury, married with two children and identified by Alice Evans.

John Hughes, coal miner, aged 18 years, of 28, Spencer Street, Pendlebury, single and identified by his brother, James.

Thomas Taylor, furnaceman, aged 44 years, of Harrold Gate, Swinton, married with seven children and identified by his brother-in-law, Thomas Wallwork.

Albert Valentine, bricklayer's labourer, aged 27 years, of Folly Lane, Swinton, married with two children and identified by his wife, Sarah.

The body of T. Slattery was claimed but later was found to be Harry Marshall.

Bodies recovered at Agecroft on the 18th. June, 1885-

Thomas Worsley, wagon filler, aged 28 years, of 12, Kent Street, Pendleton, single and identified by his father, John.

Robert Worrall, wagoner, aged 13 years, of 12, Chaple Street, Pendlebury, single and identified by David Jackson his putative father.

George Enoch Berry, wagoner, aged 20 years, of Albion Street, Pendlebury, single and identified by Harriet Barnsley, his sister.

George Roberts, coal miner, aged 25 years, of 30, New Street, Pendlebury, single and identified by Robert Roberts

Shemei Jackson, coal miner, aged 33 years, of 39, Union Street, Pendlebury, married. and identified by Sarah, his wife.

William Baxter, coal miner, aged 20 years, of 20, Spencer Street, Irlam, single, and identified by his mother, Maria.

Ralph Crook, coal miner, aged 42 years, of 103, Jane Lane, Swinton, single and identified by his brother, Simeon.

John Crook, coal miner, aged 19 years, brother to Ralph.

William Berry, coal miner, aged 54 years, of Albion Street, Pendlebury, married and identified by his daughter, Harriet Barnsley.

The men who died at their homes-

Walter Barker, stable boy, aged 13 years, of 12, Carrington Street, single and identified by his mother. Died at home.

John Hardman, hooker-on, aged 25 years, 22, Back Oak Street, Pendlebury, married with one child and identified by Ann Hardman, his sister-in-law. Died at home.

Thomas Hardman, hooker-on, aged 28 years, of 375, Bolton Road, Pendlebury, married with five children and identified by Sarah, his wife. Died at home.

John Allen, hooker-on, aged 29 years, of 40, Brackley Street, married with no childred and identified by Sarah, his wife. Died at home.

Joseph Pearson, aged 50 years, of 13, Park Street, Swinton, married with five children and identified by Sarah, his wife. Died at home.

Samuel Jones, aged 24 years, of 19, George Street, single and identified by his father, Samuel. Died at home.

Peter Kimer, oiler of wagons, of 37, Downing Street, single, identified by his brother, William.. Died at home.

James Whittingham, aged 33 years, of 3, Hornby Street, Pendleton, married. with four children and identified by his wife, Margaret. Died in hospital.

James Crook, foreman aged 23 years, of 96, Bolton Road, Pendleton, married but no children, identified by Sarah, his wife. Died at home.

William Lycett, aged 16 years, of Franchise Street, Pendleton, single and identified by his father, J. Lycett. Died in hospital.

A Relief Committee was formed and the Queen sent a message of condolence. The Lord Mayor of London opened a subscription for a mansion House Fund and the Mayors of Salford and Manchester presided over meetings to raise funds for the dependants. The Relief Committee estimated that there were 85 widows and 279 children to be provided for and in addition to this, 36 persons who were dependent on those who had been killed. The total number who were dependent would therefore be about 400 and it was reckoned that between £15,000 and £20,000 would be needed for the effective relief of the bereaved.

To raise money for the appeal, a Wigan Band gave a concert at which they raised £7.10s.0d. but played a piece of music that was copyright. The result was claim for £14 from a firm of solicitors which they had to pay.

The inquest into the disaster was held at the Pendlebury Institute by Mr. Frederick Price, the county coroner and a jury with Councillor Addison Pendleton as foreman. All interested parties were represented. At the opening of proceeding, Mr. Dickinson received an anonymous letter that was undated which related to the ventilation of the Trencherbone Mine and Mr. Martin made an inspection the following day when he found gas in Joseph Derricott's place in No.2 East when the air had become stopped and the men sent home. Martin, saw Derricott, who explained that he had released the air to the No. 1 Level and Mr. Martin went to the face of the east and west side levels, testing for gas but found none but he found naked lights were in use in all the places.

Betsy Taylor widow of Thomas Taylor, one of the furnace tenters, stated that her husband had told her that an explosion would occur. He had said, "that the roadways were so that a person could not walk up straight as they were when James Baker was manager three and half years before.". The Christmas of 1883, the Clifton Hall shafts were under repair and Taylor had to travel the Agecroft way on his hand and knees and was thankful to get back. The air was bad and he complained of the slack or small coal he had to urn was so bad that he could not loosen the clinker fro the bars. She was not aware that he had told the officials for fear of losing his job. He son, who was lost in the disaster, complained to her, three days before the disaster that the roof was loose in the place where he worked. Thomas Wallwork and friend of Mr. Taylor, supported this story and said that the had been given better coal to burn when the Inspector was expected.

Ellen Hilton, widow of William Hilton who had worked for 26 years for the owners also told the court that her husband feared an explosion and that the place where he and his brothers worked was safe but there were other places that were fouled. He was going out of his mind about the pit and there was no management about it, the fireman was not fit for his place and and on occasions he had been down the pit with the fireman he had made no inspections but left it to the men. He also thought that the underlooker was not doing his duty. Similar stories came from Ann Hilton, widow of Thomas and William Hilton's brother and Harriet Ann Hilton, widow of John Hilton and brother to Thomas and William.



John Tatlock had worked in the Trencherbone Mine since it was started in May 1865 and had finished working there three years before the disaster and he thought it was the 'best fitted up place' he had ever worked in. Firedamp came from the goaf occasionally but he had heard his son, John who also worked in the mine and was killed in the disaster, say that they expected an explosion and he had asked the underlooker to move him to another mine but he would not. John's place was on the west side and was considered a bad one, not because of the gas but for the fact that there was plenty of coal and not enough waggons to get it away and this prevented him making enough wages.

Sarah Jackson, widow of Shinei, a miner in the Doe Mine and was one who lost his life travelling though to Agecroft, said that her husband had told here that there would be an explosion as there was very bad return air in the Doe Mine. Three men, George Battersby a miner, Thomas Buckley, a day wageman and John Wolstenholme stated that they had never heard anyone say that they expected an explosion.

John Taylor, fireman for the previous eighteen months and had worked at Agecroft Colliery previous to that took part in the exploration of the mine after the explosion and was one of the first to enter the No.1 East level after the explosion. The level was then weighting between the engine brow and the working places and there was firedamp in Porter's Place. He thought the explosion stated in the No.1 East level. He lost a brother and a nephew in the explosion and said he had never had anything said to him about the mine being dangerous.

William Buck was the previous night's fireman and had been ill the previous week. He said that he reported all gas in the report book including that which was found in Robin's and Derricott's bay, No.2 East on the 22nd. October 1884 when coal had fallen into the airway. This was repaired and before the explosion this bay and two others had been completed. No workman had ever complained to him about gas. Thomas Buckley, a daywageman who had been in the mine for three years knew of this and told the court that William Buck had been ill, he had acted as fireman and the reports were put in the report book by the underlooker as Buckley could not write and simply placed his mark on the report. Another daywageman, John Wolstenholme, who worked with Buckley corroborated this evidence.

Benjamin Crook, the night fireman was on duty the night before the explosion did not find any gas and did not perceive any weighting and George Battersby, Thomas Price, miners and Wint's two sons said that there was no gas when they left work and there was no weighting but just at the end of the shift, Wint's lamp showed a little gas. He did not tell anyone.

Samuel Travis, collier, was in the No.3 East when the explosion occurred and was one of the 10 men who came out alive and survived and stated that a horse was with them and died of afterdamp.

Johnathan Hall, the certificated manager gave evidence that he went down the pit at different times, sometimes before six in the morning but generally about nine and he conferred with the underlookers for about half an hour every afternoon between three and four o'clock. There was nothing that the owners did not do for the safety of the mine. He thought the explosion stated at the far end place in No.2 East where Dyke worked by day and Price at night and that the gas came from the old goaf. A pillar of coal that had been left to support Agecroft Hall supported rock which suddenly weighted and produced a sudden outburst of gas. It appeared to have been sudden for some of the men were found with picks and shovels in their hands. The explosion came as a surprise to him and he had never heard any talk of the mine being dangerous or of the quality of coal that was used in the furnace.

The name and address of Mr Dickinson, the Inspector, was posted up on the Official Abstract of the Act and the special rules in a conspicuous place. Mr. Dickinson visited the mine several times a year and Mr. Martin, the Assistant Inspector had been down three times that year and Mr. Turton, the new Assistant once.

Mr. Hall told the inquiry that the day fireman in the Trencherbone districts were James Crook, No.1 East, Thomas Hall, No.2 East, John Colley No.3 East and No.4 West, James Turner, Nos.1, 2, and 3 West and the night fireman for the parts where the men worked was Benjamin Crook. Concerning safety lamps he said-

“There was strong disinclination on the part of the miners in this neighbourhood to work with safety lamps, although personally I am in favour of them. I overheard men in this colliery say that they would strike if they were put on with lamps. It had been thought that, taking all things into consideration, it was safer to work with open lights, as there was more careful inspection. I believe that, notwithstanding the explosion, had Messrs. Knowle’s collieries been worked with safety lamps during the last 4 years, more deaths would have occurred from falls of roof, which are very much more numerous than explosions.”

Joseph Dickinson. Her Majesty’s Senior Chief Inspector of Mines who lived in South Bank, Pendleton, near Manchester said-

“Having received the information of the explosion of the 18th. June last, I telegraphed to Mr. Martin and Mr. Turton the two inspectors of mines assisting in the district, and I arrived at the colliery about 11 a.m. I conferred with Mr. Hall, the manager, Mr. Horrocks and others, and took part in the explorations having been in the mine on about six occasions.

I concur in the view that the blast came out of Nos.2 and 1 East Levels of the Trencherbone Mine, and I believe it commenced in Thomas Price’s bay in No.2 Level, where there is coked coal dust nearly half an inch thick on the sides of props and chocks, showing that flame when there both into and from the goaf, but other gas has apparently been drawn or forced out and lighted in other parts of the mine.”

As to the causes that may have led to the explosion, Mr. Dickinson pointed out that powder did not appear to have been used and there was system of watering the roads. There had been an earthquake felt in parts of the country on the day of the explosion but this was not detected in the area and other mines in the district was not affected. Atmospheric changes were recorded and the pressure fell steadily from noon on the 18th. When it became stationary.

Other expert witnesses we called and then the Coroner made his summing up to the jury. A verdict was returned on the 9th. July to the effect that the deaths were accidental and that the explosion if firedamp was suddenly and unexpectedly emitted from the goaf or old workings and was ignited with a candle. The jury seeing the diversity of opinion that existed on the use of naked lights, declined to express an opinion on safety lamps but recommended that it be referred for consideration.

The verdict did not satisfy anyone. The Miners’ Representatives were very critical of the verdict and Mr. Morley, M.P. made a report that stated that the pit was generally well managed and there were no grounds for prosecution under the Act.

Another body had been found under a fall which made the total of deaths 178 and a further inquest was held on 27th. July with a new jury and at this inquest it was heard that safety lamps had been introduced throughout the mine. On this occasion the coroner put it to the jury to record their opinion on naked lights and 11 were in favour of using lamps and three were in favour of using candles..

On the recommendation of Sir Richard Assheton Cross, Secretary of State, Her Majesty was pleased to confer the ‘Albert Medal of the First Class’ upon Mr. Thomas Worrall, underlooker of the Doe and Five Quarters Mine, Clifton Hall Colliery, and Mr. John Crook, manager of the Agecroft Colliery.

The Albert Medal Second Class was conferred on Mr. Charles Parkinson, Fireman, Doe and Five Quarters Mine, Clifton Hall Colliery, Mr. George Higson, fireman, Doe and Five Quarters Mine, Clifton Hall Colliery. Mr. Aaron Manley, pit carpenter, Doe and Five Quarters Mine, Clifton Hall Colliery and Mr. George Hindley, blacksmith, Doe and Five Quarters Mine, Clifton Hall Colliery.

The ceremony took place on Friday evening, 6th. November 1885 at the Institute at Pendlebury which Dr. Fraser, the Bishop of Manchester attended. As well as the presentation of the decorations, seven other people received a silver watch, six a bible and about five a copy of an illuminated certificate and six with the Humane Society's Gold Medal.

**MARGARET. Newbottle, Durham. 3rd. June, 1885.**

The colliery was the property of the Earl of Durham and the colliery worked the Maudlin Seam in which the accident took place. The Margaret Pit was close to the Elizabeth Pit which was abandoned in 1830. The officials at the colliery were well aware that the workings went towards those of the Elizabeth pit and had plans made from the old plans of the Elizabeth Pit.

The accident took place at the end of the sixth gateway in the Maudlin Seam when men were holing and broke into the disused workings of the Elizabeth Pit. The result was that noxious gas was released which caused the deaths of the men The pit was flooded but it was the gas that was the killer.

The exploration proceeded to a place about 20 yards beyond the 6th gateway or branch working. Here the explorers found the clothes and rills of the men but no bodies. They then cur through about four fete of coal and gained entrance to the crossways between the 6th. and 7th. gateways. They had not gone far when they came across the body of James Gray lying in the middle of the way. A short distance away they found the bodies of Thomas Sanderson and Joseph Rosen lying in the crossway. At the 8th. gateway they discovered the body of Jacob Robson. At the time, all the men were thought to have had some warning about the impending disaster and were making their way to the bottom of the shaft but had been overcome by the noxious gasses. The bodies that had been recovered were removed to the bottom of the shaft.

Proceeding further, under the direction of Mr. Smailes, the overman, the party completed the exploration of the 6th. gateway. There was a new place at the furthest extent of the coal where two juds or small workings branched off about twelve yards to the left. The party discovered the bodies of John Bailes, John Calligan, both hewers and John House, the back overman. They were lying a short distance from each other. Bailes was partly buried under a fall and they apparently had not time to save themselves and died instantaneously.

About midnight, an exploring party under the direction of Mr. Stokoe and Mr. Gilchrist found Joseph Carr, William Davies, George Lowrey, all hewers. Later the party found George Kirtley lying in the water at the landing with the Maudin seam. Pipes were sent down the pit to drain away the water and the body of Joseph Laidler was recovered buried under the rubbish.

Those who died were-  
Jacob Robson,  
James Gray,  
Thomas Sanderson,  
Joseph Rosen,  
John Bailes, hewer,  
John Calligan, hewer,  
John House, back overman,  
Joseph Carr, hewer,  
William Davies, hewer,  
George Lowrey, hewer,  
George Kirtley and  
Joseph Laidler

The inquest into the men's deaths was held on the 24th. June, 1885. The officials of the mine had every confidence in the accuracy of the old working plan of the Maudlin Seam in the Elizabeth Pit, not only because all the working plans of old collieries in the district had always been accurate in the past but because the plan for the working of the Hutton Seam below the Maudlin at the Elizabeth Pit was used for the workings in that seam at the Margaret Pit and had proved to be completely accurate. The face of the holing had been repeatedly examined, the last examination being less than an hour before the accident.

The colliery who worked the shift immediately before the accident gave evidence that the coal face was bright and free from damp and showed no signs of the approaching danger. It was proved by examination from the surface that the old workings had been taken past the point shown by the plans.

Mr. Young commented-

"The spot was 376 yards from the point of holing and the management of the Margaret Colliery believed that there was this distance of virgin ground between them and the Elizabeth Pit workings. In my opinion no human being knew or could have known, except by boring, that the old Elizabeth Pit plan was inaccurate."

The jury brought in the following verdict-

"We find that George Jarvis and other met their deaths by certain noxious gas arising from the old workings from the Elizabeth pit, by holing into such workings at No.6 gateway which caused an outburst of gas and water. Such holing was due to the inaccuracy of the old workings plan of the Elizabeth pit. We attach no blame to anyone engaged in working the Margaret Pit."

#### **APEDALE. Burley Pit. Newcastle, Staffordshire. 20th. June, 1885.**

The colliery was the property of Messrs. Stainer and Company and the explosion occurred in the 10-foot seam. The Apedale Colliery consisted of several pits which were all connected and 7 or 8 seams were worked at an inclination of about forty degrees. The Burley pit was 480 yards deep and was the deepest and from this the 8-Foot Banbury, the 7-foot Banbury and the 10-foot seams were worked. The ventilation at the colliery was provided by a Guibal fan at the pit, 40 feet in diameter and 12 feet wide which ran at 33 to 36 revolutions per minute. The fan was in good order and was not damaged by the explosion. The air measured on the 23rd. March and 8,980 cubic feet of air per minute were passing down the level which was 1,229 yards long. The mine was being opened out and there were two headings. James Green was head butty at the colliery and acted as fireman. The workings at the colliery had been laid out under the direction of the certificated manager, Mr. Cadman.

On the morning of the explosion John Birkin, the lamp-cleaner gave out the lamps which were in good order, It was the custom for the men to light their lamps at the bottom of the shaft and then for the butty to lock them. Albert Rhodes a sixteen year old, horse-driver was in the 10-foot seam on the morning of the explosion, drawing coal from the place where the men were working and he was bringing some jammers from the far end when it occurred. He noticed a wind and some dust and made his way to the bottom of the pit.

James Green said that he acted as head fireman and Baker and Thomas Heath, two men who were killed, acted as his fireman. On the day of the exploit these two reported that the South Mine was free from gas. At the inquiry Green admitted that he had filled in the report book under the date 20th. June and the book had been signed Heath and blank left for the report to be written. A man named Rhodes brought the book and told him what was to be written. He was aware that a shothole had been drilled but he did not think a shot had been fired since a shot would have blown down about ten tons of coal and there were colliers tools opposite the place.

The Assistant Inspector, Mr. A.R. Sawyer gave an account of the state of the mine after the disaster. He stated-

“I went round the 8-Foot Banbury workings in the Watermills pit on the 13th. May 1885 and found sufficient gas to produce a flash in my Belgian Mueseler lamp in the cutting end. The three months restricted blasting was at once enforced in that district. Two crossings which I advised to be put up in the 8-Foot Banbury seam had been put up.

I arrived at the colliery on the day of the explosion soon after 12.30 p.m. I went down the pit and found that it had occurred in the 10-Foot seam where I joined the explorers. On reaching the end of the lower levels, which contained gas, we found a fire in the return or upper level and extinguished it at once.

After ascertaining that there were no more fires by travelling along the return level and looking up the dips, I left the pit, being slightly affected by the afterdamp. I have made careful observations on subsequent days with a view to find the cause of the disaster. On the 4th. July I found a hole 3 feet 5 inches deep from which a charge, had in my opinion, blown out, near the spot where for all appearances, the explosion originated. It was in the fast and had escaped my notice at first because of it's peculiar position.”

There were several observations that made Mr. Sawyer think of this as the source of the explosion. There was intense coking which indicated that dust had been subjected to heat, the portion of the coke on the timbers and the place where bodies were found. He continued-

“Thomas Jones was found 7 yards on the inbye side of a full load which he was evidently pushing at the time. Isaac Jones appears to have been cutting in the thurling and to have fallen down to the level. Thomas Lear, who was shoving an empty tub towards the face, lay partly in to on the broken outbye end and his coal was down at the face. In the main dip Kestevan's was found some distance down it. He was blown violently from the main to the return dip, the brick stopping which separated these was blown clean out. At his working place at the face, it was evident that he had come out to have his breakfast. Thomas Heath was found with a powder can at his side as though he was expecting a shot.”

Those who died were-

Samuel Hampton aged 27 years, loader,  
Thomas Heath aged 41 years, butty,  
Henry Heath aged 20 years, collier,  
James Kestevan aged 44 years, collier,  
Joseph Underwood aged 20 years, taker-off,  
Thomas Jones aged 17 years, loader,  
Isaac Jones aged 47 years, collier and  
John Barker aged 34 years, butty.  
Thomas Lear aged 36 years, collier.

James Green, chief butty and

Albert Rhodes aged 13 years a pony driver were injured as they had just entered the crut when the disaster occurred.

The inquiry was held by Mr. Booth the Coroner for North Staffordshire at the George and Dragon Inn at Chesterton. All interested parties were represented.

Mr. Cadman, the manager of the colliery, had last inspected the Burley pit three weeks before the explosion and found everything satisfactory. He thought the explosion was at the bottom of the level but he did not know what had caused it, either a shot or a heated lamp. All the evidence was heard and the coroner summed up.

After some deliberation the foreman of the jury, Mr. Brittain announced the following verdict-

"After careful attention to the evidence which has been given, we cannot come to any positive conclusion as to how the explosion came about by which these unfortunate men lost their lives. Our only alternative will be to give as our verdict 'died from an explosion of gas.'"

Mr. Wynne commented-

"This is the third explosion that has occurred in North Staffordshire during nearly two years and each one was, in my opinion caused by a blown-out shot or a semi blown-out shot, where, had it not been for the use of gunpowder, none would have occurred.

As long as powder is used in dry, dusty seams in which gas is produced, through it may not be found by ordinary means or in the way in which examinations are normally made, explosions are possible. even in the best ventilated collieries, whilst blasting is still allowed in such seams, the greatest precautionary measures should be taken, by entrusting this dangerous operation to thoroughly qualified persons, whose judgement is not likely to be influenced by pecuniary considerations and when all persons normally employed are out of the mine, whether gas had been 'reported' during the preceding three months or not."

#### **MARDY. Rhondda Valley, Glamorganshire. 23rd. December, 1885.**

The colliery was the property of Locket's Merthyr Steam Coal Company and was opened in 1878. Mr. Griffith Thomas was appointed manager in 1879 and Mr. W. Thomas as agent under the Act and exercised general supervision but there was no undermanager.

The down cast and upcast shafts were about 44 yards apart and were sunk to 366 yards. Five seam were worked, two from the upcast and three from the downcast shafts. These workings were known respectively as No.1 and No.2 Pit. The seam worked from the downcast were the Four Feet, the Six Feet and the Two Feet Nine Inch. The effects of the explosion were felt only in the No. 2 Pit the workings of which were arranged in five districts radiating from the downcast shaft towards the points of the compass which were named The N.W. Dip District, The Main West District, The S.W. District, The S.E District and the N.E. District. In the N.W. Dip District the workings were in the six Feet Seam only as the Four Feet was thrown up about 32 yards by a fault at about 300 yards N.W. of the downcast shaft. The workings were on the longwall system and the daily average output of the pit was about 1,200 tons. The colliery was worked on two shifts, one on the coal by day and one at night for repairs. These shifts consisted of 761 men on the day shift and 200 at night.

The colliery was ventilated by Waddle fan, 45 feet in diameter which produced 250,000 cubic feet of air per minute at a water gauge of 2.5 inches. Of this amount of air, 145,280 cubic feet went to the No.2 Pit. The air in that pit was carried to the floor of the downcast shaft and then along two intakes which ran east and west for about 176 yards. The east intake was further divided into three levels running north west, west, and south west. The east intake was divided into two, to the south east and the north east.

The coal at the colliery was steam coal which was dry and dusty and gave off large quantities of gas. From the start of 1885 and the explosion, nineteen accumulations were reported but none of them were sufficiently serious to withdraw the men from the mine. In the three months preceding the explosion, gas had been reported as blowers in various parts of the mine and recorded in the Report Book. On the day before the disaster, four small blowers and sixteen strong blowers were reported

The ventilation was described as the best in South Wales and the Inspectors were in general agreement with this statement but as the inquiry proceeded it emerged that the special rules under the Coal Mines Regulation Act, 1872 was not carried out in all cases.

On the morning of the explosion the manager admitted that he did not consult the barometer as he was in a hurry and had overslept. About three months before the disaster a fireman in the North West District found what he called '*a trace of gas*' in a cavity above some arches but did not enter it in his report book and the lamp stations in the mine were at long distances from the downcast shaft. The reason for this was stated to be that it was necessary to have the lamp stations near the workings as the men might smoke otherwise the more reckless of them would smoke in the workings. There was also the danger to men passing down the engine planes from the ropes and wagons made it necessary for the riders to use lights which it was inconvenient to lock as they often blew out and the lamps of the repairers often suffered the same fate so naked lights were sometimes allowed.

The arrangements for the watering of coal dust were not systematic. No officer was appointed specially for this duty and no specific times were set. The water was usually applied by scattering it from a bucket or by holding a hand over a hole in a barrel and squirting water about. There were no regular orders issued to the firemen as to watering before a shot was fired.

The practice of firing shots in the mine was, in the opinion of Mr. Liddell, as being '*full of hazard*'. The dangers arose, not from the want of care but from a deliberate system founded on a strained interpretation of the Act so as to save trouble and time and was generally adopted in the collieries of South Wales. Shots were allowed during the night but were fired in hard headings during the day. In the stone heading in the North West District one or two shots had been fired during the day for several months before the disaster when there were 122 men in the district. It was considered sufficient if the five men at work in the heading were withdrawn 50 yards from the point where the shot was fired but no precautions were taken for the rest of the men.

The explosion occurred on the afternoon of the 23rd. December, about 2.40 p.m. There was a loud report and a cloud of dust ascended from the downcast shaft and some slight damage to the mouth of the shaft but these were the only indications of what had happened above ground. The fan was not stopped and a rescue party headed by the agent and the manager were able to get down the pit almost immediately. By their efforts the ventilation of the mine was restored in about three hours and the afterdamp was cleared.

The effects of the explosion were found to be almost entirely confined to the main intakes. At the foot of the downcast shaft, considerable damage was done to the gear and severe injuries inflicted on the bodies of the men who were killed. From the foot of the shaft the Main East and West levels ran in opposite directions. Along the Main East level the effects of the explosion were visible for only 90 yards but along the West level they extended for 350 yards. Down the South West heading, which was the first one off the main heading, the effects of the explosion were felt for about 666 yards and down the North West dip for about 400 yards. The total distance the explosion travelled through the workings was about one mile. At the bottom of the pit, in a place called the 'arches', there was no doubt that there had been a considerable flame. The block house near the foot of the downcast shaft was on fire and the timbers on the intake below the arches were charred. Traces of flame were also found on the bodies that were found near the lamp station in the South West level and the end of the North West dip. This means that the heat was greatest at the centre and the extremities of the area that was affected.

The effects of blast were not great. In the North West dip there was a large fall about 170 yards from the parting. The doors in all the headings effected were blown towards the return which indicated that the explosion started in the intakes. William Williams, the rope changer at the South West parting, who was found alive after the explosion, told the rescuers that he saw fire coming from the North West dip and on three occasions before his death added that '*the fire trundled him towards the pit.*'

Those who lost their lives were-

Edward Thomas aged 23 years, rider.  
Philip Hitchins aged 35 years, hitcher.  
Arthur Boozey aged 21 years, shackler.  
John Powell aged 23 years, hitcher.  
Ephraim Hughes aged 20 years, shackler.  
Henry Pullen aged 20 years, hitcher.  
James Perry aged 20 years, hitcher.  
John Spiller aged 22 years, shackler.  
Thomas Hughes aged 33 years, shackler.  
Daniel Williams aged 43 years, overman.  
Daniel Phillips aged 50 years, mason.  
Lewis Davies aged 32 years, mason.  
Griffith Scourfield aged 19 years, attending masons.  
John Evans aged 55 years, attending masons.  
Joseph Jones aged 40 years, stoneman.  
Edward Edwards aged 52 years, contractor.  
Owen Tudor aged 32 years, stoneman.  
Edward Edwards jnr. aged 17 years, stoneman.  
Mike Stokes aged 17 years, haulier.  
David Thomas Ward aged 19 years, haulier.  
John Lewis aged 19 years, collier.  
Messeck Phillips aged 32 years, haulier.  
David Rowlands aged 27 years, collier.  
William Griffiths aged 16 years, collier.  
Evan Pugh aged 17 years, doorboy.  
Thomas Watkins aged 17 haulier.  
Morgan Watkins aged 14 years, doorboy.  
David Jones aged 27 years, rider.  
Joe Baker aged 17 years, collier.  
James Thomas aged 27 years, collier.  
John Davies aged 17 years, collier.  
Richard Evans aged 24 years, collier.  
Owen Powell aged 29 years, collier.  
Thomas Thomas aged 24 years, collier.  
John Herd aged 22 years, collier.  
Evan James aged 21 years, collier.  
David Jones aged 27 years, collier.  
William Thomas aged 19 years, collier.  
David Lake aged 35 years, collier.  
John Jones (Bevan) aged 23 years, haulier.  
Evan Davies aged 19 years, collier.  
John Jones aged 42 years, collier.  
William Jones aged 13 years, collier.  
John Edwards aged 13 years, collier.  
William Jones aged 13 years, collier.  
Issac Jones aged 20 years, collier.  
Thomas Phillips aged 20 years, haulier.  
David Bowen aged 18 years, collier.  
Richard Lewis aged 46 years, collier.  
Philip Richards aged 66 years, labourer.  
John Collins aged 40 years, haulier.  
Isaac Davies aged 33 years, repairer.  
Thomas Evans aged 26 years, haulier.  
Evan Roberts aged 28 years, ropeman.



William Davies aged 25 years, collier.  
John Evans aged 45 years, fireman.  
Evan Davies aged 29 years, collier.  
David Lewis aged 40 years, collier.  
Thomas Jenkins aged 25 years, cogman.  
William Harris aged 29 years, collier.  
J.D. Jones aged 50 years, airwayman.  
David Evans aged 16 years, collier.  
Levi Williams aged 40 years, roadman.  
Thomas Evans aged 28 years, collier.  
James Lockstone aged 27 years, labourer.  
John Williams aged 23 years, collier.  
Edmund Morgan aged 27 years, collier.  
David Jones aged 59 years, cogman.  
John Morgan aged 16 years, haulier.  
Robert Griffiths aged 34 years, haulier.  
Thomas Davies aged 49 years, collier.  
Thomas Davies aged 12 years, collier.  
John Evans aged 24 years, collier.

Those who were rescued alive but died later-  
David Martin James aged 20 years, rider.  
John Henry Thomas aged 23 years, engineman.  
William Williams aged 33 years, rope changer.  
Gomer Morgan aged 20 years, haulier.  
Henry Isaac aged 21 years, haulier.  
John Williams aged, hitcher.

Those who were rescued injured but alive-  
Essex Hughes engineman.  
Thomas Thomas, master haulier.  
William Davies (Gof), ropeman.  
Gomer Rees, haulier.  
Richard Davies, haulier.  
John Jones, hitcher.  
William Henry Lewis, doorboy.

Mr. Liddell concluded that the explosion originated in the North West dip beyond the fall. He went on to say-

“With the view suggested by the management that the blast began at the bottom of the shaft, I do not concur for the following reasons,

- i). The chief force of the explosion would have been felt in the East and West main levels which run in a straight line on both sides of the shaft.
- ii). Very slight traces of the blast were found to the east of the pit bottom.
- iii). The effects of the explosion were felt to the greatest distance in the South West heading and the North West dip. The chief volume of the blast must, therefore, in order to support this view, have, after a course of about 176 yards, been suddenly diverted, without meeting any obstacle, at right angles to the right and left from its original course, viz., at the partings where the South West heading and the North West dip leave the Main West level.
- iv). The evidence points to the North West dip as the quarter from which the explosion came.”

About 500 yards from the bottom of the downcast, the Four Foot Seam went up in the fault. About four months before the disaster a stone heading was started from the North

West dip towards the Four Foot seam. Just inbye of this point there had been a large fall due to the disturbed character of the strata which left a cavity about 30 feet high and 9 feet wide at the top. This was a place where gas was likely to accumulate and the management ordered it to be packed with masonry and to secure the packing below by 24 feet of arching.

This work was started in August or September and on 23rd. December a length of about 7 feet of arching, measuring 16 feet under the crown, had already been built across the intake from the point where the heading left it and another six foot section was in the course of construction. The crown of the arch was three feet thick with six feet of packing above which left a space of about four feet between that and the roof. When the arches were started, an airway had been made from the upper part of the cavity above them, which descended into the intake about 15 yards inbye. The airway was continued as the work progressed, forming a trench on the top of the packing, 26 feet from the ground. The air was turned upwards into the cavity by half a canvas sheet hung in the intake and reaching to within three feet of the ground.

On the day of the explosion three masons and two assistants were working on the arches. A stage had been erected for them under the cavity about six feet high. Access to this was by a ladder which went to the head of the roof arch and was six feet below the cavity above the packing. The assistants to the masons were allowed to use naked 'comet' lights. The authority for this was given by the fireman after consultation with the manager with the provision that these lamps were not to be taken above the intake. On the morning of the explosion, the 'comet' lamp was seen hanging on one of the timbers at the side of the heading. It was not produced at the inquest but was said to have disappeared at the time of the explosion. The mason at work on the staging were ordered to use locked lamps.

The stone heading, the entrance to which was immediately inbye for the finished part of the arches, on the south side of the North West dip, was started between two and three months before the explosion. It was driven through rock and by the 23rd. December, it was about two chains long with the height at the mouth about six feet six inches and nine feet wide. The heading had been driven by blasting with ordinary shots fired on the orders of the fireman. On the night before the explosion, four shots were fired in the heading. Gas had never been found there and locked lamps were always used by the workmen. There was a slight deposit of coal dust in the heading.

There were two main theories as to how the gas was ignited. Mr. Wales thought that it was caused by the ignition of coal dust in the North West dip by the comet lamp and that the dust was raised by the firing of a blown out shot in the stone heading. Mr. Randall and Mr. Galloway thought it was caused by an accumulation of firedamp in the cavity above the arches and ignited by one of the masons raising the comet lamp into the gas.

There were traces of three shot holes of which two had been fired and had done their work but the sides of the other were unbroken. There was strong evidence that this had never been fired. The bodies of the four men in the stone heading were all found in the heading and one of them was seven to eight yards from the face where the shot would have been fired. It was not possible to suppose that the men would have remained in the heading when the shot was fired and had they been outside the heading they would have been at the point where the explosion began and killed instantly. A truck full of rubbish was standing close to the face, a canister of powder containing four loaded cartridges was within two or three yards and boring tools were found just under the hole. All this was inconsistent with the state of things when a shot was fired. The face of the heading was 50 yards from the intake and it was extremely doubtful whether a shot which blew out at the face could have raised sufficient dust in the intake to fire a naked light.

The management was clearly aware of the danger of the gas in the cavity above the arches and the place was regularly tested by the fireman and sometimes by the manager. There were no signs of violence in the place where the explosion must have begun. The ladder was left standing and the staging was not disturbed. Mr. Galloway and

Mr. Raddell explained this as follows. The gas in the cavity was probably a tin layer with too little air above and too much below to fire an explosive mixture, so until the gas got from the intake it would cause a flare or blow out rather than an explosion.

The explosion was opened by Mr. T. Williams of Merthyr, Coroner for the district and lasted for six days. The jury returned the following verdict-

“We find that an explosion of gas occurred in the Rhondda District of the Mardy Colliery on the 23rd, December, 1885 whereby Daniel Williams, overman, lost his life, but how or where the gas ignited, sufficient evidence has not been produced to enable us to determine. We are, however, convinced that it did not occur from shotfiring in the hard heading.”

The jury also made the following suggestions-

i. That efficient means be taken to allay and then remove coal dust from mines generating explosive gas.

ii. That boys attending the elementary school of the colliery district be instructed in the rules of the colliery or collieries in the vicinity of which the school is situate.”