THE ALBION. Pontypridd, Glamorganshire. 23rd. June, 1894.

The colliery was the property of the Albion Steam Coal Company, Limited whose registered address was 12, Bute Crescent Cardiff. It was a comparatively new colliery with sinking operations commencing in 1885 and completed in 1887. It was in the Taff Valley and this portion of the coalfield was virgin until the colliery was opened.It was to the north of the Ocean Coal Company Lady Windsor Pit at Ynysybwl and Harris's Deep Navigation Colliery at Treharris. It was near the village of Cilfynydd, near Pontypridd and was one of the largest in South Wales and employed nearly two thousand men but at the time there were only about a sixth of that number below ground on the afternoon repairing shift.

Mr. Henry Lewis, of Walnut Tree Junction. was the managing director of the Company and acted on behalf of the owners. He was a mining engineer with a wide experience in the steam coal collieries of South Wales. Mr. William Lewis who held a First Class Certificate was resident agent and Mr. Phillip Jones was the certificated manager of the colliery. At the time of the explosion William Jones, son of the manager was acting undermanager as John Jones the regular undermanager, was not at work due to ill health. William Rees was the day overman and John Evans the night overman. The latter was killed in the disaster. There were eight firemen on the day shift and eight at night as well as assistant firemen and bratticemen. Mr. Lewis, the managing director, went underground from time to time and was in daily contact with the officials.

The colliery was about sixteen hundred feet deep and had two shafts, the downcast and winding shaft and the other an upcast shaft. They were 33 yards apart and 19 feet in diameter and walled throughout by 9-inch brickwork.

In sinking the shafts the following seams were met. The No.2 Rhondd which was 4 feet thick at 128 yards, the No.3 Rhondd, 2 feet 7 inches thick at 226 yards, the Two Feet Nine, 6 feet thick at 517 yards, the Four Feet, 6 feet 8 inches thick at 545 yards, the Six Feet, 6 feet thick at 552 yards and the Nine Feet, at 580 yards. The Four Feet was known locally as the 'Upper Four Feet' and this was the only seam that had been worked up to time of the disaster. It was first class steam coal and the seam was a clean one varying from about 5 feet 10 inches to 6 feet 10 inches in thickness. Immediately above the coal there was a strong cliff or shale which was 11 feet thick but in places that was a clod from about one inch to 15 inches thick. The colliery ws well laid out and equipped with modern machinery for a large output.

The coal was worked by the longwall method. One portion, where the main roof rock approached within a few inches of the coal seam, and the coal in that district was worked on the 'Nottingham System in which the stall roads were 50 to 60 yards apart and trams were taken along temporary rails parallel and close to the face, the road being moved forward laterally every 6 or 9 feet as the face advanced. This system was discontinued about a year before the disaster and all the remaining workings were carried on by the ordinary longwall with the stall roads about 12 yards apart which was the practise of the district.

In the longwall method the whole of the seam is removed by the forward working, all the roadways are necessary for ventilation and the haulage has to be made and maintained through the gob or goaf. This is done by stowing any clod or stone taken don by the colliers, most of the small coal that is made, the stone that is ripped in the roadways back from the face and rubbish from falls and debris gathered in the roads and air courses. As well as the gob walls there were cogs of timber supporting the sides of the roadways and double timbers on the roadways supporting the roof where timbering seemed necessary by the management.

The workings were divided into three districts and at the date of the explosion there were eight of these working. There were four on the west side of the shaft which was known as Grover's Side and four of the east side which was known as the Cilfynydd side. On Grover's side the main level extended 1,136 yards from the shaft and the last 53 yards had been stowed and it was not being extended. On the right hand side of this level at a point 708 yards from the shaft was the Llanfabon dip. At 118 yards further on was John Morris's

Dip and a further 254 yards on was Ned Owen's dip, 108 yards from the shaft. The workings reached from these three dips were called the No.1 district. It contained 2,521 yards of roadways and 41 working places which occupied a face 545 yards long. The total length of the face opened out was 844 yards at the time and a portion of it had reached it's boundary.

Eight hundred and twenty yards from the shaft along Grover's level there was an entrance to Asket's heading, 112 yards was Tom William's heading an 97 yards beyond this was Nelson's heading. The workings in these three headings formed another district which was described as No.2 district in which there were 3,260 yards of roadways and 41 working places in an unbroken line 528 yards long. In addition there was short length of face adjoining this level but was not in operation. This made a total length of face in this district of 623 yards.

Coming back towards the shaft and within 185 yards of it was the entrance to Dudson's heading which was extended 1,126 yards to the rise the workings on both sides of which above Wedging's heading forming No.3 district. This embraced 3,244 yards of roadways and 59 working places extending for 792 yards all of which were working. The workings reached by Dan's heading which branched off to the left 396 yards up Dudson's heading were included in the No.4 district. This was made up of 12 working places 176 yards long and there was a further 286 yards which were not being worked at the time. Dan's heading was 484 yards long and the average length of the branches and stall roads in operation was 875 yards.

On the Cilfynydd side branching off to the left at 194 yards from the shaft along the level was the Pantduu dip which had been driven 814 yards passing Mordecai's level at 473 yards, D. Thomas's level at 616 yards and Parker's level at 686 yards. The 44 working places in this district was called the No.5 district and 594 yards of face were being worked. The total length of the workings in this district was 2,590 yards. Following the Cilfynydd level, William Rees heading was to the rise at 806 yards from the shaft and David Rees heading 180 yards further are reached and beyond this there was one short heading to the rise and another to the dip. The total length of the Cilfynydd main level was 1,100 yards. The number of working places in this No.6 district was 27 with a length of face of 338 yards. The total length of roadways in the main level was 1720 yards.

Opposite the entrance of the Pantddu dip was Bodwenarth incline which was driven 1092 yards to the rise. On the left side of this incline were David Rees level at 608 yards, Boucher's level at 862 yards and Mathew's level at 963 yards from the entrance. These workings formed the No. 7 district and comprised 43 working places with a face length of 537 yards and a total length of roadways amounting to 2,602 yards. On the right hand side of the same incline were Dobb's level at 711 yards and Curley's level at 824 yards and included 42 working places on a length of 540 yards without a break and 2,438 yards of roadways that made up the No.8 district.

At the date of the explosion there were 4,041 yards of working face and over 17 miles of roadways in use for haulage and ventilation at the colliery.

The principle haulage was by main and tail ropes which were driven by two steam engines, one on each side of the downcast shaft, fixed immediately over the main road, 42 yards on Grover's side and 28 yards on the Cilfynydd side. These engines were supplied with steam from two boilers placed in two separate galleries on each side of the shaft between the main intake and main return 33 and 37 yards respectively from the downcast shaft.

The engine planes on Grover's side comprised that working to Asket's heading with branches down Llanfabon and John Morris' dips. Another worked on Dudson's heading to within 150 yards of the face with a branch along Dan's heading 385 yards from it's entrance off Dudson's heading. On the Cilfynydd side of the shaft the engine plane extended to William Rees heading on the main road. There was branch down Pantddu dip 600 yards and another up Bodwenarth incline 600 yards long. The total length of the haulage worked

by engine power was 4,543 yards. All other haulage was done by horses of which there were 121 in the pit.

The ventilation of the colliery was produced by a Schiele fan fifteen and a half feet in diameter exhausting from the upcast shaft and providing 235,000 cubic feet per minute. The air splits were well arranged and the air crossing with the exception of two were made in the solid. The mine made firedamp in considerable quantities and had a history of strong blowers and outbursts. Gas was seldom reported by the firemen in their statutory reports and they stated at the inquiry that they did not report gas that had collected by brattice sheets being down or from other accidental causes. Mines inspectors found that accumulations of gas were rare in the 12 months before the explosion and believed the mine mine to be unusually gas free. No complaint had ever been made to Mr. Robson, the Inspector for the district about accumulations of gas.

The mine was light by bonneted Clanny lamps in accordance with the provisions of the Coal Mines Regulation Act 1887. There were electric lights at the colliery but these were out of order and had been for some time before the accident. Open Comet lamps were used near the bottoms of the shafts and naked lights were allowed at each of the lamp stations of which there were seven in use for the day shift and two for the night shift, one on the main level and the other at the entrance to the Pantddu dip. The only other naked lights that were allowed in the mine were the boiler fires of each side of the shaft.

Explosives were not used to get coal nor in the removal of the shale immediately above the coal but they were used in ripping rock to maintain the height if the roadways. Explosives were also used for removing timbers when the roof subsided. The officials said that the timbers were only blasted down when they were supporting a strong roof and in positions where the span was less than 13 feet. This was an unusual procedure and will be referred to later. The explosive used was gelatine-dynamite and gelignite. Shots were fired by a fuse and the firemen and overmen were the only ones permitted to fire shots. A man in each shift was appointed to take charge of the detonators, explosives and fuse. The manager had given instructions that shots wee to be fired only in the intervals between shifts but this had not been carried out, at least on the day of the explosion.

The seam produced large quantities of dust which was deposited on the roadways and was shaken and blown by trams as they passed on they to and fro the faces. With the exception of a few stalls which were damp all the stalls were dry and dusty. A little water passed through the roof but generally this had little bearing on the dryness of the mine. On Grover's side a little water was pumped by a horse pump from a short dip through lines that were laid to the sump of the shaft. It was said that water was allowed to leak from the joints in the pipe and through holes bored in the pipe. About seven casks of water per day were filled in the Llanfabon dip and this was put in the roads of the Nos.1 and 2 districts.

Water that was collected in No.5 district in the Pantddu dip was pumped to a tank 418 yards from the entrance of this dip off the Cilfynydd level which was on the rise side of an upthrow fault and was high enough for the water to run through a line of pipes out of the level. As a result of the road rising there was a swamp hollow in which the water lay.

On the left hand side of the Bodwenarth incline a small quantity of water was pumped from the face straight on to the road and allowed to find it's way to the shaft. This wet the floor for only 160 yards and it got drier nearer the shaft. A supply of clean water was brought from the surface by pipes for the horses and sometimes the tap was left on and water flowed along Grover's level but the mine was dry and dusty with deposits of coal dust on the sides floor and roof of the roads.

Coal was worked by day and by night but only twenty five percent of the production was made at night. There were about 1,020 people working underground during the day shift and 524 on the night shift. On the first five working days of the week there was an interval between the day shift ending at 5 p.m. and the night shift starting at 7 p.m. and there was also an interval between the night shift finishing at at 5 a.m. an the day shift starting at 7 a.m. On Saturdays no coal was raised after 2 p.m. at the end of the day shift and the night shift immediately began to descend with no interval between the shafts. This had been in

operation for five or six weeks before the disaster and the alteration had been made on the request of the workmen to enable them to finish at 8 p.m. instead of 9 p.m.

Road repairing and cleaning was carried out during the week in both shifts but Saturday afternoon was devoted to clearing away the rubbish and dust from the main roads of the colliery. The colliery had been rapidly developed since work commenced in the latter half of 1887. Before the end of that year as much as 1,000 tons a day had been raised. The output for the week ending 23rd. June, the day of the disaster was 9,542 tons of which 7,170 tons was cut by day and 2,372 tons cut at night. 338 acres of the seam had been exhausted at the time of the disaster.

The explosion occurred at 3.45 p.m. on the 23rd June 1894 when a loud report was heard and the earth shook to it's very foundations. The dusting and repairing shift had descended two hours before and those on the surface were startled by two loud reports in quick succession followed by a rush of smoke and dust from both shafts. No flame was observed at the mouth of the shafts but the men were blown backwards a momentarily blinded by the rush of dust. Those nearest the shaft felt a hot blast and had their eyelashes scorched.

The houses of the village were built on the mountain side and the people rushed to their doors to look over the valley. The sight that met their eyes told the whole story. The complete top of the Albion colliery was blown to pieces and large beams were hurled in all directions. There was rush of people to he colliery and the colliery officials found themselves surrounded by a great crowd before they had decided what was to be done. Men volunteered to go down the mine but for a long time dense smoke came from the shaft and and any descent would have been foolhardy. Only when this smoke decreased was a rescue party organised under the manager Philip Jones but before they could descent the cage had to be repaired.

The first blast blew away some planking round the top of the downcast shaft and displaced the wooden covering from the top of the fan drift but the fan was not damaged and was still in operation. Temporary repairs were made tote fan covering and the manager, undermanager and others made a descent in one of the cages. The cage went slowly down the shaft, the men not knowing what damage to the shaft might have been done in the explosion. The cage reached the shaft bottom and the explorers set out. There were now thousands of people at the pit head as news spread from village to village and men, women and children hastened to the spot over the mountains.

It was soon established that a serious explosion had taken place as bodies were found hear the bottom of the shaft. In a little while the explorers came across some that were alive but suffering from the effects of afterdamp, burns or both. These men were attended by Dr. Little, the medical officer at the colliery who had gone down the mine with the explorers. It was not for two hours that the cage came up and it contained only one occupant. More volunteers were called for and in a short time the cage went down again with another band of explorers. Another hour of suspense was spent by those at the surface and the word was received that many bodies had been found and that were few survivors.

Shortly after, sixteen came to the surface more dead than alive and were carefully tended by doctors waiting at the surface. Of the sixteen eleven were found on the Cilfynydd side and five on Grover's side but only five recovered. The others died of their injuries. Ten of the eleven brought out of the Cilfynydd side were found at the entrance to the Pantddu dip and the air crossing 83 yards along the road. It was thought that they had travelled from the workings in Pantddu after the explosion had occurred. The eleventh man was able to give evidence at the inquiry and said that he was at the lamps station when the explosion occurred and he saw a blue flame coming from the shaft but heard nor felt nothing and remembered nothing else.

It was impossible to ascertain the exact number in the mine at the time of the explosion. On that night and for some days afterwards all that was known was that 13 cageloads of 20 men in each had descended at 2 p.m. and two fitters had gone down just before the

explosion. There was no means of knowing how many men of the day shift had stayed down. At the time it was thought that 295 men had lost their lives.

John Evans, the night overman,, William Roberts, the man in charge of the explosives on the shift and six night firemen were in the mine with a large number of labourers who were not known to the manager, undermanager of the day firemen.

Mr. Robson and two Assistant Inspectors of Mines, Mr. F.A. Gray and J. Dyer Lewis arrived from Swansea and Neath at 11 p.m. and after a short consultation at the surface went down the pit where they met William Lewis and Phillip Jones who were with Mr. J. Mancel Sims, an Assistant Inspector of Mines. By 3 a.m on Sunday, Mr. Robson and his party had penetrated as far as the double parting on Grover's side on the outer side of Asket's heading and 90 yards down the Llanfabon dip where their progress was stopped by very heavy falls.

Before the Inspectors went down, bodies had been found on the main levels and removed and little else had been done so the Inspectors were able to examine the mine thoroughly and noted the dryness of the floors in the main roads. Later they were able to study the whole mine and try to ascertain whether it was coal dust of firedamp that had been responsible for the explosion.

Every time the cage came to the top there was rush of people to the pit bank and heartrending scenes took place as wives, mothers and sisters recognised the burnt figures on the stretchers. Of the sixteen who were rescued seven later died from their injuries. The work below ground continued all night and by 8 a.m on Sunday morning eighty six bodies had been recovered and there was little hope of anyone being left alive in the mine. Wails of anguish greeted this news.

The recovery of the bodies was hampered by large falls of roof and in some cases the men had been buried and were crushed beyond recognition. The rescuers toiled day after day and by Thursday two hundred and sixty bodies had been recovered. The explorers told some pitiful tales. Because of the falls and the afterdamp, they were unable to answer calls for help they heard and on many occasions had to run for their lives.

Some of the scenes that they saw were appalling. In one place there were five bodies heaped together. They had fought for life and one man was found with his cap, which he had wetted with tea from his bottle, at his lips in the hope of keeping the afterdamp at bay. A little further on lay the bodies of two men but they could not be reached until the ventilation had been take forward. Many of the victims were naked with their clothes burnt off by the blast. Several of the victims were impossible to identify.

It was soon apparent that the blast had passed through the whole mine with the exception of the Pantddu dip where two horse were found alive. There were indications of great force and a body, believed to be that of one of the firemen, was found literally blow to pieces.

A member of Parliament visited the scene and was appalled by what he saw. In one house lay the bodies of a father and his four sons. The funerals of the victims took place over three days and all work was suspended over that time. Thousands of people attended and the processions were over two miles long. For hours the work of burying the dead went on. Welsh hymns were sung and as each band of mourners dispersed, their place was taken by another coffin.

The two hundred and ninety victims are listed in the official report on the disaster.
Those who were brought out of the pit alive but died later-
William Farrow aged 34 years,
labourer, Walter Osborne aged 26 years, ripper
John Lewis aged 40 years, ripper,
Samuel Evans aged 26 years, stoker and
Richard Williams aged 25 years, labourer.

Those killed in the explosion-
James Quartley aged 30 years, ripper.
Frank Joyce aged 24 years, labourer.
John Evans, aged 49 years, overman.
James Cullan aged 26 years, assistant ripper.
William Oliver aged 55 years, ripper.
Arthur Jennings aged 21 years, labourer.
Richard Herbert aged 48 years, ripper.
Thomas Jones aged 28 years, ripper.
William Dobbs aged 39 years, fireman.
Gilbert Roff aged 16 years, door-boy.
David Watkins aged 26 years, haulier.
Thomas Burton Jones aged 32 years, ripper.
John Evans aged 25 years, ripper.
Lewis Howells aged 32 years, ripper.
John Hughes aged 17 years, door-boy.
William Pary aged 20 years, haulier.
Isaac Comely aged 22 years, labourer.
Hugh Pugh aged 27 years, timberman.
William Jones aged 29 years, ripper.
William Roberts aged 39 years, ripper.
William Morris aged 42 years, collier.
Richard Owen aged 20 years, haulier.
Benjamin Stubbs aged 17 years, door-boy.
Arthur Timbs aged 30 years, labourer.
Evan Davies aged 17 years, shackler.
Morris Ashton aged 33 years, timberman.
Llwellyn Rees aged 43 years, ripper.
George Watkins aged 18 years, door-boy.
William Richards aged 19 years, labourer.
George Provis aged 33 years, ripper.
Charles Sanders aged 43 years, assistant ripper.
Walter Price aged 21 years, haulier.
Henry Morgan aged 18 years, haulier.
William Hughes aged 25 years, ripper.
William Williams aged 47 years, haulier.
John Ashton aged 27 years, ripper.
John Stott aged 32 years, haulier.
William Thomas Hopkin aged 20 years, haulier.
Joseph Grey aged 20 years, shackler.
Thomas Evans aged 38 years, ripper.
David Pugh aged 27 years, ripper.
John Webb aged 38 years, assistant timberman.
George Williams aged 35 years, haulier.
William Jones aged 26 years, fitter.
Thomas Haynes aged 17 years, door-boy.
David Owen James aged 25 years, stoker.
John Evans aged 48 years, fitter.
John Parfitt aged 45 years, labourer.
Sidney Cox aged 22 years, assistant ripper.
Hugh Pugh aged 32 years, ripper.
James Stevens aged 40 years, labourer.
Frank Topp aged 22 years, labourer.
Thomas Smith aged 31 years, engine-man.

Edmund Daniels aged 16 years, door-boy.
John Heridge aged 25 years, roadman.
David Llewellyn aged 39 years, timberman.
Richard Thomas aged 30 years, haulier.
Edwin Godwin aged 47 years, labourer.
James Burns aged 18 years, door-boy.
Edward Bowden aged 14 years, door-boy.
Ellis Jones aged 40 years, ripper.
Nathaniel Edwards aged 19 years, haulier.
Owen Hughes aged 25 years, ripper.
David Morris aged 40 years, roadman.
John Kerslake Cann aged 28 years, pumper.
George Burford aged 20 years, haulier.
David Griffiths aged 36 years, fireman.
Hugh Jones aged 22 years, pumper.
William John Harding aged 16 years, shackler.
Thomas Evans aged 19 years, rider.
George Evans aged 30 years, ripper.
Evan Gronow aged 24 years, rider.
Thomas Morgan aged 18 years, door-boy.
Rees Jenkins aged 33 years, assistant ripper.
Edward Jones aged 60 years, labourer.
Philip Fletcher aged 18 years, door-boy.
John Thomas aged 29 years, haulier.
Evan Morris aged 30 years, labourer.
David Price Davies aged 32 years, timberman.
Henry Charles Hooper aged 32 years, haulier.
Patrick Kahon aged 20 years, cogman.
Robert Parry aged 40 years, ripper.
George Manders aged 32 years, haulier.
Philip John Guard aged 18 years, haulier.
Benjamin Enyon aged 58 years, shackler.
Morris Lennou aged 24 years, haulier.
Alexander Addis aged 27 years, roadman.
Cornelius Gronow aged 36 years, master haulier.
John Coles aged 23 years, haulier.
Richard Jones aged 60 years, ripper.
Edward Croncombe aged 50 years, labourer.
Thomas Powell aged 50 years, ripper.
John Williams aged 50 years, ripper.
Richard James aged 20 years, labourer
William F. Jones aged 49 years, ripper.
John Shaddock aged 23 years, hitcher.
Hugh Roberts aged 37 years, ripper.
John McGrath aged 23 years, labourer.
Levi Evans aged 45 years, ripper.
Robert Jones aged 25 years, assistant ripper.
Evan Edwards aged 19 years, labourer.
Timothy Jones aged 26 years, ripper.
Richard Thomas aged 20 years, haulier.
Frederick Leonard aged 35 years, shackler.
Samuel Taylor aged 20 years, assistant ripper.
James Colvill aged 21 years, haulier.
Richard Bowden aged 18 years, door-boy.

John Bevan aged 31 years, timberman.
William Morgan aged 24 years, ripper.
Thomas Jenkins aged 42 years, ripper.
Walter Webb aged 20 years, labourer.
George Pearce aged 40 years, ripper.
George Hunt aged 17 years, cogman.
James Hunt aged 49 years, cogman.
George Boyce aged 17 years, door-boy.
Thomas Gittins aged 26 years, ripper.
Enock Clarke aged 16 years, door-boy.
John Dimond aged 18 years, door-boy.
Henry James aged 37 years, ripper.
Edward Bennett aged 50 years, ripper.
John Biddle aged 19 years, collier.
Daniel Jones aged 25 years, haulier.
William Evans aged 29 years, assistant ripper.
William Jones aged 18 years, collier.
Patrick Burns aged 20 years, labourer.
Walter Searle aged 20 years, labourer.
Joseph Hughes aged 29 years, ripper.
Joseph Shepherd aged 24 years, labourer.
William Humphreys aged 30 years, labourer.
Evan Jones aged 37 years, ripper.
Edward John Thomas aged 16 years, door-boy.
William Jones aged 31 years, timberman.
Thomas Rees aged 33 years, ripper.
John Jones aged 37 years, ripper.
David King aged 20 years, door-boy.
William Thomas aged 28 years, ripper.
John Morgan aged 38 years, haulier.
Thomas Powell aged 35 years, master haulier.
Adam Roberts aged 42 years, labourer.
William Price aged 29 years, haulier.
William Henry Lewis aged 26 years, haulier.
John Cox aged 32 years, labourer.
William Griffiths aged 24 years, ripper.
James Allen aged 35 years, labourer.
George Pugley aged 20 years, labourer.
James Tickle aged 23 years, labourer.
William Gronow aged 33 years, master haulier.
Albert Edward Thomas aged 25 years, fitter.
William Barr aged 29 years, labourer.
William David Edwards aged 19 years, haulier.
Walter Berridge aged 21 years, assistant timberman.
William Thomas aged 30 years, haulier.
Patrick Furlong aged 19 years, labourer.
John Hearne aged 18 years, door-boy.
Walter Real aged 21 years, labourer.
Stephen Downs aged 22 years, haulier.
Frederick Carp aged 25 years, labourer.
Samuel Brain aged 31 years, labourer.
John Cannings aged 39 years, engineman.
John Mears aged 40 years, labourer.
William Bates aged 40 years, labourer.

Thomas Winter aged 30 years, shackler.
Thomas Henry Harper aged 28 years, labourer.
William George aged 21 years, ropeman.
Daniel Daves aged 35 years, labourer.
Charles O'Conneil aged 23 years, labourer.
Benjamin Skym aged 29 years, ripper.
Johnathan Rees aged 29 years, ripper.
John Gregory aged 26 years, labourer.
Patrick O'Donnell aged 21 years, labourer.
John Rees aged 38 years, labourer.
Richard Roberts aged 18 years, labourer.
Emanuel Gilfoyle aged 34 years, labourer.
William Chamberlain aged 21 years, labourer.
John Kings aged 32 years, ripper.
Sidney Hazel aged 32 years, ripper.
Rowland Jones aged 39 years, ripper.
Lewis Jones aged 21 years, ripper.
Frederick Saunders aged 21 years, labourer.
John Bryans aged 24 years, haulier.
William Rogers aged 23 years, haulier.
William Henry Frost aged 21 years, labourer.
John Charles Pugsey aged 25 years, labourer.
James Rowe aged 25 years, hitcher.
James Toozer aged37 years, labourer.
Edward Rees aged 18 years, door-boy.
Robert Smith aged 23 years, haulier.
Thomas Hughes aged 48 years, ripper.
David Owen aged 22 years, labourer.
Samuel Burgess Vile aged 31 years, labourer.
William Hurrell aged 38 years, labourer.
Charles A. Jones aged 19 years, labourer.
John Edward Davies aged 26 years, labourer.
Edward Williams aged 39 years, labourer.
John Gould aged 24 years, labourer.
James Cronin aged 28 years, haulier.
William Brown aged 17 years, labourer.
Patrick Barrett aged 50 years, labourer.
David Owen Griffiths aged 17 years, labourer.
John James Pingcombe aged 24 years, assistant ripper.
Humphrey Jones aged 39 years, ripper.
William Knott aged 53 years, labourer.
Peter Smith aged 19 years, door-boy.
Timothy Sullivan aged 47 years, labourer.
William Williams aged 23 years, ripper.
Albert John Davies aged 17 years, labourer.
Eli Facey aged 36 years, labourer.
Charles Jones aged 25 years, labourer.
David Morris aged 44 years, timberman.
William Williams aged 30 years, timberman.
John James aged 30 years, ripper.
James Jones aged 27 years, fireman.
Reuben Heyballs aged 23 years, labourer.
Richard Gronow aged 26 years, master haulier.
George Winter aged 31 years, haulier.

Richard Davies aged 20 years, haulier.
Timothy Daley aged 17 years, labourer.
William Henry Pulsford aged 33 years, ripper.
David Daniel Hughes aged 19 years, labourer.
Owen Thomas aged 18 years, door-boy.
John Jones aged 17 years, labourer.
Charles Spencer aged 25 years, assistant timberman.
Frederick Weeks aged 22 years, labourer.
James Pockwell aged 34 years, labourer.
Henry Lewis aged 39 years, fireman.
Thomas Robinson aged 40 years, labourer.
Walter John Packman aged 26 years, master haulier.
Henry Howe aged 43 years, ripper.
William Evans aged 46 years, ripper.
Joseph Thomas aged 17 years, door-boy.
Stephen Evans aged 28 years, ripper.
Richard Reeves aged 23 years, labourer.
Richard Evans aged 28 years, ripper.
John Griffith Roberts aged 39 years, ripper.
David Davies aged 37 years, ripper.
□ohn Harris aged 34 years, haulier.
Thomas Prout aged 365 years, ripper.
Henry John Bale aged 23 years, labourer.
Richard Griffiths aged 26 years, haulier.
Isaacher Willliams aged 49 years, labourer.
Richard Bluck aged 28 years, haulier.
Thomas O'Leary aged 17 years, door-boy.
Frederick Emett aged 19 years, door-boy.
Richard Roberts aged 36 years, ripper.
Thomas Jenkins aged 24 years, ripper.
Robert Jones aged 40 years, ripper.
George Lemon aged 33 years, ripper.
Herbert Allard aged 22 years, assistant timberman.
Cornelius John Horrell aged 22 years, labourer.
John Evans aged 25 years, ripper.
John Lloyd aged 47 years, labourer.
James Jones aged 27 years, labourer.
Charles Gulliford aged 17 years, door-boy.
Charles Hughes aged 16 years, haulier.
William Ware aged 35 years, haulier.
John Rees aged 38 years, timberman.
Samuel Morgan aged 23 years, assistant ripper.
Thomas Lowe aged 42 years, ripper.
Thomas Lennon aged 18 years, haulier.
David Evans aged 38 years, fireman.
Roderick Jenkins aged 38 years, haulier.
Edwin Powell aged 35 years, haulier.
David Morgan aged 36 years, ripper.
John Lumley aged 41 years, ripper.
Elias Davies aged 36 years, timberman.
William Jones aged 26 years, labourer.
James Rees aged 38 years, ripper.
William Harvey aged 25 years, labourer.
Benjamin Tucker aged 20 years, haulier.

Arthur George Willett aged 27 years, labourer.

Those recovered from the pit but not identified-
Thomas White aged 21 years, labourer,
Edwin Williams aged 39 years, ripper,
David Jones aged 23 years, ropeman,
Thomas James aged 33 years, ripper,
Evan Pearce Evans aged 33 years,
ripper, Henry Evans aged 30 years, timberman,
John Enos Jenkins aged 35 years, ripper,
Morgan Lloyd aged 32 years, ripper,
Thomas Powell aged 31 years, timberman,
Jason Parry aged 23 years, labourer,
Thomas Murphy aged 24 years, labourer,
George Knight aged 30 years, labourer and
John Jones aged 26 years, labourer.

The inquiry into the Disaster at Albion Colliery, Cilfynydd, near Pontypridd on the 23rd. June 1894, was conducted by J. Roskill, Esq., Barrister-at-Law and by J.T. Robson, Esq., Henry Hall Esq., and Joseph S. Martin, Esq., Her Majesty's Inspectors of Mines and presented to the Right Honourable H.H. Asquith, Q.C., M.P., the Secretary of State for the Home Department.

One of the survivors, George Bamford said he was working with others at the double parting on Mordecai's level in No.5 district when the explosion occurred and he gave his description to the inquiry. He said-

> "I heard a sound like thunder, the biggest I have ever heard. I heard two sounds without scarcely an interval. Each just the same noise. I thought it was an explosion and I stood where I was. I heard a door between us and the engine parting open and shut with a bang. The level directly after was filled with dust and our lamps went out. There were four of us together and two inside. I think I saw a shade of flame in the dust a bluish colour. It was coming above us along the roof. I was standing up, The place was 7 feet high. We started off to walk down the Pantddu dip. We met afterdamp in the parting near the dip. The flame and dust passed over us and we came out. In the Pantddu dip the afterdamp was very strong and I recollect no more until I came to myself when Dr. Little and Henry Watkins were with me at the air bridge. I heard some one say at home that it was about 8 o'clock when I got out. I was not singed by the flame except a little on my eye lashes."

After an exhaustive enquiry which lasted nine days before Coroners R.B. Reece of Cardiff and R.J. Rhys of Aberdare when all interested parties were represeted and evidence heard, a jury of 17 men returned the verdict that-

> "The jury find that the deceased had lost their lives through an explosion of gas at the Albion Colliery on the 23rd. June 1894 which explosion was accelerated and extended by coal dust but the jury disagree as to the exact place at which the explosion had it's origin, and we are unanimously of the opinion that shotfiring as practised in the colliery when men are at work, without sufficient precautions as to their safety and contrary to rules we are also of the opinion that the under-manager neglected his duty in not seeing that his subordinates in the night shift performed their duties in accordance with rules that the firemen were negligent in reporting gas when found, and that there is not a proper system of watering in the mine. The jury beg to make the following recommendations-
> 1. That shot firing in timber shall be absolutely prohibited.
> 2. That old workings shall be properly stowed or gobbed.
> 3. That a record of men in the mine shall be kept at all hours.

4. That thorough inspections shall be more frequently made by Her Majesty's Inspectors, because we consider the present examinations by the workmen's representatives worthless."

The Inspectors commented on the verdict of the jury-

"It will be seen that the jury did not connect the explosion with shot-firing though their first and strongest recommendation had reference to blasting. Possibly the evidence of the mining engineers, bring in direct opposition to that rendered by ourselves and Messrs. Gray and Sims gave rise to the uncertainty in their minds to this matter.

For the same reason. probably, they were unable to agree to the place where the explosion started.

In other respects the verdict is entirely in accord with our views.

We think the omission by the owners' representative to arrange blasting, when he sanction the alteration of the hours on Saturdays, a most serious oversight.

With reference to the recommendations of the jury we desire to make the following observations-

1. As to shot-firing in timbers, we concur in their recommendation that tis should be absolutely prohibited. It is unnecessary to remove timbers by blasting as they can be removed in other ways, and, indeed, having recourse to explosives for this purpose is most unusual and contrary to good mining. Until this explosion happened we had never heard that such a thing was attempted.

2. That all old workings should be properly stowed and gobbed. This is desirable for safety in longwall workings, but so long as old workings are adequately ventilated in a mine it is not necessarily by reason of old workings left open in a colliery. We are of the opinion that the proportion of old workings left open in the colliery were not excessive moreover, that such as did exist had no influence in extending the explosion and thus increasing the loss of life.

3. That a record of the number of men in the mine shall be kept at all times. This is also a reasonable recommendation. In safety lamp collieries it can be readily carried out provided each person on taking his lamp from the lamp room on the surface leaves in it's place a token or tally with a number corresponding to that of his safety lamp.

4. We do not agree wit the jury that workmen's inspections are useless on the contrary we think that, when properly carried out, as they generally are in South Wales and Monmouthshire, they cannot fail to do good."

AUDLEY. Newcastle, Staffordshire. 14th. January, 1895.

The Colliery was in the Parish of Audley, Staffordshire and was near Audley Station of the north Staffordshire Railway. It was owned by Messrs. William Rigby and Company with Mr. Frank Rigby as the managing partner. He had mining training and held a First Class certificate of Competence. Mr James Maddock was the general underground manager of the Audley Colliery and two other collieries worked by the same firm. Mr. John Watts was the certificated manager with Mr. William , the undermanager of the Audley Colliery.

There were two shafts at the colliery, 36 yards apart and at the time of the accident, both were 217 yards deep. The shafts passed through faulty ground which caused a displacement of the strata of a bout 80 yards down to the east. From the bottom of the shaft, horizontal cruts or stone drifts were driven to the east and west. About 80 yards west of the shafts, the Eight Foot Banbury Seam was intersected and there were extensive workings in this seam which was approached by an engine plane dipping 1 in 4. One of the cruts which led west from the shafts was connected with another shaft at a higher level, 600 yards further on. this was called the Boyle's Hall Shaft and it was by this shaft that 160 men and boys escaped after the inundation.

One hundred and fifty five yards to the east of the Audley shafts, the Seven Foot Banbury Seam was reached. This seam lay about 45 yards above the Eight Foot Banbury

Seam and was reached here because a fault crossed in the shaft. The workings in the Seven Foot Seam were also reached by an engine plane dipping 1 in 4.

From the road leading east from the bottom of the downcast shaft and 30 yards from the shaft, a crut which rose at an inclination of 1 in 3 from 260 yards, and continued further on a level course, cut an upper seam called the Ten Foot Seam. This seam was reached in June, 1894 and the working in it were of no great extent at the time of the accident. It was from these workings that the interruption of water occurred. There were known to be old workings full of water, in the Ten Foot Seam, but it was believed that the new workings were at a safe distance from them

The water broke in abut 11.30 a.m. when there were 240 men and boys in the mine. It rushed in a torrent down the crut fro the Ten Foot workings, carrying with it a youth named William Sproston who was the only survivor form those workings. Six others started down the dip before Sproston . The bodies of Henry Holland and Henry Rhodes were recovered at the downcast shaft. At the bottom of the crut from the Ten Foot seam, the water divided, part of it flowing to the east into the East Seven Foot workings and part to the west into the West Eight Foot workings past the shaft and filling or partly filling the roads near the shaft.

The first rush of water was described as forming a stream about two feet deep which increased at the bottom of both shafts to three or four feet in matter of seconds. half an hour later the roads at the bottom of the shaft were full to the roof and the water continued to rise in both shafts.

At the time of the accident Mr. Watts, the manger, Mr. , the undermanager and William Sproston, the underlooker were in the office at the bottom of the upcast shaft and immediately took steps to warn and rescue the workmen. On the first attempt, which was made immediately after the appearance of the water, it was found impossible to reach the workings in the East Seven Foot and East Ten Foot Seams. The water was already nearly up to the roof of the roads leading east from the shaft.

The first indication at the surface was when the engineman at the Boyle's shaft received a signal to draw up the cage. This he did at once and when it arrived at the surface he knew that something was wrong for 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 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 had found their way to this shaft and had been quickly brought to the pit bank.

All afternoon the engines were busy and by 5 p.m. a hundred and fifty men had been rescued but it was estimated that there 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.

The rescuers, about forty in number, maintained their efforts. They were lead by William the undermanager of the colliery, who, when he had heard of the disaster went into the workings and told all that he met to make their way to the Boyle's Hall shaft. He dropped through a trap-door and found himself up to his armpits in water in the main dip. The current was so strong that he was swept forward for about twenty yards and was saved by grabbing hold of a post.

He made his way through the steam in the dark but the water deepened and he was forced to turn back in the company of 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 so 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 conciseness but one of the men at the top grabbed him and prevented him from falling down the shaft.

When he had 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 out 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 and he succeeded in rescuing about thirty men that afternoon.

A young man named Sporston was working with his father and his brother and was carried by the force of the water for several hundred yards. He was thrown into the arms of a man who helped him to a place of safety 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 very 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.

Mayer stayed behind to search for the eleven and spent almost two hours at the task and when he came to the surface he told the wives that they could have gone to the higher workings but the look on his face gave his feeling away. He had a son among the eleven who were missing.

Another miner, Joseph Bateman, escaped before the waters got to 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. The water rose and the old man was swept away to his death.

During Monday night, the pumps were constantly workings 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 of the 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 colliers came to the pit to offer their assistance and a bout 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 for only a few minutes when the signal was given to raise the cage. When the cage reached the surface it contained the body of one of the victims 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. Thorough 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 the 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 six 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 the operations as it was realised that

behind the debris a large volume of water could break through at any time causing further loss of life.

Those working in the East Ten Foot Seam were-
Aaron Johnson aged 21 years, loader.
Fred Taylor aged 28 years. collier.
Thomas Cartwright aged 39 years, collier.
Thomas Atkins snr., aged 49 years, collier.
Samuel Cork aged 36 years, collier.
Enoch Sproston aged 32 years, loader.
James Mitchell aged 37 years, collier.
Fred Lowe aged 27 years, loader.
Henry Webb aged 38 years, collier.
Charles Vernon aged 28 years, collier.
Ralph Taylor aged 35 years, collier.
Henry Riley aged 20 years, loader.
Thomas Childers aged 27 years, loader.
John Taylor aged 40 years, crutter.
Daniel Rowley aged 25 years, crutter.
Henry Holland aged 26 years, loader.
John Platt aged 20 years, jigger.
Henry Rhodes aged 15 years, waggoner.
William Sproston aged 43 years, fireman.
Benjamin Knight aged 17 years, taker off.
Abram Hopwood aged 15 years, waggoner.
Alfred Rhodes aged 17 years, waggoner.
Ernest Lightfoot aged 16 years, taker off.

Those who were working in the East Even Foot Seam were-
Henry Bailey aged 38 years, crutter.
John Bailey aged 21 years, crutter.
Thomas Bowers aged 28 years, crutter.
Henry Maddock aged 48 years, crutter.
William Hughes aged 32 years, collier.
William Roberts aged 36 years, loader.
John Brough aged 30 years, collier.
William Butler aged 20 years, loader.
William Mottram aged 30 years, collier.
Henry Leach aged 19 years, loader.
George Carter aged 40 years, collier.
Ben Mitchell aged 40 years, collier.
John Riley aged 49 years, collier.
George aged 24 years, loader.
Samule Johnson aged 43 years, loader.
Henry Clough aged 19 years, loader.
Peter Taylor aged 37 years, collier.
John Bechett aged 24 years, loader.
John Frost aged 20 years, engine driver.
John Blurton aged 16 years, taker off.
George Henry Fox aged 14 years, hooker on.
F. Thomas Sproston aged 14 years, engine driver.
George Mayer aged 17 years, jigger.
James Pover aged 16 years, jigger.
Richard Taylor aged 19 years, loader.

John Elsby aged 47 years, contractor.
Thomas Sproston aged 45 years, contractor.
Fred Johnson aged 35 years, fireman.
Edward Higgins aged 43 years, roadman.
Arthur Jackson aged 15 years, jigger.
Ralph Mayer aged 15 years, jigger.
James Henry Maddock aged 15 years, driver.
Henry Lee aged 14 years, driver.
Thomas Taylor aged 14 years, driver.
Thomas Tittle aged 15 years, loader.
William Pugh aged 16 years, driver.
George Murray ahed 14 years, driver.
Joseph Johnson aged 13 years, driver.
George Pover aged 14 years, hooker on.
Alf Hopwood aged 18 years, driver.

Those working in the East Eight Foot Seam-
Richard William Johnson aged 20 years, loader.
David Spode aged 61 years, collier.
George Spode aged 26 years, loader.
Elijah Billington aged 57 years, collier.
George Wynne aged 30 years, loader.
Jophn Guise aged 40 years, collier.
William Latham aged 18 years, taker off.
George Thompson aged 17 years, taker off.
Samuel Crosby aged 18 years, engine driver.
George Beech aged 27 years, roadman.
Samuel Mayer aged 16 years, driver.
Joseph Cooper aged 19 years, taker off.
Alf Hodgkinson aged 15 years, driver found in the pit gauge.

The inquest was opened on the 17th. January and adjourned with the hope that more bodies would be recovered. The inquest was conducted by Mr. John Booth, Coroner for North Staffordshire when the jury brought in the following written verdict-

> "We find the evidence that Henry Holland and Henry Rhodes lost their lives of the 14th. of January by the water from the old workings of the old Diglake Colliery getting into the workings of the Audley Colliery, where the men were at work.
>
> The evidence has failed to show how the water got in, but we are of the opinion that it is an unforeseen accident. The colliery appears to have been carefully managed, and we cannot see that anyone is to blame.
>
> We also wish to express the hope that the bodies still in the pit mat be recovered, although at present the danger in doing so appears to be so great as to be almost impracticable.
>
> We beg to tender our deepest sympathy to the bereaved families, and also the owners of the colliery."

Th inquiry into the disaster was held 7th. to 14th. February and the Report by Hon. Mark F. Napier, Barrister-at-Law, and William N. Atkinson, One of H.M. Inspectors of Mines where all interested parties were represented.

While the rescue work was going on in the West Eight Foot Seam, the water had completely filled the roads near the bottom of both the Audley shafts and risen some distance up the shafts. An immense volume of water continued to pour down the engine dip into the West workings for several days and as soon as the water abated sufficiently men were set to work to speed up the flow by cutting a channel over the bank-head.

As soon as it was practicable, desperate efforts were made to penetrate the districts to the east of the shafts where the majority of the workmen were entombed. Within a few yards of the shafts, the roads were found to be completely blocked with stones, tubs, rails and debris. As the road from the downcast shaft was waterlogged to within 2 to 3 feet of the roof, an attempt was made to open a passage and this was preserved until 19th. January. It was impossible to go further owing to the dangerous state of the roof and sides.

An attempt was also made to reopen the road leading to the east of the shaft but the rate of progress was very slow and the attempt was abandoned because of the danger of firedamp being driven out of the workings. The pumping engine on the surface was kept working as fast as it could. a large Cameron pump at the bottom of the shaft was out of action for some days. The capacity of both pumps was far below the amount of water that was flowing into the workings. As soon as possible the Cameron pump was started and preparations were, made for winding water and for three weeks water was wound at a rate of one and three quarter tons per minute.

The exploration recommenced on the 20th. February when the water was lowered to its normal level and the level could be maintained by the pumps. The rods in the vicinity of the shafts were found to be very much damaged by the water. The road to the east was reopened and repaired to the bottom of the crut leading to the East Ten foot workings. an immense cavity over the road, the limits of which could not be ascertained but it appeared to extend a long way back towards the shaft and it was believed to extend over the intervening rib and into the return airway. the work was carried on at considerable risk until the bottom of the crut leading to the East Ten Feet seam was reached and then conditions became so dangerous that it was decided impracticable to continue. the following statement was issued-

> “Audley Collieries, Thursday, march 7, 1895.
> We, the undersigned, have examined the East Main Crut leading from No.1 shaft to the East 10-feet and 7-feet seams.
> The men had been withdrawn in consequence of the dangerous state of the level.
> We found that the timber is badly broken and reeled in all directions, and that the roof is continually falling. There is considerable risk of further loss of life should the timber reel out, as the men would then have no means of exit, and no possible chance of escape, as the dirt would fall behind them
> At the face of the work the dirt is constantly falling in large quantities from a great height and it is impossible to examine the places from which it falls, consequently there is a great danger at this point also.
> During the last few days the men engaged at the face have repeatedly had to run out for their own safety.
> With these dangerous conditions, and to prevent the risk of further loss of life we are decidedly of the opinion hat no further attempt should be made to re-open the crut.
> (Signed),
> JAMES MADDOCK,
> JOHN WATTS,
> WILLIAM ,
> JOHN STRICK,
> GEORGE A. MITCHENSON,
> JOEL SETTLE.”

> “Having read the above report, we, as workmen, who have been regularly in charge of the exploring parties, fully agree with the decision arrived at.
> (Signed),
> FREDERICK RHODES,
> WILMOT TAYLOR.’
> JOHN BOULTON,

The decision was most painful to the widows and many refused to shut their doors in the hope that their lived one would return. The Reverend John Pauli, 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. Carwright', 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 he admiration of the gallant efforts of the rescue parties.

The inquest was opened of the 7th February and concluded on the 13th. June and was conducted by Mr. John Booth, Coroner for North Staffordshire when all interested parties were represented.

Before the East Ten Feet workings were started at the colliery, it was known by the owners that the coal to the rise of that they proposed to work had been got from an old colliery called Diglake Colliery and that these old working contained a lot of water. as far as could be ascertained the workings at the Diglake Colliery ceased in 1852 or 1853. In order to learn about the position of these old workings, Messrs. Rigby applied to Sir Thomas Boughey, Bart, the lessor of the colliery and was supplied, through his mining agent, the late Mr. Bromley with tow plans in 1889.

One of these plans was entitled '*Plan of Diglake Farm belonging to Sir T.E.F. Boughey, Bart., 1855'* In addition to the surface marks indicating the boundaries and internal divisions of the farm, the plan showed *'workings in the 10-feet coal by sir T.E.F. Boughey, Bart., coloured thus (yellow), by Mr. Wood coloured thus (pink)'.* The workings coloured pink were all on the west side of the plan, or the side furthest from Messrs. Rigby's new workings and could have had nothing to do with the disaster.

The workings that were yellow on the plan consisted of a large yellow block which showed no roads or details of the workings. To the extreme south of the yellow block was written, *'Old workings in the 10-feet coal.'* a note on the plan referred to a point on the north-east of the yellow block stated, *'The bass on the 10-feet coal in very open with fissures in like rabbit burrows.'*

Other workings were indicated on the plan in detail and a neutral tint with no indication as to what these meant. One of the galleries shown on the workings was leading out fro the shaft to the old workings in the direction of Mr. Rigby's workings. the shaft was known by Mr. Rigby to be full of water. This plan and Mr. Rigby's were on a different scale and when Mr Atkinson, the Inspector, adjusted the scales the fact was revealed that the end of the workings shown in the neutral tint approached within a few feet of the point where Mr.. Rigby's workings in the Audley mine had reached on the mooring of the 14th. January. At that time Mr. Rigby and his surveyor calculated that the nearest working was between 60 and 70 yards away and on this information no boreholes were required under the regulations.

Mr. Atkinson, the Inspector commented in his report-

> "The accident has resulted in a very large pecuniary loss to the owners at the Audley Colliery and whilst I believe both the owners and their managers were properly solicitous for the safety of the workmen and believed that there was a sufficient barrier between the new and the old workings, the serious pecuniary loss which would result from an accidental holing into the old workings was obvious, so that from a monetary point of view alone it was of vital importance that it should not occur. at the same time,

however improbable it might appear that 'the unknown place' was in the Ten Foot Seam, yet in the absence of positive indications or knowledge of its actual position, i think it would have been a very prudent course to have regarded it as a possible source of danger.

The accident should be regarded as a warning in other cases where new workings are being carried out or in the vicinity of ponds of water, and in North Staffordshire that is a very serious question as there may be many such ponds in the district."

The jury deliberated for about half an hour and they returned with the following verdict-

"We find from the evidence that Henry Holland and Henry Rhodes lost their lives on the 14th. of January last by the water from the old workings of the old Diglake colliery getting into the workings of the Audley Colliery where the men were at work. The evidence failed to show how the water got in but we are of the opinion that is was an unforeseen accident. The colliery appears to have been carefully managed and we cannot see that anyone is to blame.

We also wish to express the hope that the bodies still in the pt might be recovered although for the present the danger in doing so appears to be so great as to be almost impracticable.

We beg to tender our deepest sympathy to the bereaved families and also to the owners of the colliery."

Her Majesty confirmed the Albert Medal on William the under-manager and at a meeting of the High Court of Foresters a few months later it was decided to present '*Brother William '* with an illuminated address in recognition of his heroic conduct in saving fifty seven members of the Order in the Diglake Colliery disaster. Other of the rescuers received medals and certificates from the Royal Humane Society and the Order of the Hospital of St. John of Jerusalem.

TIMSBURY. Bath, Somerset. 6th. February, 1895.

The colliery was owned by Samborne, Smith and Company and was about 7 miles to the south west of Bath. On the south and east it joined the Camerton Colliery where, in November 1893, there was an explosion which resulted in the loss of two lives and on the south west it is next to the old Heyswood Colliery which had been abandoned for about 30 years. The colliery was made up of the workings of the Lower Conygre Colliery which was started about 50 years before this disaster and the Upper Conygre Colliery which had worked for about 70 years. They had both been worked as separate mines but had been joined underground and now traded as a partnership between the present owners.

There were four shafts, two at the Lower Conygre, a downcast and an upcast each 197 fathoms deep and 6 feet 6 inches in diameter and two at the Upper Conygre Colliery, again an upcast and a downcast 179 fathoms deep and 5 feet 6 inches in diameter. The two sets of shaft were separated by 1,127 yards. there was single cage in each shaft in which coal was wound and there was one winding engine for each pair of pits.

The underground road that connected the two pits was know as the 'through road', one part of which was driven from the third coal hole at Lower Conygre, 166 fathoms from the surface and was 6 feet 6 inches in diameter and the other part driven from the Lower Slyving Vein Coal Hole at Upper Conygre, 171 fathoms from the surface. Allowing for the 20 fathoms difference of level between the shafts at the surface, there was a difference of 15 fathoms between these two parts of this road which were connected by 'Peter's Gug', a self-acting incline about 125 yards in length driven in the Slyving Vein from the 70 fathom fault rising at 1 in 4. At the top of Peter's Gug there was another fault broke up the steep seam from a part that was almost flat towards the upper pits.

The seams that were worked at the colliery were the same as were worked at the Camerton and formerly worked at Heyswood colliery. They belonged to the Radstock or Upper Series of the Somerset coalfield and were the Great Vein, 26 inches thick, the Little Top Coal, 20 inches thick, the Middle Vein, 15 inches thick which was not worked at the

time, the Slyving Vein, 20 inches thick and the Bottom Little Slyving Vein, 14 inches thick. The coal was bituminous, moderately hard and was used for gas coal and manufacturing purposes.

The coal was worked on the longwall system, with gobs built on each side of the roadways and the waste stored as required or not. The old workings had not been completely filled. With the exception of the self-acting inclines or 'gugs' there was no mechanical haulage done underground and eight ponies were employed on the main roads.

The ventilation was by a furnace and the quantity of air circulating through the mine had been considerably increased in the two years before the disaster. The current from the lower Conygre south workings came from a split from the downcast shaft and these workings had no bearing on the explosion. The air from the Lower Conygre travelled along the through road to Upper Conygre and as diverted by double doors at the top of Peter's Gug, through the tunnel to ventilate the Top Little Vein and the overlying Great Vein workings. It returned by way of Wyatt's Gug into the through road behind the double doors and continued it's way to the Upper Conygre upcast shaft. The workings in the Great Vein and Slyving Vein, east of the Upper Conygre pits were ventilated from the Upper Conygre downcast shaft which was taken out at the 134 fathom level and travelled eastward on the 'road on to doors at the top of Ozam's incline. It then branched off to the workings in the Great Vein, returned down Ozam's incline behind the doors and outwards along the road on Top Little Vein to the bottom of the Branch incline, down Gullick's Gug to the through road and so to the upcast shaft. The other split passed through a regulator and ventilated the workings on the Slyving Vein and returned along the north branch to the Upper Conygre upcast shaft. Some of the air taken off at the 134 fathom level travelled down the North Dukeway on the Great Vein turned east and south and met the North Branch just beyond where the effects of the explosion died out and where the current split. From this point a part went to the Great Vein workings and another returned along the North Branch to ventilate the Top Little Vein workings on it's way to the Upper Conygre upcast shaft.

The owners met every two weeks and took an active interest in the running of the mine which was probably an economic interest. They received reports from and gave directions to Mr. F.R. Foot, the agent and certificated manager of the mine. He went underground every day. There were three bailiffs who were holders of undermanagers certificates who were in the mine throughout the day and three examiners who went down the pit at 8 p.m. carrying out and overseeing the necessary repairs and within two and a half hours of the commencement of the morning shift, making the examination of the working places in accordance with the Special and General Rules.

About 180 men and boys were employed underground at the colliery, 170 in one shift from 5 a.m. to 1 p.m., and three examiners with from three to ten men from 8 a.m. to 5 a.m. doing various repairers and other necessary work such as leading water, looking after the horses and examining places.

Safety lamps were completely unknown in the colliery and since they had started workmen and examiners used naked lights. Firedamp and other gasses were comletely unknown in this coalfield and it had not been detected in roof cavities for the 70 years that the colliery had worked. The Inspector commented-

> "Up to the time of the explosion I had been given to understand on all side (including evidence given to the Camerton Explosion inquest in November 1893) that firedamp was entirely unknown and unrecorded, even by rumour, as having been met with in any of the several seams forming the Radstock or Upper Series of the Somersetshire coalfield, which is that worked at this colliery. Upon such representations in 1888 when Special Rules were being prepared for the collieries in this coalfield, the Secretary of State acceded to the desire of the owners and their representatives that there should be no rules of any kind referring to or hinting at the works firedamp or safety lamp embodied in the code for Special Rules for the collieries working this or even the 'Farrington or Second Series, lying about 100 fathoms below."

The coal was moderately hard and led to coal dust deposits in the roadways when it was transported to the shafts. Parts of the mine were dry but it had not occurred to Mr. Martin that the mine could be 'dry and dusty' as the roads had been watered when he had made previous visits to the mine on other matters. The undermanager, John Treasure and the bailiff, Sidney Lewis stated that on the day before the accident they had passed along the road between the 70 fathom fault and the Lower Conygre pits and noted it's condition particularly at the point where they instructed Carter to fire a shot in the roof. They considered it damp, free from dust and suitable for blasting. The Inspector commented-

> "I do not agree, and judging by the later condition of the road when I saw it about 15 hours later, I feel satisfied, that there was and must have been dust on the sides and roof of the road at least in if not on the floor and that he had formed and erroneous, although probably bona fides, opinion on it's condition."

Powder was the explosive that was used in the mine in the headings for ripping the top and blowing up the floor. Mr. Samuel Raine of Midsomer Norton supplied the powder which was made by the Elterwater Company. The shots wee fired by squibs, motes or straws and fuze and all qualified colliers were recognised a competent persons to fire shots and there had been there explosions in Somerset collieries that were associated with the dust from the explosions.

It was noticed that there was something wrong in the mine by the engineman and the baliff at the Upper Conygre pits about between 8.45 and 9 p.m. They were in the candle house not far from the top of the pit when they heard a noise down the pits as well as a rattle in the winding engine gear. They then noticed smoke coming up the shaft and contacted John Treasure, the undermanger who told Sydney Lewis, the Lower Conygre baliff, and then returned to the pit. They found that the winding engine, which worked on second motion was disabled as some of the teeth on the cog wheel had broken as the cage had been blown part of the way up the shaft, fallen back and had jerked the engine and broken the teeth. The undermanager and others went to the Lower Conygre shaft and went down the pit to the through road level. At the mouthing they found the examiner, Flowers and his friend, Fear, who informed him that an explosion had taken place. They went along the through road passed the damaged ventilation doors and found some roof falls. They reached the point where Carter had been instructed to fire the shot in the roof and they found that this had been done. Further on at the bottom of Peter's Gug at the 70 fathom fault they found the body of James Carter in a manhole severely burned. The manager had arrived with assistance and further explorations indicated heavy falls and indications of great force up the incline in the workings. The bodies of Bridge, Durham, Gage and Harding were found in the workings of the Top Vein and some hours later those of Kieling and Sperring were found near the Upper Conygre pit as were the four horses that were in the stables.

The men who lost their lives were-
John Cage aged 38 years, examiner,
John Kieling aged 55 years, examiner,
Joseph Bridges aged 51 years, miner and repairer,
Jame E. Durham aged 29 years miner and repairer,
George Harding aged 19 years miner and repairer and
George Sperring aged 73 years. miner and repairer.

The inquiry into the deaths of the men was held before Dr. Craddock, the Coroner for the northern division of Somerset and was held at Timsbury. The owners and Government were represented and Mr. Whitheouse represented Somerset Miners' Association and Messrs. Aspinall and Harvey the National Miners' Federation.

Despite the Colliery Rules not calling for safety lamps and the complete absence of firedamp in the mine, three miners gave evidence to the inquiry that they ad seen firedamp ignited in these seams. Frederick Bull, a miner aged 48 years, told the court of an

occasions twenty years before when he had seen firedamp ignite at his own candle in the Camerton Colliery. he said that after a shot had been fired in the Great Vein which was the same seam that was worked at Timsbury, he placed his candle near a crack at the back of a lump of coal when a light ran up the roof for two or three yards. There were three others working at teh place at teh time but noi one was hurt. Another man, Frank Heal, denied that he saw a flame in the incident. The Inspector was sceptical that this had been an ingnition of firedamp.

There was further evidence of firedamp in the Radstock series from about 50 years before the disaster when a collier, John Manderville who stated his aged at 55 years, and had worked all his working life in the Timsbury and surrounding collieries, He started work in 1853 at the then abandoned Heyswood colliery as a filler for Job Cox who told him that he had lighted 'foul air'. a lad named Knight was there at the time and and their shirts and hair were singed by the flash.

George Brice the undermanager of the Kilmersdon Colliery stated his aged a 65 years and he had started work at the Heyswood Colliery when he was 12 years old and he recollected seeing firedamp ignited in the first year he was working at that colliery. He said-

> "The lads used to light it at a hole in the roof which was drilled three or four inches deep, for a plug from which was suspended a surveyors line for driving the road in it's proper course."

The plug had fallen out and the gas came from the hole. He said that he knew that it had been ignited on a Saturday and was still burning on Monday morning.the Inspector dismissed these reminiscences by saying that 'one swallow does not make a summer' but as well will see firedamp did not play a great part in this disaster.

It was found the the shot had been over charged and the Inspector had no doubt that the explosion was caused by this shot igniting dust and the verdict of the jury was that-

> "That James Carter and six other men were killed on the night of February 6th. last by an explosion caused by a shot fired by James Carter, but the nature if the explosion we are unable to explain. We wish to add that we consider the management free from blame."

There was a recommendation that roberite or some other so called flameless explosive be used in the further instead of blasting powder.

QUARTER. Denny, Strlingshire. 26th. April, 1895.

The pit had been sunk about 30 years before the accident and the Blackband ironstone was worked first. The coal lay 30 fathoms below this and the pit was later sunk to the Bannockburn Main coal seam. From 1873-4 to 1879-80, the colliery worked both coal and ironstone and from 1878-80 it worked only coal. The coal was worked partly by longwall and partly by stoop and room. In the area of the explosion it was worked by the latter method and at the time of the accident 170 men were employed in the pit.

The downcast shaft was 145 fathoms deep to the main coal and the upcast shaft was sixty seven and half fathoms deep and was provided with a fan, 12 feet in diameter which usually ran at 103 r.p.m. with a water gauge of one inch.

Up to five years before the disaster, the mine was worked with naked lights. In 1889 the Inspector wanted the mine to use safety lamps but this was resisted by the mine owners and under section 47 (4) of the Coal Mines Regulation Act, Mr. R.T. Moore was appointed as an independent arbiter and ordered the introduction of lamps. Since that date, Protector Marsaut Lamps had been used regularly. The lamps could not opened with out the flame being extinguished. After the disaster, all the men's lamps were found to be in good order.

The men lost their lives in the dip workings of the New Dook. The air current passed down the New Dook and up the faces. Part of the current went through the old stoop waste to the rise of the horse level, part way up the airway through the longwall workings and along the working faces to the rise. a small portion passed between the stooped waste and the New Dook and joined the intake air going to the south level.

The haulage in the dip workings was done by an endless rope passing down the upper part of the Old Dook, down the north slope, up 'The Slope' and New Dook to the pit bottom. All the empty hutches went down the Old Dook and the full ones up the New Dook. No work was being done in the new or Old Dooks and the return air from the extreme dip workings passed through these workings. The workings between the two dooks were dry and dusty as were the working places of the men who lost their lives and most of the roadways.

On the morning of the 26th. April, 1895, the usual examination of the pit was made by the firemen. About 170 men were at work when about 1 p.m., first one explosion took place in the New Dook section and then at an interval of from about half to three minutes, there was another explosion in that part of the mine. The twelve men working the workings below the Horse Level were killed and one man, Patrick Carr, who was working in 'Martin's' above the Horse Level was killed by afterdamp. The other men in Martin's workings escaped uninjured. The pony drawing the hutches along the horse level to the New Dook Haulage Road was alive when found by the exploring party but could not be got out alive.

Those who lost their lives were-
Henry McGovern aged 32 years, drawer,
John Busby aged 39 yeras, haulage contractor,
Bernard Dunion aged 26 years, drawer,
John McGovern aged 30 years, miner,
John McMillan aged 30 years, miner,
Peter Tully aged 27 years, bencher,
Patrick Carr aged 24 years, miner,
John Comrie aged 25 yeras, drawer,
Peter Connoway aged 28 years, miner,
Patrick Dunion aged 30 years, miner,
John Herron aged 24 yeras, miner,
Robert Mitchell aged 40 years. miner and
John Nicol aged 40 years, fireman.

The inquiry into the disaster was conducted by Charles J. Guthrie, Advocate and J.M. Ronaldson, H.M. Inspector of Mines. It appeared that many of the victims were carrying articales in their clothing that contravened the Mines Regulation Act.

Partick Carr was carrying a tin match box half full of matches and a contrivance for opening lamps. John Comrie had a split nail which could have been used to open lamps. Peter Conway had seven matches and a split key for opening lamps. Patrick Dunion had a spli nail for opening lamps. John Herron had a tin box half full of matches. Robert Mitchell had a clay pipe and a piece of tobacco. John Nichol had a wooden pipe, a piece of tobacco, on ematch and abox half full of matches. Henry McGovern had been convicted at Stirling on 14th. June, 1892 for having a pipe in his possession and was fined 20 shilings.

There was no doubt that the immediate cause of the disaster was the ignition of firedamp by a naked light. The place where the first and the second explosion occurred was not positively identified but it was thought to be in either the road where McMillan and the two McGoverns worked or in the roadway where Conway and Herron worked. There was only a screen to separate the intake air at the foot of the New Dook and the return air from the workings to the extreme dip. An accumulation of firedamp had been found on the 29th. and 10th April near the screen and it transpired that none of the officials had been to the dip of the screen for a considerable time before the explosion. It was possible that gas cold leak through the screen and a naked light close to the screen would have ignited it. It was thought, since Henry McGovern's body was found close by, that he had ignited a match close to the screen and so ignited the gas.

Whether there was sufficient ventilation was a matter that the inquiry looked into. There was enough air going tin to the mine from the downcast shaft. It was suggested that there

was so much air lost that there was not enough reaching the workings. The stoppings were made of dirt and it was suggested that these should have been tighter and made of brick.

The inquiry also connected coal dust wit the explosion but. This was disputed by the skilled witnesses for the mine owners as well as the officials of the mine. The first explosion may have resulted from gas ignited by a naked light while the second could have been of coal dust raise by the first explosion.

The inquiry came to the following conclusion-

> "In our opinion the explosion resulting in the loss of thirteen lives was caused by the ignition of an accumulation or an outburst of gas coming in contact with a naked light (other than an opened safety lamp) which ad been unlawfully kindled, either by the fireman John Nicol, or by on of the miners who was killed. In our opinion the intensity of the explosion was aggravated and its area extended by the ignition of coal dust."

KINNEDDAR. Dunermline, Fifeshire. 31st. May, 1895.

The colliery was the property of Fifeshire Main Collieries, Limited. There was a large furnace at the bottom of the Jersey upcast shaft which was always kept burning and for a few days before the disaster it was necessary to light more fires to clear large amounts of gas that had accumulated in the mine. The fires set fire to the wooden lining on the upcast shaft, the No.3 Pit, which fell down the shaft. At the time of the disaster the workmen were out of the mine and underground operations were confined to repair work.

Two coal seams were worked at the colliery, the Jersey and the Splint and three shafts were in use. No.1 Pit was 12 feet by 5 feet and 22 fathoms deep and lay 500 yards to the rise of the Nos. 2 and 3 Pits. No.1 was used only as a downcast shaft and the air taken to the Jersey workings of the No.2 Pit. The strata rose one in five and a half to the north west. The No.2 shaft was the main shaft and was 21 feet by 7 feet and was used for drawing coal from both seams, the transport of men, pumping water and was the main downcast shaft. The Splint coal lay at 65 fathoms and the Jersey coal 11 fathoms above. There was only one cage used from both the Jersey and the Splint seams at the time of the accident and the other cage ran in the shaft to balance the engine. The No.3 shaft was sunk to the Splint coal and was used as the upcast shaft for the colliery. It was also the escape shaft and second outlet and it was in this shaft that the accident occurred.

The air that went down the No.2 Pit entered the Jersey seam and passed round the working faces in one current. The remainder of the air passing down the shaft divided into two currents a the bottom of the shaft one to the east and one to the west of the Splint coal workings, entered the no.3 Pit and met the air for the Jersey where it all went to the surface. The total quantity of air passing through the pit was 20,000 cubic feet of air per minute. Naked lights were used by the miners and safety lamps were used only on necessary occasions. The ventilation was good but the weather was becoming warmer and this impeded the ventilation and more ventilation was required to clear away some blackdamp that was found at the extremity of the west level in the jersey seam.

The No.3 Pit was 12 feet by 6 feet with a wooden lining which was three inches thick and extended from the surface to the Splint coal with a break of 13 feet just below the Jersey coal where the crosscut entered the shaft. On the east level between Nos. 2 and 3 shafts in the Jersey seam there was a wooden door separating the intake and return currents. The sinking of the No.3 Pit had been completed only at the end of 1893.

Up to November 1894 a fire lamp and an open fire produced ten ventilation and then a furnace, known as a *'cube'* in Scotland, was constructed and built to the manager's instructions. This was 6 feet wide by two and a half feet with side constructed of 9-inch brickwork and the bed of iron plates which were open at both ends. The furnace burned 10 to 14 cwt. of coal in 24 hours. The flame was used after the furnace was finished but the fire was discarded. In order to deal with any fire that might be caused a sinkers kettle which held 120 gallons of water was kept nearby. It was the practice of the bottomers at the No.2 shaft to carry two pails of water to the No.3 Pit. The contents of one pail was thrown over

the slides and a plank fence in the shaft and the other was emptied into the pail to keep up the water level. The timber exposed to these fires was never ignited but it was realised that it could do so. It was stated by the people who put the water on the planking that it steamed when they did so.

On the day shift the cube was visited by the day shift fireman Alexander Thompson and by the bottomers in the Jersey seam. During the afternoon and up to 11 p.m. the night shift fireman attended them and afterwards left a men in charge until the day shift fireman descended. The black damp issuing into the pit needed increased ventilation and Cooper, the undermanager with the help of Thompson but on his own initiative, erected an open fireplace in the bottom of the No.3 Pit. It consisted of three feet iron rails on bricks and crossed by other rails. A fire of about 3 cwt. of coal was kindled at about 7.30 a.m. and no precautions were taken to prevent the fire igniting the woodwork. When Cooper went to the surface for his breakfast he saw Mr. Calderwood, the manager and reported to him what had been done. Mr. Calderwood gave instructions to have the place watched.

On the day of the accident 118 people descended the mine at 7 a.m. and all went well until the sift was nearly over. The bottomer at the No.2 Pit was not at work and his place had been taken by another. At 2.30 p.m. three small flames were seen in the packing just above the bars and attempts were made to put these out by using buckets of water. This was not successful and an effort was made to take down the timber but this was also not successful. The flame was carried forward in the shaft and the timber was soon blazing. It reached the surface and the framework and pulleys were set a light as well as the wooden building on which the winding engine was placed.

Shortly after the men had stopped work, the manager noticed great volumes of smoke coming from the Jersey Seam, upcast shaft. He went down at one and found that the furnace a mass of flames. Within half an hour the upcast shaft and the pit head were totally wrecked and flames rose sixty feet into the air, twenty feet above the winding drum. The manager quickly set about trying to stop the air to the fire and ordered men to go to the bottom of the pit to cut off all communications. He followed a little latter to see how they were getting on with the work.

He had not been down in the lower seam for long when he heard cries coming from the Jersey Seam. He returned in the cage but there was a misunderstanding and he was not taken to the Jersey Seam but to the surface. He had passed the Jersey Seam and felt an intense heat. He lost no time in lowering the cage again to the mine. When it came up it contained four men who were terribly burned and in agony. the cage was sent down for a second time and returned with three miners in a similar condition as the first party.

On eye witness said-

> “I hope I’ll never live to see such another scene as you. The cage came up, the men fell out of it anyhow, screaming and roaring with the pain. We could do nothing to help them, for the flesh came off where we touched them. It was an awful sight. The rest of the men were crying like bairns.”

Doctors were sent for and the men were tended at the pithead for the blisters on their hands and faces and their bodies were badly scorched. It was not thought that their condition was serious but it was realised the following morning that seven men had died. All them en who died were working at the stopping that were being erected to try to put out the fire. They did not realise the danger they faced as burning material fell down the shaft and filled the workings with smoke and fumes.

Lockhart Bellock was the only man to get out alive and he gave a firsthand description of the conditions in the mine-

> “I went down the pit at half past six in the morning and worked as usual until a quarter past two o’clock. I had occasion to come to the bottom of one of the shafts at that hour, and on passing the upcast shaft, Alexander Thompson, the pit inspector, said to me, *‘Come here the woodwork of the upcast shaft has caught fire.’*
>
> There is a big tank of water at the bottom of the mine and we at once got pails and commenced to pour water on the flames.

We very soon found the work was no use and I really began to think we had got into a bad job. Seeing that we could do no good, I stopped pouring water, and rushed to the workings and told the men to run, because the upcast shaft was on fire. All the men in that section put on their clothes and we rushed to the bottom in the hope of getting to the surface.

When we reached the level leading on the Jersey Seam bottom of the upcast shaft, we met the manager and asked Thomas Sharp and me to go and build and air-tight stopping to cut off the draft. We worked for about half an hour and gradually the air became so bad that it was with difficulty the lamps could be kept in. At this stage the manager came along and asked us how we were getting on. We replied that we should require assistance and he sent old Frank Sharp to give us a hand.

I had my side of the stopping built and old Frank had almost finished his when a terrible crash took place in the upcast shaft and the flames burst upon us. The air for this point turned and our lights went out. We saw it was no use in doing any more and began to rush for the downcast shaft. We found it a difficult matter to pilot out in the darkness down the incline, and we got hold of the signal wire and by this means got into the roadway leading to the bottom of the shaft.

As we went along we found the heat near the roof so intense that wee were compelled to crawl on our hands and knees. before we had gone far this was I heard Tom Sharp cry out, *'I am choking!'* . I replied, *'Come away we are nearing the bottom and we may get up."* Tom Sharp seemed to make a determined effort after this for I found the both striking up against my heels. Here I became faint and confused that I have only a faint recollection of what happened.

I remember, however, that, on hearing the bottom, I struck against my clothes and pick where I had laid them down when I was called away to the stoppings. I then knew that I was going right into the mouth of the pit, and ran a danger of falling from the Jersey to the Splint seam. I made a turn and went round the back of the pit, and on groping about, I could not find the Sharps. I suppose the poor men had gone straight on, and had fallen to the bottom of the shaft where they were found.

On getting a faint glimmer of light, I found Thompson signalling for the cage to come down. When it came, we got in and were carried to the surface. I then realised for the first time the struggle I had had for life. I soon recovered my strength and I an mow suffering more for a stroke with a stone which fell on me from the roof than from the burns."

It was thought that all the men were out of the pit when it was discovered that two were missing. The manager called for volunteers to descend the pit and two men came forward. They searched for some time but found nothing and returned to the surface thinking that a mistake had been made but those on the pit bank were positive that Frank and Thomas Sharp were still underground. The rescuers and a second and a third descent when they went to the bottom seam and found the bodies of the two Sharps at the Splint coal. They had tried to escape from the Jersey Seam and had fallen down the shaft in the smoke and fumes.

Those who were burned-
Alexander Thompson aged 31 years, fireman,
Alexander Sharp aged 42 years, miner,
William McKenna aged 42 years, miner,
Thomas Hunter aged 41 years, miner,
George Hunter aged 31 years, miner,
John Hunter aged 28 years, miner and
George Bell aged 28 years, miner.

Those who fell down the shaft-
Frank Sharp aged 52 years, and

Thomas Sharp aged 23 years, miners.

The disaster left eight women widows and left forty fatherless children and the inquiry was held at the Court House in Dunfermline on the 15th. July and all interested parties were represented. The inquiry found that the actions of Cooper and Calderwood made an error of judgement in making the fore but found that no one was to blame for the seven who were burned to death. As to the men who fell down the shaft, it was found that the rules had been breached. The inquiry finished with the following comments-

> "The evidence was led to the superiority if a fan over furnace ventilation, but as regards safety and efficiency, and it was admitted by the manager that the furnaces were only a temporary expedient and that the erection of a fan was contemplated. There is nothing dangerous in the Coal Mines Regulation Act 1887 forbidding the use of furnaces for ventilating purposes and their use at the present time is not uncommon, nor are they dangerous if the proper precautions are taken. We do not therefore think it necessary to make any recommendations on this head beyond the obvious suggestion that were furnaces are employed, it should be placed in such a situation and under such conditions that adjacent inflammable material can not be set on fire by it."

AUCHENGARVIE. Ayr. Ayrshire. 2nd. August, 1895.

The colliery was the property of the Glengarnock Iron and Steel Company. Limited with Mr. R. Main as agent and Mr. John Marshall as the manager. There were two shafts at the colliery Nos. 1 and 4 which were sunk to the Main Coal, No.1 at 75 fathoms and No.4 at 73 fathoms. The rise workings extended for 600 yards to the north of the No.4 Pit. They were reached by two self-acting inclines or 'cousies'. The first of these extended form the to pit bottom for about 230 yards at an inclination of one in six and the second, 330 yards at an inclination of one in nine. The second was made in the strata above the coal with twelve feet of solid strata between it and the waste workings underneath. The dook which led to the dip workings extended to the south of the shaft for about 750 yards and dipped at one in six in the upper part and one in eight in the lower part. The colliery was bounded on the east side by a well known whin dyke or 'gaw' called the Capon Graig Gaw which formed the boundary between the Auchenharvie Colliery and the abondoned workings of the Stevenson Colliery. This 'gaw' was supposed never to have been cut from either side and the mineral tenants on both sides were prohibited by their leases from penetrating it, even so there was serious outburst of water from the old workings which claimed the lives of nine men.

At about 3 p.m. on the 2nd. August an outburst of water suddenly took place in the working place of a miner, William Jackson, who, with his two sons, worked in the extreme rise of the pit. It rushed in with great velocity and force down the drawing roads and the inclines to the shaft and from there down the dook. All the people employed in the rise workings succeeded in escaping down the cousies to the No.4 Pit or by another rout to the No.1 Pit with the exception of five, One boy, John McGhee, worked at the top of the cousie appeared to have run past the No.4 Pit bottom and down the dook. At the time it was believed that was where his body was located. Th men workings in the dook workings all escaped with the exception of eight.

Efforts were, made to locate the missing men but for a long time, the rush of water prevented access either down the dook or up the cousies from the No.1 Pit or by the communication roads from the No.1 Pit. By midnight the rush of water had abated and several explorers were able to get to a point in the cousie where they met an impenetrable blockage which evidently dammed back a large volume of water. As it was dangerous to attempt to clear this, dynamite charges with long fuses were set. Two shots were fired without any visible effect.

By noon of the 3rd. August the water behind the dam was pined off an relays of men started to redd their way through the obstruction. They found that it had been caused by a race of hutches round which stones and silt had collected. By 11 a.m. on the 4th. the barrier was penetrated for 30 yards without any signs of the top being reached when the knocking of imprisoned men was heard, About 1 p.m. a passage was made and five men crawled through. Renewed efforts were made to find any of the men missing in the dook but after every accessible place had been searched, all hope of them being alive was abondoned.

Those who died were-
John Clauchan aged 35 years, miner,
William Glauchan aged 28 years, miner,
James Clauchan aged 21 years, miner,
Henry Clauchan aged 18 years, miner,
Duncan Gallacher aged 31 years, miner,
James Mullen aged 19 years, miner,
Peter Mullen aged 14 years, miner,
Robert McConn aged 18 years, miner and
John McGhee aged 14 years, cousie attendent.

On the 5th. August, Mr. Mottram, the Inspector, arrived at the colliery and with the manager and Mr. Ronaldson managed to reach the point where the water broke in. they did this with great difficulty and found an opening ten feet wide and four feet high into an old stoop and room workings but owing to a fall of roof, they were unable to go any further.

On the east side of the Capon Graig Gaw, abut 800 yards from this point there was an old pit called Deep Shank, sunk 30 fathoms to the Main Coal. before the accident, water frequently ran from the mouth of this shaft but after the disaster the level began to sink until it was down eleven and half fathoms from the surface. Several fresh ‘sits’ of the surface close to the shaft took pace shortly after the outburst occurred.

This was taken a s conclusive proof that the Capon Graig Gaw must have been breached some time in the past. The gaw had never been laid bare on the west side and it was improbable that a large volume of water could cross it through natural fissures. There was an old pit near by but there was noting on the surface to indicate its presence. An old surface plan showed the existence of shaft but did not indicate its depth. Another old pit was opened by the manager three years before. This was found to be fifteen fathoms deep to the Ladyha’ seam and was free from water. No one seemed to have had the slightest suspicion that there were any old workings near the point where the water broke out.

DOWLAIS. Aberdare, Gamorganshire. 9th. September, 1895.

The colliery was know as the Dowlais Cardiff Colliery and was the property of the Dowlais Iron Company. It was situated at Aberdare Junction. The sinking of the shafts were started some years before and was progressing and when it was completed, with one exception was the deepest winning in the South Wales coalfield. They were also the largest shafts in the United Kingdom and were 20 feet in diameter. Six men lost their lives in the sinking accident and another was injured.

The work of sinking the shafts was under the direction of Mr. W.H. Martin, chief mining engineer for the Company with Mr. Daniel Lewis and the resident manager and Mr. John Vaughan, the mechanical engineer. Mr. William Jones, a sinker of twenty five years’ experience was the master sinker.

Sinking operations were being carried out in the north Pit which had reached a depth of 739 yards. One rope was used in the exact centre of the shaft and to this a rope or bowk, a large iron bucket, was attached for raising and lowering the debris from the sinking. A larger bucket or barrel was sometimes used to raise water from the bottom of the shaft.

The sinkers ascended and descended in either of these two buckets. as was usual in sinking operations the bowks or barrels ran free in the shaft and had no guides.

When shots were to be fired, all the men had to leave the shaft bottom but since the depth had become so great it was the practice for only a certain number to ascend to the surface and the remainder, those leaving the last lighting of the charges, ascended to a side opening in the shaft. The Special Rules established for the sinking puts to allow ten men to ascend or descend at once, but some time before the management posted a notice limiting the number to eight.

There were pumps in the shaft from the surface to a depth of 325 yards where there was landing called No.2. These pumps were kept in position by means of iron girders, at intervals of about 15 years. There was also a line of iron pipes, 2 feet in diameter, to take air to the bottom of the shaft. the pipes were supported by wooden byats 6 inches square. Between the pump byats and the bowk there was a clearance of 4 feet 6 inches and between the bowk and the air-pipe byats one of 5 feet 3 inches.

At 470 yards, there was s a landing called No.3, the edge of which was 5 feet from the bowk when plumb. At 670 yards there was another landing with a clearance of 4 feet 6 inches from the bowk. These were all the projections in the shaft which could possibly affect the safe ascent of the bowk.

Just before the accident there were 20 sinkers in the shaft, one of whom, William Davies, was the first leader, and another, Thomas Davies, the second leader of that shift. They were about to fire a round of four shots and as a preliminary to this operation, an electric light with which the shaft bottom was partly lit, was raised up the shaft to escape possible damage from the shots. The water barrel was in the shaft bottom and eight men went up to the surface in it, which left 12 men in the pit. On reaching the surface the water barrel was taken off and the ordinary bowk, 4 feet 6 inches in diameter, was put on and sent down. When it reached the bottom it was placed plumb and lots of told thrown into it. These were stated to be twelve shovels, the same number of picks of mandrils, sic buckets or pails used for filling the water barrel and a part of a hand pump. The eight men then got into the bowk to ascend but William Davies told them to get off and wait with the remainder for the last load. The bowk was then signalled up to '*the steady*' and was raised four and half to five feet. Thomas Davies, the second leader, whose duty it was to steady the bowk, did so and the usual signal was given for its ascent to the surface. It was during this ascent that the accident happened.

What took place in the first part of the ascent will never be known but, for some reason, the bowk came into contact with a projection in the shaft and six poor fellows were precipitated down the shaft and killed. All the engineman knew was that the bowk was being raised as usual and that when about 25 or 30 yards above the No.2 lodge-room, he felt a check and stopped the engine. When the bowk was eventually brought to the surface, one of the bridle chains was found broken, another was detached from the bowk and the remaining two intact but severely strained. Some of the tools were still in the bowk but the rest had gone down the shaft with the men. It was fortunate that the six men at the bottom of the shaft escaped with only one injury from the falling men and tools.

The men who died were sinkers-
Walter Norburt aged 27 years,
John Pritchard aged 41 years,
Owen R. Williams aged 25 years,
Thomas Pugh aged 31 years,
Edmund Morris aged 28 years and
Thomas Evans aged 29 years.

An examination of the shaft was made and at the third girder above the No.2 lodge-room, two iron washers, twelve inches square and one inch thick were knocked about two inches out of square and at the next girder below one of the washers was found to have

turned an eighth part out of square and had its lower corner bent upwards. It was also found the the 6 inch square wooden byat had been knocked out nine yards below and had fallen down the shaft and a piece of the wrought iron pipe used to convey water from a garland in the lodge-room was knocked off.

The point in the shaft where the bent washer was found almost corresponded to where the engineman thought the bowk was when he checked the engine. The wooden byat was nine yards lower and it was evident that the engineman did not detect this. If the bowk had been properly steadied before it was signalled away, and the evidence was clear that it was, this accident could only be put down to an oscillation which took place afterwards. This could have been caused by the long length of rope and the speed of the engine but the evidence did not point to this. The rope was one a quarter inch diameter and described by the engineers as '*absolutely without twist*' From observations mad by the Inspector, the bowk did not move if it was steadied and the men did not move round. If they moved then it could oscillate. It was possible that the tools on which they were standing moved. Mr. Robson commented-

> "In my opinion it was wrong to load the bowk with so many loose material but while this practice maybe condemned, I am not prepared to say that it is the most probable cause of the accident. the Special Rules do not prohibit materials being sent up with men. They do, however, provide for them being made secure in the tub before it is sent away but this rule does not appear to have been observed on this occasion."

The jury brought on a verdict of 'Accidental Death' and added the a rider that it was their opinion that it was dangerous practice for men to ascend along with tools in the bowk and recommended that it should be stopped.

TYNYBEDW. Pentre, Glamorganshire. 9th. September, 1895.

The colliery was the property of Messrs. Cory Brothers and Company, Limited. The colliery was opened about twenty years previous and consisted of two shafts each of 15 feet in diameter and 20 yards apart. The shaft accident which claimed the lives of six men.

The colliery was opened about twenty years before the accident and consisted of two shafts, each of 15 feet in diameter and 20 yards apart. The winding shaft, which was also the downcast, was fitted with cages which ran in wire rope guides, three guides to each cage. The upcast shaft had no cage in it but there was a haulage engine at the surface which could wind a barrel or bowk to raise men or water on occasions. The shafts were 240 yards deep to the Nine Feet landing, 318 yards to et Seven Feet landing and 330 yards to the bottom of the sump.

The ventilation was produced by a Waddle fan, 35 feet in diameter, placed at the surface of the upcast shaft. There were steam boilers, underground, near the Nine Feet seam landing and the smoke from the boiler furnaces and exhaust steam from the engines which were used for haulage, mixed with the return air and wen up the upcast shaft.

About 11.30 a.m. on the day of the accident one of the guide ropes broke while the cages were running with coal in the downcast shaft. The cages collided and one of the winding ropes broke at the capping and both cages and guides were so damaged as to make them useless. At the time there were 288 men underground including the manager and steps had to be taken to get the, out of the pit. The scheme was left to the man at the surface as the manager was not there and it was decided to repair the broken winding rope by recapping it and use both ropes in the winding shaft by attaching a bowk to each instead of using the single bowk that was available in the upcast shaft. Another reason for coming to this conclusion was that the upcast shaft could be used to raise water and the danger of flooding the bottom of the downcast shaft would be averted.

About 3 p.m. a bowk about 2 feet 10 inches in diameter at the top and 2 feet 3 inches at the bottom and about 2 feet 9 inches high was attached to the rope and a barrel, rather larger than the bowk, to the other rope and the work of raising men began. One man rode as a 'conductor' in charge of the bowk, the men riding inside and the conductor of the

edge. For some hours, loads of four, five or six men and lads depending on whether they were large or small were raised safely to the surface. About 8 p.m. when the bowk, containing six men in addition to the conductor was being raised, it caught at a byat supporting the landing of the Nine Feet mine and capsized sending the six men to the bottom of the shaft, a distance of 73 yards. The conductor clung to the bridle chains and was eventually brought to the surface and escaped with slight injuries.

The men who died were all colliers-
Ebenezer Morris aged 20 years,
Edward Willey aged 24 years,
Richard Humfrey aged 31 years,
Rees Williams aged 24 years,
Thomas Jones aged 28 years and
Richard Morris aged 21 years.

At the inquest, Daniel Jones, the conductor told what had happened in the shaft. He said-

> "I am foreman at the surface at Tynybedw. I was riding on the edge of the bowk. I was standing on the north side. The men scrambled in. I did not say there was room for one more. There was room for six. We had taken six up before. I began to ride about 5 p.m. I think. After the men got in we were lifted up to 'the steady.' It steadied the bowk by the guide, the north corner one. I did steady it. William Davies, the hitcher, asked me if I was right and I said, '*You can see as well as I.*' The signal was given and the bowk started. The bowk did not turn before it started. I did not notice anything wrong until it touched. The bowk turned, but did not sway. We were going at the same rate as far as I could see. It touched the south side bean of the Nine Feet landing. The men began to jump and the bowk went flying and I lost my footing. The bowk struck a second time, I cannot say whether the wall, or the beams by the sheaves. I did not notice anything wrong before we struck the first time. The bowk was well balanced by having the heaviest man before men. there was no shifting about in the bowk before striking. I am accustomed to riding in bowks. I have not been sinking but a collier. I was then the banksman The bowk was turning round fairly sharply. The men were all inside the bowk. There was no difference in the other rides."

Mr. Robson commented-

> "In this mode of ascent, where the bowk is not kept in position by guides, it is essential that the bowk should be properly steadied before the start and the evidence of the banksman, the engineman and a fireman who was superintending the sending away of the bowk with men as well as that of two colliers who were eye-witnesses all went to show that this was done. Another collier, whose son was one of the deceased, gave evidence that he was not satisfied as to the steadiness of the bowk when it was dispatched but he was eight or nine yards back from the edge of the shaft at that moment and therefore could not see what took place as well as those who wee close to the shaft.
>
> As to how this particular bowk came to oscillate so much as to come into contact with the beam which was a distance of two feet eleven and a half inches from the edge of the bowk when suspended plumb in the shaft, there is no evidence. If was properly steadied before staring, the oscillation could only have taken place due to the men moving."

The Inspector did not think that there had been a contravention of the Act but at the same time pointed out that it was desirable that all shafts exceeding 100 yards in depth should befitted in order to avoid the danger of raising underground workmen and boys in bowks

Mr. Robson concluded his report-

"With respect to want of guides in the winding shaft and a cover overhead to the bowks used for raising the men when this unfortunate fatality occurred, it seems to me that the most that can be said is that probably a technical contravention was committed but that under the special circumstances of the case this was unavoidable."

SHAKERLEY. Tyldesley, Lancashire, 1st. October, 1895.

The colliery was the property of William Ramsden and Sons and there was an explosion of firedamp which claimed five lives. The colliery worked the Trencherbone seam from the Wellington pit which was the furnace upcast shaft and was 360 yards deep. The officials of the mine were manager John Kaye aged 50 years, the undermanager, James Sharples aged 39 years, the day fireman was John Harrison aged 39 years and the night fireman, Thomas Preston aged 35 years, all of who were killed along with a dataller, William Pollitt aged 62 years. All were shockingly burnt.

Firedamp had accumulated and there was a large amount of afterdamp. There was no doubt that the gas was ignited by a safety lamp. The manager had a bonnetted Clanny lamp which was screw locked and fuelled by colza oil. The undermanager had a similar lamp and fuel as had Harrison. The night fireman and the dataller had bonnetted Protector Marsaut lamps locked by a lead plug and containing cozaline. The lamps were found intact after the accident so no lamps was open.

On Saturday, 28th. September, that part of the mine was at work. Nothing out of the usual was reported and no firedamp found but no part of the mine worked on Monday 30th. September due to the local Fair. The fireman did make an inspection and found an accumulation of firedamp which was reported to the manager. He sent the undermanager and four fireman, two of these from another mine to try to remove the gas. They worked for three hours with no success. The next day, the manager accompanied by the four deceased went into the place about 10 a.m. and while they were there the explosion occurred. It took several hours for the afterdamp to disperse and for the first of the bodies to be recovered. About 7 p.m. Mr. Kay's body was found two yards in the firedamp. It took twenty four hours to remove the firedamp and got as far as Sharple's body. It was found 8 yards beyond Mr. Kay.

The men who lost their lives were-
John Kay aged 50 years, manager,
James Sharples aged 39 years, undermanager,
John Harrison aged 39 years, fireman,
Thomas Preston aged 35 years, fireman and
William Pollitt aged 62 years, dataller.

When a full inspection of the explosion area was completed, Mr. Gerrard, the Inspector. From the fact that brattice cloth was found with props to fix the cloth, it was quite certain that the manager had used the brattice to take the air forward to remove the gas. It was also certain that Sharples had gone forward, without a lamp as he knew that there was not sufficient air, to remove some obstruction. They may have thought that there was a fall of roof blocking the passage. No lamp was found near Sharples but a lamp was found 8 feet on the outbye side of Mr. Kay. Three lamps were found together behind the brattice. Apparently these lamps had been extinguished. The only other lamp that was found in that part of the mine was found 30 yards of the outbye side of Mr. Kay. Mr. Gerrard picked it up in the presence of Mr. Kearsley, the general manager. All agreed that there were signs that the gauze had over heated very much and one person observed that it had been red hot. It was a Clanny lamp and had a loose bonnet or shield around the gauze and the oil vessel was not tight. It took two and three quarter turns to make it tight. The glass, which was not in true shape, and had an asbestos ring at the bottom on which it did not seat properly. The

gauzes were of copper wire which were badly seamed and the top of the lamp had an opening on each side which exposed the top of the gauze. The lamp was sent for test at Aldwarke Main Colliery who had the required apparatus. The tests were carried out by Mr. James Hilton, mining engineer. The results were later reported to the inquest.

The inquest was held at the George and Dragon before Mr. F. Butcher, Corner. Mr. Ramsden, one of the owners took the opportunity to say-

> "On behalf of the firm we express our deep regret at this lamentable accident and express to the wives and families of the poor fellows who have lost their lives, our upmost sympathy. We have had a wire at the colliery from the secretary of the Board of Management of the Permanent Relief Society, expressing their sympathy. I must say that the Society have been quick in giving us instructions to hand over the relief to the widows. I am exceedingly pleased that they were in the Permanent Society. I do not wish to say that is a matter of compensation. because none can offer that but what we can do is give them out sympathy and support."

John Grime, of 14, Ellesmere Street, was the hooker-on at the Wellington No.2 Pit and was working there when the explosion took place. He saw Mr. Kay, Mr. Sharples and the fireman, Harrison, but not the two daywagemen at about 9.40 a.m. Harrison told him that they were going in the district but he took some brattice cloth with him. Grime did not examine Harrison's lamp as Harrison was the fireman but he examined the lamps of the other men. This was the last time he saw Harrison alive. Kay and Sharples left the pit eye shortly after 10 a.m. and Sharples was acting undermanager that day and had gone down before Mr. Kay. They met at the pit bottom and went in together. They did not tell Grime where they were going but went in the same direction as Harrison.

John Grime did not find anything wrong until between 11 and 11.30 a.m. when there was a great volume of dust. He said-

> "It came for about five minutes as if there had been a great fall. Then I smelt something that was not dust but after the way of burning. I went to the nearest place where I thought there was an official. I went down the nelson Tunnel and Edward Simister came. He was an under-deputy on the other side. During the time he was coming, another fireman, James Hurst came from the thin mine. I shouted to him and asked him whet he thought was the matter and he was of the opinion that something was burning. The other man came and both Simister and Hurst went away together. They could not get down the brow for smoke so they had to go through the airways. Mr. Almond came up and he went in the same direction. It would be two o'clock before they knew that something very serious had occurred and cause the to send the men out of the pit. Mr. Almond went up the brow and reported the matter and sent for Mr. Gerrard. Parties went in search of the deceased men."

The experiments on the lamp did not prove to be conclusive but it was found that gas would continue to burn until the gauze was red hot and in all probability the fatal lamp was placed on the floor by Kay and the heat built up to such an extent that it could have ignited the surrounding gas.

Mr. Gerrard commented-

> "In my opinion the Clanny lamp is not one of the best type of safety lamps. I know it is extensively used. A lamp which will not burn gas within it is a safer lamps. But the construction of this lamp was bad and the crooked glass should never had been put o it. Screw locks stand long condemned not only as a lock but also as tending to make the lamp defective by the undue strain put on it by repeated screwing of the lock."

After hearing all the evidence and a full summing up from the Coroner, the jury brought in a verdict of 'Accidental Death.'

BLACKWELL 'A' WINNING. Alfreton, Derbyshire. 11th. November, 1895.

The Blackwell 'A' Winning was one of four large collieries belonging to the Blackwell Company, Limited. The colliery was under the control of Mr. Maurice Deacon who was the

general manager and agent. He held a manager's certificate and frequently went down the pit to inspect the workings. Mr. William Elliott was the certificated manager of this and another similarly sized colliery. Mr. William Bentley was the undermanager for the Low Main and the Deep Hard seams and his duties were confined to the workings in the two seams called the 'A' Winning Mine.

The sinking of the shaft started in 1871 with the plan that three seams might be worked. these were the Deep Hard, Low Main and Silkstone Seams. the Silkstone was the lowest and had been worked before it was abandoned in 1881. At the time of the accident there were only two seams being worked, the Deep Hard and the Low Main. The coal from the Deep Hard was raised at the upcast shaft and that from the Low Main at the downcast shaft. The downcast shaft was 14 feet in diameter and reached the Deep Hard at 180 yards, the Low Main at 237 years and the Silkstone at 2929 yards. The upcast was also 14 feet in diameter and reached the seams at the same depth. The Deep hard was 3 feet 6 inches thick, the Low Main 4 feet thick and the Silkstone 3 feet 7 inches thick. The explosion occurred in the Low Main seam were the bituminous coal was produced for house coal and manufacturing industry. About 400 men and boys worked in the Deep Hard workings and about 390 in the Low Main seam. The colliery produced about 1,500 to 2,000 tons per day

The workings in both seams were ventilated by a Guibal fan, 45 feet in diameter and 12 feet wide which ran at 44 r.p.m. and produced 140,000 cubic feet per minute. The Deep Hard workings received 63,000 cubic feet per minute and the Low Main about 77,000 cubic feet per minute. The air that went to the Low Main was further divided to the four districts and the stables. At the time of the accident the fan was running normally.

The seam were almost flat and were worked on the longwall system. The whole of the coal, after leaving the shaft pillar, was extracted as the workings advanced. The coal was brought away fro the faces of the four districts by horses and mechanical haulage. The workings were well laid out both in respect of getting coal and the general working and ventilation of the mine.

Naked lights had been used in the mine since it started working, except occasionally in a few stalls or headings where safety amps had been used when they were passing through faulty ground or when firedamp was found but gas had been reported only on two occasions in the ten months before the accident. A small explosion had occurred on the 1st. June, 1891. On investigation, this was found to have occurred in a rise heading passing through faulted ground and was due to a brattice sheet being disarranged. It was the rule that the Sunday night shift of repairers used licked safety lamps until the deputies had completed their official inspection of the workings. Afterwards naked lights were used throughout the whole mine.

The haulage roads of the mine were both dry and dusty and water barrels were used daily for damping the floor of the roadways. The coal face was also dry but there were parts of the mine that were damp and free from dust. In some places water came from the roof and floor but generally the mine was dry and dusty. The sides of the main haulage roads were through broken strata and the roof was a worked out coal seam. There were many cracks and cervices that could accumulate dust. The loaded tubs, drawn by rope haulage at 12 m.p.h., were swept clean of fine dust by the intake air current. The dust was deposited on the roof and sides of the haulage road or was driven into cracks and crevices until they became full of the finest dust.

Blasting by gunpowder had been carried on since the mine was opened and shots were occasionally fired in the main haulage road. Shotfiring certificates were give to the stallmen or contarctors which gave them permission to fire shots in any part of the mine. The gunpowder charges of six ounces of grain powder, were placed in brown paper bags with a gunpowder fuse inserted and tied at the mouth.

At midnight on the 10th. November, 23 night shift workmen descended the mine to prepare the workings for the day shift men on Monday morning. All appears to have gone well until 4 a.m. on Monday when some of the officials felt a concussion which indicated to

them that something unusual had happened in some part of the workings. It was soon discovered that there had been en explosion in either the South or the South West workings. The manager and undermanager, who lived close to the colliery, were called at once and descended the mine at once and tried to get to the men known to be in the South District. The main haulage road was completely blocked by a large fall and the party had to enter the district by the dangerous return airway. This was charged with noxious gases and it was a difficult passage.

Mr. Arthur Stokes, H.M. Inspector of Mines was informed of the accident by telegram and arrived at the colliery at 10 a.m. He went down at once with the manager of a neighbouring colliery Mr. S. Watson. In the return airway they came to the conclusion that there had been an explosion and upon entering No.20 main road leading to the main haulage road and found that the doors blown out and as the exploration proceeded, met heavy falls and broken tubs. This party f explorers met another who had been down the mine, at the junction of No.20 main road with the main haulage road, were found in an exhausted state. They had found one of the officials dead but were able to bring the body out.

The second party went on and found five bodies in the haulage road. The Inspector was told that at a point of 418 yards from the bottom of the downcast pit bottom the tail rope of the haulage gear was rubbing against the side of the roadway and men had been set to remove the projection. Near this point, where the bodies of Jones, Shaw and Gibson and a dead pony attached to two loaded tubs. Nearby was an empty water barrel, turned up on end, a bucket in a refuge hole an the men's blasting tools and a powder can in another refuge hole. A few yards further on, there was a piece of timber laid across the rails which was the recognised signal that a shot was to be fired. It was evident that the shot had blown out from the side of the road.

The men who lost their lives were-
William Martin, night deputy,
Joseph Renshaw, examiner,
James Fryer, examiner,
James Mee, dataller,
John Jones, dataller,
Thomas Shaw, dataller and
John Gibson, driver.

The inquiry into the deaths of the men was held by Dr. Albert Green, Deputy Coroner, at Blackwell. The court heard that there was no doubt that John Jones went down the pit to fire a shot in the South Main Road and remove the obstruction to the haulage. After heading all the evidence the jury brought in the following verdict-

> "We find that John Jones and six others whose bodies we viewed on November 13th met their deaths on November 11th. in the low Main seam at the 'A' Winning Pit of the Blackwell Colliery Company, which explosion as caused by an overcharged shot of gunpowder but the evidence fails to clearly define the secondary cause.
>
> We find that no blame cam be attached to the management, and we believe that all concerned will have benefited from the results of this calamity.
>
> We also wish to express our sense of admiration of the noble courage displayed by the whole of the exploring party, and to thank the management for the assistance rendered to us by the clear manner in which the maps and tracings have been provided and explained."

Mr. Stokes commented on the remarks about the secondary cause when all the expert witnesses recognised the cause a coal dust. He commented-

> "The failure of the jury to recognise the secondary cause was probably due to the general reluctance of many mining men and others to admit coaldust alone can be

fired and rise to such devastating phenomena as those found after a colliery explosion."

DUNGANNON. Dungannon, Tyrone, Ireland. 11th. December, 1895.

The colliery was the property of the Dungannon Collieries, Limited who had their offices in Manchester and was made up of shareholders lining in and around Manchester. Mr. Donald Munro was the agent and managing director and Mr. William McKay the certificated manager. They had leased a large area in Dungannon from several land owners including the Earl of Ranfurly, Messrs. Lindsay, of Shakerley and Harper.

A shaft was started to be sunk in 1891, eight feet in diameter and called the Emerald Pit. On 28th. February, 1895 the coal was won at a depth of 200 yards. Mr. Gerrard, the Inspector visited the pit and explained that a second outlet would have to be provided and until communication was made with the second outlet, no working of the coal seam could be done except with the exemption of the Secretary of State. Mr. Gerrard was told that an old shaft, about 300 yards to the rise would be made available for the second outlet and communication would be made with that shaft.

In April, 1895, the plans of the abandoned workings in connection with the old shaft were shown to Mr. Munro and he was permitted to copy them. The date of the abandonment was June, 1888. the mine was visited by the Inspectors in October and it was found that the communication had been driven for only 105 yards and level had been driven on the north side for 145 yards and on the south side for 90 yards. there were a number of wide work places being worked on both sides. On one occasion there were twenty eight men in the mine at one time, on other occasions twenty seven and twenty three men.. On October 19th. The following notice was sent by the Inspector-

> "I hereby give you notice that to confirm the Coal Mines Regulation Act, 1887, all working places other than the communication with the Congo Pit be stopped. That boring in advance of that communication be immediately put into operation in accordance with the 13th. General Rule"

The reason for the advance borings was that several men who had worked in the Congo Mine informed the Inspector that a down brow had been driven 80 to 100 yards below the level shown on the abandoned plan. On the 14th. October, the face of the communication brow was within 30 yards of the alleged old working.

On the 4th. December a borehole, 11 yards in advance of the face tapped water. Mr. Munro was present when this was done. The bore rods were left in the holes but there was no tap fixed and the water as allowed to run from the hole along the floor to the brow of the shaft. From that date to the date of the accident the water was allowed to flow uninterrupted and men were employed in the brow making manholes and repairs.

On the morning of the 10th. December, the men were working near the face of the brow under the charge of the underlooker and were visited by the manager and in the afternoon shift, two colliers, Frank Paton and James Bretland, where working under the supervision of the fireman,. About 9 p.m., having finished their manholes, they began to work at the face in the upper portion of the seam. A bat was s et and the coal hewed. One witness at the inquest stated that the face advanced two feet. At 11 p.m. these men left and met the men coming in down the brow. This shift was made up of two colliers, William Bretland and John Cooper and their filler David Bretland. The men going in asked the others where they had been working and were told 'at the face'. Edward Rafferty, the fireman, took charge of the shift. In addition to Cooper, the two Bretlands and Rafferty Edward McMahon, a labourer and Thomas Ward, the hooker-on at the bottom of the shaft ere in the mine.

About 12.15 a.m. on the 11th, John McMullen, the men who was in charge of the pumps in the shaft, went down the pit with Frank Mitchell, the weight clerk. Mitchell had no business to go down and had been ordered by the manager on previous occasions not to do so. McMullen went up the brow to the face with the excuse that he was going to see if he could reduce the water running from the borehole. Edward McMahon had left the face of

the brow about that time, leaving Rafferty, Cooper, William and David Bretland at work. . McMahon met McMullen and Mitchell going up the brow and about 12.30 a.m. McMahon and Ward were about 20 yards from the shaft when a strong wind coming down the brow warned them that something was wrong. Their lamps were blown out and one had his cap blown off. They ran to the shaft. Fortunately the cage was there and the engineman at his post and on signalling, they were brought to the top.

The manager and others were sent for. on descending the shaft at 1.15 a.m. the water was found to have risen 15 yards up the shaft and very soon it rose to 70 yards up the shaft. The old Congo Pit was descended but the workings were open for only 20 yards and nothing in the way of an attempted rescue could be contemplated from that side. arrangements were made at once to draw the water fro the Emerald Pit by a water tank. The pumping engines were under water and had stopped. A tank holding 280 gallons of water was put to use and by this means the water was lowered to a level where the pumps could be started. On the 17th. December one of the force pumps in the lodge in the shaft was started under 20 yards of water. On the 8th. January the water was lowered so that a duplex force pump at the bottom of the shaft was started, also under 20 yards of water.

By the 20th January, an entrance into the mine was made and at 21 yards fro the shaft the first body was found to be that of David Bretland. Within thirty eight yards from the shaft the remaining bodies were found. Four were amongst rails, props and bars and debris carried down the brow by the rushing water. all the bodies were stripped of clothing and had on only their boots. Rails were bent in a horseshoe shapes, some of the being as heavy as 30lbs. to the yard. The last body was found 59 yards from the shaft and about 230 yards from the face of the brow. this was recovered on 26th. January. It was not until 8 a.m. On the 31st January that conditions enabled the Inspector and others to make a full examination since much debris had to be removed and the mine made safe.

Those who died were-
Edward Rafferty aged 42 years, fireman,
John Cooper aged 56 years, collier,
William Bretland aged 31 years, filler,
John McMullen aged 42 years, pumpman and
Frederick Mitchell aged 21 years, weigh clerk.

As it was vital to know the relative position of old workings a joint survey was made to fix the position of shafts and survey the approach workings. On 29th January, Mr. Saintt, Assistant Inspector of Mines and Mr. John James Whitehead, mining engineer of Stretford, Manchester on behalf of Company, made survey. It was discovered that on the 4th. December, the distance driven in the new brow extended some yards beyond the recorded position of old workings and therefore these workings were further away than was expected. Mr. Gerrard did not know if it was for this reason or Mr. Munro's anxiety to return to England which caused him to direct that a borehole forward right away until it tapped the water, but extra long rods were obtained, front borehole sent forward until the water rushed through when it was 11 yards long. It was then thought that there were 11 yards of coal between face of the new brow and water.

On 10th December, if not before it was certain that coal was worked at face reducing the coal barrier. How much was taken off will never be known as after inundation, all trace of the original face was removed. The survey found that the face in the upper portion of seam was shown to be 6 feet beyond the face of lower portion of seam, the latter being 3 feet 6 inches beyond the last flank boreholes. No evidence of the measurement was given and appeared to the Inspector to be all guesses. It could have been that the faces were further from the last flank holes. If this was so, the urgent necessity of additional flank holes would have been increased. When Mr. Gerrard visited the colliery in November, these flank holes were being bored nine feet apart. The distance between ten last two holes, the nearest was nine feet from the face. The front borehole put through the old level passed to right of and

very near to a place driven 8 yards below the old level. If this borehole was originally 33 feet long and the down brow 24 feet down, difference gave the intervening barrier as 9 feet. the distance between the last two holes, nearest face was 9 feet. If the face of the new brow was carried further, after the water had been tapped, the intervening barrier would have been so much the less. Whether the barrier was 11 feet or 9 feet, it was quite certain that the pressure of the water broke through and swept the men before it.

The section of the seam was 11 inches of very hard coal near the roof, then 6 inches of dirt, then 2 feet of tender coal. It emerged that there was a small fault on the right hand side of the face which ran through the barrier. Mr. Gerrard thought that this fault would have considerably weakened the barrier and its presence was known before the accident.

The inquest was held on the 6th February before Mr. J. Malone, Coroner for the district and Owen Muldoon, the engine winder who lived in Killybracky, who told the court-

> "My duties are lowering and raising men and coals. I was on duty on the 10th. December at 7 p.m. and remained until seven the following morning. I remember the third shift going down about 11 o'clock. Edward Rafferty was in charge. Eight went down. Mitchell and McMullan are included in this number. They went down afterwards. They went down about quarter past twelve. I could not say anything about the pumps. if they had not been working, I would have heard something about it. The first think that attracted my attention after they went down, they signalled to bring men from the bottom of the pit. I brought them up, Ward and McMahon. When they came up they shouted to lower the cage quickly. I lowered the cage with extra speed, owing to the attitude of the boys on the bank. I got no more signals. I heard about the water from the banksman and I shouted them to go to Curran for Thomas Kettle, the enginewright and manager. A message was went to them with all haste. I did not discover anything until I called the boys into the house. I watched for a signal for about ten minutes before I called them in. They told me about wind and noise. Thomas Kettle came and descended when he came in he said, "Owen, What's wrong?" I said, "Tom, I'm afraid the water's broke." He said, "I'll go down." I told him to be cautious as we did not know how the water was coming in. I told him I would lower him very cautiously. I did not know anything more until he came back."

James Bretland who lived in Curran and was at work on the 10th. December was examined. He said-

> "I began work at 3 p.m. and I did not notice anything out of common with the face of the brow. I did not notice any difference in the quantity of water coming through the borehole. the men of my shift finished the manhole first. When we went up the face the roof was bad and wanted a bar. Peter McGuirk got the bar. When he was getting it we were getting ready for it. We made a hole on each side and stuck the bar into it. Then we commenced to work at the face. We got about 2 feet to three quarters of a yard of coal off the face. I do not think we got more off it. We got no orders to the contrary. McGuirk told us to finish the manhole, then got to the face. We were working there to 11 o'clock. On the first shift on another morning there was also a little taken from the face. Fred Bocher was son that shift. I could see the face he had touched. I could not say how often I have been up the face between the 4th and 11th., December. I would say about one and a half yards at least had been taken."

After hearing all the evidence and the Coroner's summing up the jury returned the following verdict-

> "That Edward Rafferty and the others came to their deaths through a breach between the old Congo Pit and the Emerald Pit. we consider that the present Company worked strictly in accordance with the plans supplied to them, which have been proved to be defective, and they carried out their operations with great skill and care, and took all the precautions to avert the accident and that the zeal and energy with which they displayed in their efforts to clear the mine and recover the bodies is to be highly recommended. we are also of the opinion that the Home Office should make greater

efforts in order to test the accuracy of plans of mines about to be abandoned before they receive them."

As to the recommendation of the jury. Mr. Gerrard pointed out that it was absolutely impracticable. In this case, the Congo workings were filled with water and notice was given to Mr. James Brown, Inspector on the 28th. August, 1888 that ,"The colliery has been closed for the past two months. The min is now flooded."

On the 26th. January, 1889, Mr. Brown wrote, "We are trying to get a man to take charge." On the 13th. July, 1889, he wrote. "I now enclose tracing of the colliery workings at Congo there is little hope of reopening." Mr. Gerrard continued-

> "As to the surveying and up-keeping of colliery plans, in many cases it is open to improvement. it may be well to consider how this may be attained. The owner, agent and manager are required under the 34th. section of the Act to keep, 'accurate plan of the working of the mine' if he produces and imperfect or inaccurate plan he will be guilty of an offence against this Act unless he shows that he was ignorant of the concealment, imperfection or inaccuracy. It was given in evidence by the manager of the Congo Colliery at the time it stopped, that the old downset was not made by him and had been made before he took charge."

Mr. Gerrard pointed out that it would be difficult to ascertain who was in charge at the time.