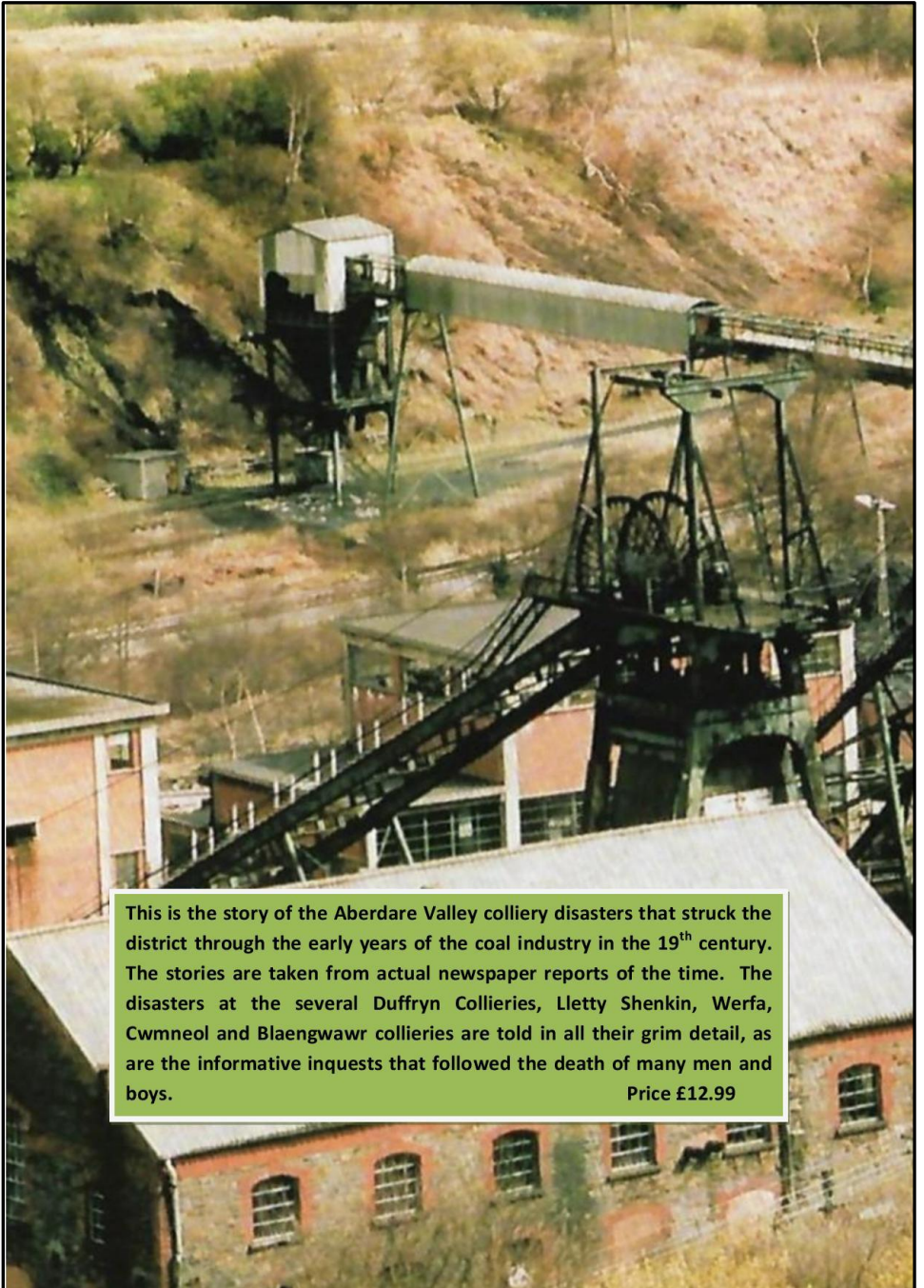


An aerial photograph of the Aberdare Valley Colliery. The central feature is a large, dark wooden headframe with a prominent winding gear at the top. A complex network of wooden beams and cables supports the structure. To the right, a large brick building with a white roof is visible. In the foreground, there are several smaller buildings, including one with a white roof and another with a red brick wall. The background shows a steep, wooded hillside. The text is overlaid on a green rectangular box in the upper center.

**THE ABERDARE VALLEY COLLIERY
DISASTERS 1845 - 1861**

BY GARETH HARRIS



This is the story of the Aberdare Valley colliery disasters that struck the district through the early years of the coal industry in the 19th century. The stories are taken from actual newspaper reports of the time. The disasters at the several Duffryn Collieries, Lletty Shenkin, Werfa, Cwmneol and Blaengwawr collieries are told in all their grim detail, as are the informative inquests that followed the death of many men and boys.

Price £12.99

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1845 - 1861**

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BY

GARETH HARRIS

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INTRODUCTION

When anyone talks about colliery disasters it is more often than not the Rhondda Valley that is talked about, but the Aberdare Valley had its own disasters that occurred before most of the collieries in the Rhondda had been sunk. The early Aberdare collieries between 1845 and 1861 saw several appalling disasters that have largely been forgotten, but this book tries to put that right. It records in great detail the tragedies at the Old Duffryn, Middle Duffryn, Lower Duffryn, Lletty Shenkin, Werfa, Cwmneol and Blaengwawr Collieries, where the fatalities reached near or above double figures.

These stories are told through the newspaper reports of the time and include details of the inquests that were held after the tragedies and go into great detail about the working conditions and poor ventilation underground that often contributed to the deaths.

Unfortunately, because of the early dates there are few photographs of the actual collieries from that time, but a few were taken when either the colliery was closed or only kept open as ventilating shafts.

For those who worked in the coal industry or have fathers and grandfathers who worked in the coalmines I hope they will be interested in the forgotten history of the coal industry in the Cynon Valley.

For those unfamiliar with colliery terms a small glossary of mining terms is given in the rear of this book

Gareth Harris

Front and back cover photographs courtesy of Brian Davies

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PROLOGUE

The early coal pits

In the middle of the 18th century, most coalmines in Britain were near the surface and mining was a small scale industry where families worked together in bell-pits* or adits.** But around the end of the century surface coal began to run out and mines started to become deeper. These mines were first opened by the iron-making industry mining iron stone in the Aberdare district. These deeper mines were much more dangerous and with the decline of the iron industry after the turn of the century and the expansion of the coal industry around 1831, the new population brought into the district by the iron industry slowly turned to mining for coal. There was not only a much greater risk of rock falls and flooding in these deeper collieries, but there were also pockets of gas underground that could lead to explosions or suffocation.

Miners had virtually nothing to protect themselves against the increased dangers. To try to prevent the roof caving in miners left columns of coal standing. This was known as the 'pit and stall' method. But coal can collapse very easily, so this was not a safe method of working. Ventilation became a serious problem as miners went deeper and deeper underground. The earliest solution was digging a down-shaft and an up-shaft. But that was resisted by owners who were reluctant to face the expense.

At the bottom of the up-shaft a furnace was set ablaze, which sent hot air up the shaft. This in turn sucked fresh air into the down-shaft and spread through the mine. To make sure that the fresh air reached all parts of the mine, trapdoors were put in all the galleries of mines, which were opened and closed as the coal trucks passed through. This ensured that there was a constant supply of air throughout the mine. The trapdoors were opened by small boys (door-boys), who mostly sat in total darkness listening for the sound of the trams (coal trucks/sleds). The most serious danger of all was caused by the need for light. At first miners carried candles underground, but this proved to be very dangerous, as pockets of gas could ignite without warning, and when 'safety lamps' were introduced they proved unpopular with the colliers

who complained that they did not give out enough light and they often took off the protective gauze, which put themselves in immediate danger. In all, it was dark, dangerous and deadly work. Throughout the 19th century more than a thousand miners were killed every year in Britain and the smoking of clay pipes underground was blamed by many for a lot of those.

* A bell pit is a primitive method of mining coal, iron ore or other minerals where the coal or ore lies near the surface. A shaft is sunk to reach the mineral which is excavated by miners, transported to the surface by a winch, and removed by means of a bucket, much like a well. It gets its name because the pit in cross section resembles a bell.

** Adits are driven into the side of a hill or mountain, and are often used when coal is located inside the mountain but above the adjacent valley floor or coastal plain. In cases where the mineral vein outcrops at the surface, the adit may follow the coal vein until it is worked out, in which case the adit is rarely straight. The use of adits for the extraction of ore is generally called drift mining.

The Cwmbach story

Cwmbach, a small hamlet just outside the village of Aberdare at the beginning of the industrial revolution was at first named Abernant-y-groes, its name deriving from a small stream of the same name that flowed into the River Cynon. However, the stillness of what was a small farming community was to change during the industrial revolution by the establishment of a small iron foundry in 1788 near the Duffryn Woods at the lower end of Cwmbach at a spot named Tirfounder.

The Cwmbach hamlet, however, was also soon encroached by the Glamorganshire Canal, which was built from Aberdare at the end of the 18th century to join the Merthyr – Cardiff Canal at Navigation (Abercynon). Opened in 1812, it had a length of seven miles and unlike the Merthyr – Cardiff canal, which had many the Aberdare Canal had only two locks, one near the Duffryn Inn, Cwmbach. The early years saw a slump in the iron trade, for which the canal was built, and for a while the Llwydcoed and Abernant ironworks closed down. During the first three decades of the 19th century, however, there was a return to the

good times in the iron industry and once again the barges were a familiar sight as they passed the cottages and smallholders at Abernant-y-groes.

The ironworks in the district were at the time growing at a terrific rate and soon began to look for local coal to drive their industry by opening their own collieries. Matthew Wayne and his son Thomas, of the Gadlys Ironworks believed there was coal underneath Abernant-y-groes, and with the cooperation of the landowner William David, sunk a pit in 1837 and the much praised four-foot seam at sixty yards was claimed in December of that year. The site was near the present day Aberdare road and was naturally named the Abernant-y-groes Colliery or later known as the Cwmbach old pit.

Soon there was a tram road connecting the pit with the canal and cart loads of coal would be drawn by horses down the hill to be loaded on to barges that initially took the coal to the ironworks, but the quality of the coal was so high that it was soon to be transported down to the Cardiff docks instead, where new markets were opening up. By 1840 the coal was renowned throughout the country and used by the Admiralty to power its ships. The success of the Abernant-y-groes colliery started what could only be described as a 'coal rush' and new pits were sunk at a terrific rate at Cwmbach and the surrounding districts. Some were small concerns, but others were to turn into major ones. The Ynyscynon, Scales, Lletty Shenkin, Y Werfa, and Blaennant-y-groes collieries, to name a few, and four 'Powell' pits at the Duffryn end of Cwmbach were all sunk within a few years.

The new collieries, however, all needed a workforce, but there was very little available locally, but word of steady wages spread far and wide and after continual bad harvests in West Wales poorly paid farm workers decided to improve their circumstances by travelling East to work in these new collieries. The rapid growth of the Cwmbach population is illustrated in the 1841 census which recorded only 175 people living on the farms, and a few labourers' cottages. The farms were: - Duffryn, Cefnpennar Uchaf, CefnPennar Isaf, Fynnon-y-gog, Tirfounder, Ty Llwyd, Toncoch, Lletty Shenkin, Gnoll, Cwm Nant-y-groes, Blaennant-y-Groes, Pantygerdinen, Abernant-y-Groes Uchaf, Abernant-y-Groes Isaf,

Ynyscynon, and Cwmbach (the farm which later gave its name to the whole village).

There were also two publicans, masons (for building new cottages for the coal-owner to rent to their workmen), and even a shipwright who was paid to maintain the canal barges. This was supplemented with the odd tailor, shoemaker, carpenter, smith and sawyer.

Those new to the coal industry and who depended on their wage for a livelihood found a collier's life was not easy. The coal industry was still in its infancy in the valley where safety measures in the pit came second to the extradition of as much coal as possible to make the proprietors rich. Despite Government concerns, until several explosions throughout the country cost many lives they only then appointed Inspectors of Mines, three for the whole of the United Kingdom, and that was in 1851! Before that, and for some time afterwards little attention was paid to the working conditions of the miners who spent their days in the dark inhaling the fine dust which wreaked havoc on their lungs and got into their eyes, often chronically infecting them. The pits were badly ventilated and badly constructed and there were many fatal accidents, especially in Cwmbach.

The miners' wives had to learn to live with the daily anxiety of accidents happening underground to their men, and accidents happened all too often. An explosion underground would reverberate through the whole village and send all the women in a state of panic to the pithead where they would stand in dread, sometimes for hours, even days, while rescue attempts were in progress and the cages would bring up the dead and injured to the surface.

For many families, a nightmare would become reality when they recognised the lifeless and sometimes featureless or decapitated bodies of their husbands and sons, and were condemned to a life of poverty and struggle, receiving only inadequate, if any, compensation from the coal-owners. The influx of workmen and their families was still immense and an education report published in 1848 estimated that Cwmbach now had a population of 2,700! In a sanitation report of 1853 Cwmbach emerged

as one of the dirtiest and deprived places in the valley. Three-hundred houses had been quickly built for the influx of new workmen, most of which were along the banks of the canal. They were small, damp, squalid and almost inaccessible because there were no roads, indeed, Dr. David Davies of Bryngolwg, the future Medical Officer of Health, stated that when he had to go there to visit patients he could often not even get there by horse and had to wade through muddy, evil-smelling paths.

When he eventually got there he often found people carrying infectious diseases from the human refuse and filthy waters of the canal. "The stench," he remarked, "was unimaginable." The mining families were living in appallingly unsanitary conditions and obtained their water from the wells and springs that were scattered around the village.

In the houses, as the years progressed, water was gradually provided in pipes, and sewers were built, so that the inhabitants were no longer forced to empty their chamber-pots into the streets or the canal, or live next door to stinking cesspits. At last organised attempts were made to improve the sanitation, and give the residents a little dignity and pride.

As the labour force continued to arrive in the village, little rows of houses appeared like mushrooms, precariously perched on the steep slopes of the Cwmbach Mountain, built from local stone quarried above the village and topped with slates of grey which glistened dark blue on rainy days. Work was also very hard in the quarries as the demand for stone for building became intense. The hewn stone was loaded into trams and transported along the inclines from the mountain down to the village to be worked by the masons and builders who erected the stone terraces of little houses to accommodate the miners and their large families.

Most of the terraced houses being built in the 1860s had two rooms and a scullery downstairs and two bedrooms upstairs, and often housed up to twelve people, squeezing in a lodger or two. The new houses were equipped with toilets in the garden, cast-iron kitchen ranges, fireplaces in the rooms and running water which was an improvement upon the hovels near the canal in which people had hitherto been forced to live. The men who still arrived from the impoverished farming areas of west

Wales arrived full of hope that they would at last be able to provide a decent living for their families but often ended up extremely disillusioned. The men were not happy with the inadequate wages they were paid and there was much unrest during the whole history of the coal industry between employers and employees, with many futile strikes and battles. The coal owners refused to raise the salaries as long as they could bully the men into accepting low wages, which were better than having nothing at all to live on during strikes.

In 1857 there was a seven week strike which was not about an increase in wages but a protest against a cut in their already meagre salary. There was ugly rioting and soldiers were brought in to escort strike breakers and destitute Irish labourers to the pit to protect them from attacks by the desperate striking miners who knew that their suffering was in vain if the owners could continue to rely on cheap labour. But when the youngest and oldest members of the families began to die of hunger the miners were forced back to work on the owners' terms. Nothing had been achieved by their attempts at solidarity.

The history of Cwmbach and the Aberdare valley of this period revolved around the coal industry and the stories of tragedy and grief are manifold. On August 2nd 1845, 29 men and boys died in an explosion at the Duffryn Colliery (later known as the Old or Upper Duffryn Colliery), the first of many.

Again, on August 9th 1849, while a cholera epidemic was present in the Aberdare valley, there was a tremendous explosion at the Lletty Shenkin Colliery.

This time 53 colliers, which consisted of a large proportion of the wage-earning males in the village, were killed, and scarcely any home escaped without losing at least one member of the family. Three boys of eleven years and several more under the age of sixteen died.

The landlord of the Duffryn Arms, a popular, jovial character called Edward Llewellyn was one of the dead men, leaving a wife and five children.



The Old Duffryn or Tirfounder Colliery many years after the disaster

It was a full-scale disaster for the small mining community, the widows being forced to take in washing and ironing to supplement their meagre incomes and feed and clothe their remaining children, and many other wives were left with maimed and incapacitated husbands to care for. Single deaths through falls and explosions continued in all the local collieries throughout these years, so often in fact that they were only occasionally reported in the south Wales press. Before 1850 no systematic record of accidents was kept nor were those connected with the industry willing to give information about their number and nature.

On May 10th 1852, 65 more lives were lost at the Middle Duffryn Colliery, another of the 'Duffryn' Collieries owned by Thomas Powell. A year later, in 1853, three more men were killed in an explosion and fifteen others badly burned, whilst at the Lower Duffryn Colliery at Mountain Ash in 1858, not too distant from Cwmbach, again owned by Thomas Powell, a further 19 were killed.

In 1862 another five miners were killed at the Lower Duffryn Colliery, (again) which prompted in inspector of mines, Herbert Mackworth to write an official letter to the owner, Mr. Rees, expressing his concern that the recommended safety measures were not being carried out, as indeed they were not.

The 1862 explosion was almost the last to result in multiple deaths, the influence of the Inspector of Miners pushing the somewhat reluctant colliery owners and managers into more efficient ventilation and safety measures began to take effect. But the story of the early explosions and the lives lost should never be forgotten and shall now be recalled in this book.

THE DUFFRYN COLLIERY, CWMBACH, AUGUST 2nd 1845

Twenty-nine lives lost

The first major colliery catastrophe in the Aberdare Valley would occur at the Duffryn Colliery, Cwmbach (later to be known either as the Upper or Old Duffryn Colliery). It had been open about three years and was not far from Aberdare, and six miles from Merthyr. The downcast shaft was 328 feet deep and used for pumping. The return air went along the main roads. The upcast shaft was the furnace shaft.

The colliery was worked by lighted candles and the old stalls were systematically walled up when worked out. The gas was supposed to have been driven out of an old stall where the roof fell and to have ignited the candles of the men working further up the heading.*

*Heading - A Tunnel in advance of any coal-face, driven to determine mining conditions ahead.

There were about 140 men in the mine at the time and 28 were to lose their lives, most of them from suffocation. The blast was unusually confined to one heading of the mine and occurred about 11 a. m. on a Saturday. Some of the bodies of the victims were not recovered until the following Tuesday. The explosion was spoken of as "only a commencement in the valley of Aberdare." A boy nine years of age was one of the victims, and the total deaths of 28 might be incorrect as those that died later in the week were not counted in the initial newspaper reports. The *'Cardiff and Merthyr Guardian'* carried this report: -

Dreadful colliery explosion at Aberdare

On the forenoon of Saturday last, August 2nd 1845, a most dreadful – a most appalling catastrophe took place at the Duffryn Colliery, near the village of Aberdare, Glamorganshire, by which eight and twenty souls were, without a moment's warning, hurried from time into eternity. Information respecting the deplorable event reached Cardiff on Sunday, upon which our reporter instantly hastened to the spot, and remained

there for three days, making inquiries and collecting information, the result of which we now beg to place before our readers.

It seems that the colliery in question is worked by Thomas Powell, Esq. – one of the most extensive and spirited workers of coal in the kingdom, – and that early on Saturday morning the men, amounting in number to about 160, descended the pit and entered the workings as usual, the firemen who were appointed to enter and report upon the site of the ventilation in the various ways, headings, and stalls having previously declared the whole, or nearly the whole, to be free from noxious vapours. The workmen having entered the mine, continued to work up to about 11 o'clock in the morning, when suddenly an explosion took place, which, by its tremendous violence, seemed to shake the earth to its centre.

Instantly the inhabitants of the neighbourhood were seen running to the spot – men, women, and children, and who being well acquainted with all matters appertaining to the working of mines, were aware, from the sound and the vibration of the earth, that an explosion of the most dreadful nature had taken place. They also knew that their relatives were in the mine, and probably exposed to all the fury of the resistless blast; and therefore, as soon as they had a moment's leisure to collect their scattered thoughts, the magnitude of the danger seemed to present itself with double-force to their minds, and cries of the most piercing anguish were uttered by all assembled.

From the pit the loud murmurs of men's voices arose, bearing most welcome evidence that some had escaped. But then arose the question – who had escaped? How many were lost? – and as each wildly and despairing calculated the possibility that their husband, father, or friend, had perished, the dismal wail of misery again arose, and all seemed to abandon themselves to despair. However, by this time, several men had been drawn to the top, and were almost devoured by the eager embraces of their relatives, who received them as men who had arisen from the grave. It was really a most effecting sight to witness the manner in which wives welcomed their husbands. We pointed it out to a gentleman who happened to be standing near, who thereupon observed,

- "Yes, poor things, they have reason to be thankful; colliers as a class, whatever their other vices may be, generally prove good husbands."

Another, and another, and another lot of men and boys were quickly drawn up, each arrival being watched with intensive anxiety by those whose friends had not made their appearance. At length it was announced that with the exception of one or two who remained at the bottom of the shaft, all the men who were alive had been brought up. It was then found that 28 were missing, who, and it was instantly truly surmised, had perished. The neighbourhood of the works was by this time crowded by many hundreds, some of whom prepared to descend the pit in order to commence a search for the bodies of the poor fellows, who remained in the workings.

Notwithstanding the almost suffocating state of the mine, many brave fellows went down and forthwith commenced their humane task, succeeding on the same day, despite innumerable obstacles and perils, in sending up 13 bodies. Some were alive when discovered, but they died soon after being conveyed to the surface. The engine was kept constantly pumping, and the water was thrown back into the mine so as to assist in forming a current of air. During Sunday bodies were found at intervals, and on Monday at about 2 o'clock, the last was discovered, and speedily conveyed to the surface. Several were burnt most frightfully. We subjoin a list of the sufferers as taken from the plates on the coffins, which were considerably provided at Mr. Powell's expense: -

Rees Williams, 24, single; **Howell Williams**, 28, brother of previous;

Howell John David, 20; **Joseph Phillips**, 19;

Evan Lewis, 19; **David Jones**, 32;

Thomas Smith, 19; **David Morgan**, 20;

David Jenkins, 37; **James James**, 23;

George Thomas, 33, (all single).

James Thomas, 44, married man, and has left a widow and two children.

David Thomas (son of previous) 10, whose was literally reduced to a cinder. **Jake Morris**, 30, single;

Thomas Evans, 35, married man, and has left a widow and two children. He was remarkable for his great personal strength. His body was found at

some distance from where it is supposed the explosion occurred. He had his hands to his face, as if he had been endeavouring to protect his nostrils from the effect of the destructive gas.

William Evans, 31, single. **William Williams**, 34, married man, has left a widow and two children. **Evan Thomas**, 14 single; **John Jones**, 17, single; **Thomas Rees**, 23, single;

John Edwards, 35, married man, has left a widow and two children. **William Edwards** (son of previous), 9 years. **John Jones**, 17, single;

William Llewellyn, 18, single; **John Evans**, 22, single; **David Evans**, 9, single;

Thomas Davies, 78, widower, commonly called 'Thomas Ty'nycoed.'

David Jones, 27, has left a widow and one child.

Nicholas Evans, a youth aged 12 years, although dreadfully injured, having sustained, with the force of the concussion, a fracture of the lower jaw-bone, of the arm, and of the leg, was alive on Tuesday. The force of shot (a small amount of explosive) may be partly conceived from this circumstance: -

This boy was nearly 170 yards from the spot of the explosion, but was hurled by it with such violence against the sides and roof of the pit, as to receive the injuries just described. It is one sad consolation to know that the poor fellows' sufferings were not to be protracted, as it is imagined that death was mercifully prompt.

Not more than six or seven, we are informed, died from the effects of burning; a great majority of the sufferers had been suffocated by inhaling carbonic acid gas, or what the colliers term 'choke-damp' or 'after-damp'.

In the state of confusion that naturally prevailed in the neighbourhood, it was scarcely possible to obtain correct information relative to the state of the mine; the means adopted for ventilation and the cause of the explosion, &co.

Various rumours are current, many being most contradictory and ill observed; and therefore, without noticing these, we refer our readers to the statements made upon oath before the coroner and jury.

The funerals

On Monday and Tuesday the funerals of the deceased took place, and were most numerously attended. We observed bands of Odd Fellows with scarves, hatbands, and white gloves, and other Orders, in procession preceding the funerals. All seemed impressed with the dreadful magnitude of the calamity, and as the funerals moved slowly along, not a sound was heard save the sad sighings of the women, who occasionally were completely overcome by the intense violence of their emotions. Those were moments of indescribable mental anguish – of withered regret. Never, we believe, in this country, has such a scene been witnessed - one so calculated to impress upon the mind a lasting recollection of its fearful reality.

'The Welshman' reported this extra information: - One of the most calamitous events which have ever occurred in this part of the country, within the recollection of the oldest inhabitants, took place here at 11 o'clock on Saturday morning. Engaged in the colliery of Thomas Powell, Esq., in this place, are about 150 men and boys, 29 of whom were working this morning in the same heading in a pit 94 yards in depth, from which the coal is raised, at the rate, we are informed, of upwards of 100 tons a day, by means of a powerful engine.

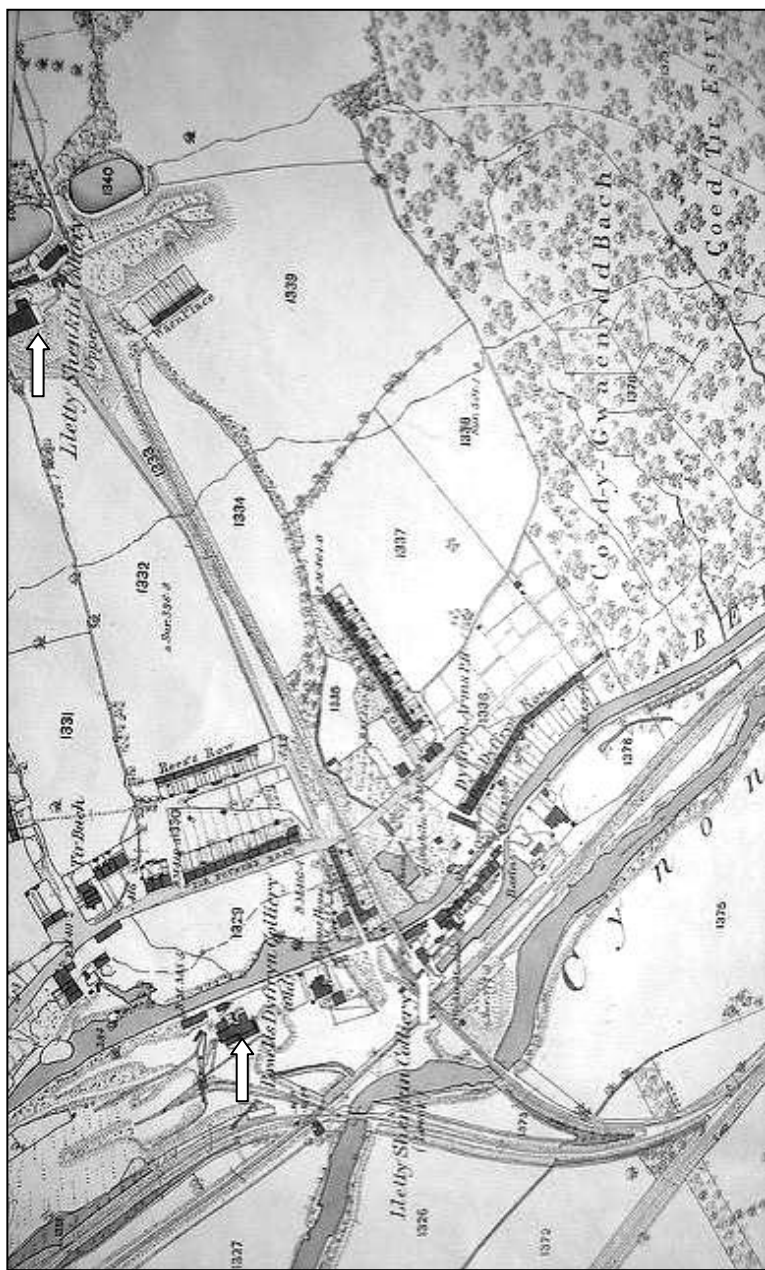
The pit has been in operation for the last three years, and is within a few yards of the Aberdare canal, which conveys the coal to the Glamorganshire canal. The foul air, which is very strong in these parts, appears to have ignited about 11 o'clock on Saturday last, and the dreadful news of the calamitous effect spread speedily, not only through the pit, but the surrounding districts also. Every exertion was made immediately to get at the bodies, but only one was found on Saturday, who had his waistcoat partly in his mouth and his hand over it, supposed to be endeavouring to prevent the foul air entering his lungs. He appears to have been suffocated.

The men were employed incessantly during the remaining part of the day, but failed to get at more, and were in the greatest peril of their own lives in venturing so far. Up to 2 p. m. the men were indefatigable in their exertions to extricate the dead bodies of the unfortunate victims; 13 were taken out on Sunday, and on Monday morning, and the remaining 6 in the afternoon. Their appearance, with the exception of a few who were literally suffocated, was most dreadful - being roasted to death. Two horses were also killed, but it is supposed that a collier was obliged to cut the throat of one of them with his knife, as he was lying on his back, and kicking most violently at those who passed by him. Until this occurrence, few, if any accidents, have taken place in this pit.

The coroner's inquest

On Monday, August 4th, the inquest was held at the Boot Inn, Aberdare, and there, before William Davies, Esq., coroner, and the following gentlemen who composed the jury: - Messrs. Matthew Wayne (foreman), Gadlys; Thomas Cord, Merthyr; Thomas Wayne, Glyndare; Philip Taylor, Hirwaun; Henry Kirkhouse, Cyfarthfa; John Nixon, Werfa Colliery; David Llewellyn, Hirwaun; David Davis, Hirwaun; Rees Rhys, Llwyncoed; David Williams, Ynyscynon; J. P. Evans, Aberdare; David Jones, Aberdare; Thomas Edwards, Aberdare; William Miles, Aberdare; Thomas Jones, Aberdare; Robert Biddle, Aberdare; and John Smith, Abernant. Our readers of this county will see that several of these gentlemen who form the jury are parties of the greatest respectability, Mr. Thomas being a county magistrate, while all are practical men, and conversant with underground operations. A few seem to be gentlemen of great scientific attainments and experience, so that the most anxious care had apparently been taken by the coroner to secure a jury of persons, who would not only by their position in society be above the influences of prejudice, but who were also capable of directing their attention to the points bearing more immediately upon the object of the inquiry.

After spending the afternoon and evening in proceeding to different places to view the bodies, the inquest was adjourned until Tuesday.



Powell's Dyffryn Colliery (old), left, and Lletty Shenkin Colliery (Upper) top right, on 1875 O.S. Map.

The evidence

Llewelyn Elias was the first witness sworn: - "I knew the deceased Howell David. I saw him alive on the morning of Saturday last, the 2nd of August, at 9 o'clock. He was in the colliery. Thomas Powell, Esq., of the Gaer, Newport, Monmouthshire, is the proprietor of the collier. I am his agent, clerk, and cashier, and have been at this colliery for the last two years. About 21 months ago, these works were stopped for a few days, in consequence of a slight explosion taking place due to gas in the works. When Howell David was brought up he was not quite dead, but he died very shortly afterwards. About 11 o'clock, I suppose, the explosion took place. I was then in the works, about 400 yards from the spot where we expect the explosion occurred. It happened in Twm o'r Park's heading – that being the name by which the person who first drove the heading was known.

I was in Evan of Llancarvan's heading, or the deep heading. At the time of the accident there were in Twm o'r Park's heading 24 colliers, 2 labourers, a haulier, and a doorboy, all of whom were killed. There were 18 stalls in that heading, and there was a small heading leading from it. From the bottom of the pit to the face of this heading the distance is about 600 yards in a direct line.

Part of the heading is in Abernant-y-groes Isaf, and part in Ty Llwyd. The air is conveyed from the bottom of the flue to the face of the heading by an airway. It is taken to the extreme point of the heading; and it is returned by the main heading in a level, and from thence to the upcast pit. The air crosses the main heading by means of doors. When we have taken all the coal out of any place that place is walled up."

A map of the works was then produced. David Llewellyn of Hirwaun (jurymen), observed that by the map it appeared that various headings had not been driven parallel to each other. They ought to have been so driven.

Examination of Elias continued: - "After I heard the explosion, me and Enoch Williams, who were together, consulted with each other. We

could not think where it occurred. We thought it had exploded in the heading we were in, but soon found that it must have occurred somewhere else. We went about a hundred yards, looking and listening, and suddenly we heard a great cry of men and children. They were all running out of the works towards the bottom of the pit. We ran on, and met several of them. They could not tell me where the explosion happened. As I was making the best of my way out I saw that a horse had been killed. The depth of the deepest part of the pit is 97 yards."

By Mr. David Llewellyn: - "I do not believe that if the air-pit was to the rise of the heading it would have been perfectly safe. It might have been, perhaps." By Mr. William Miles (juryman): - "There are old stalls worked below the stalls where the people were burnt. They are all walled up with bricks and mortar. We do not know whether those stalls are full of sulphur or not. When we have done working them we wall them up, for fear of sulphur getting to the places where the men work. If we see any appearance of gas in the workings, we always try and get fresh air to it to drive it away. I cannot say whether our air-way is sufficiently large to clear the old sulphur away. There is always a strong current of air through the mine."

By Mr. Nixon (a juryman): - "From the level to the flue stall at present being worked, there is a distance of 150 yards, in the whole of which distance the stalls have been worked, abandoned, and well bayed (walled) up. The stalls are of different lengths. The stalls down to the west are of unequal lengths, in consequence of a fault, that is not running parallel with the direction of the heading."

By Mr. Llewellyn: - "All the stalls are of unequal lengths because the cross-headings are not driven parallel to each other. There is a bay (wall) on each side of the main heading."

By Mr. Nixon: - "The gas is allowed to ooze out from the old workings into the air-course on the inside of the bay. When the gas oozes out it goes to the main road. On Saturday last, we found the mine in a good a state as regards ventilation as ever it was. It was quite fresh. I considered myself quite safe on that day in any part of the works. I did

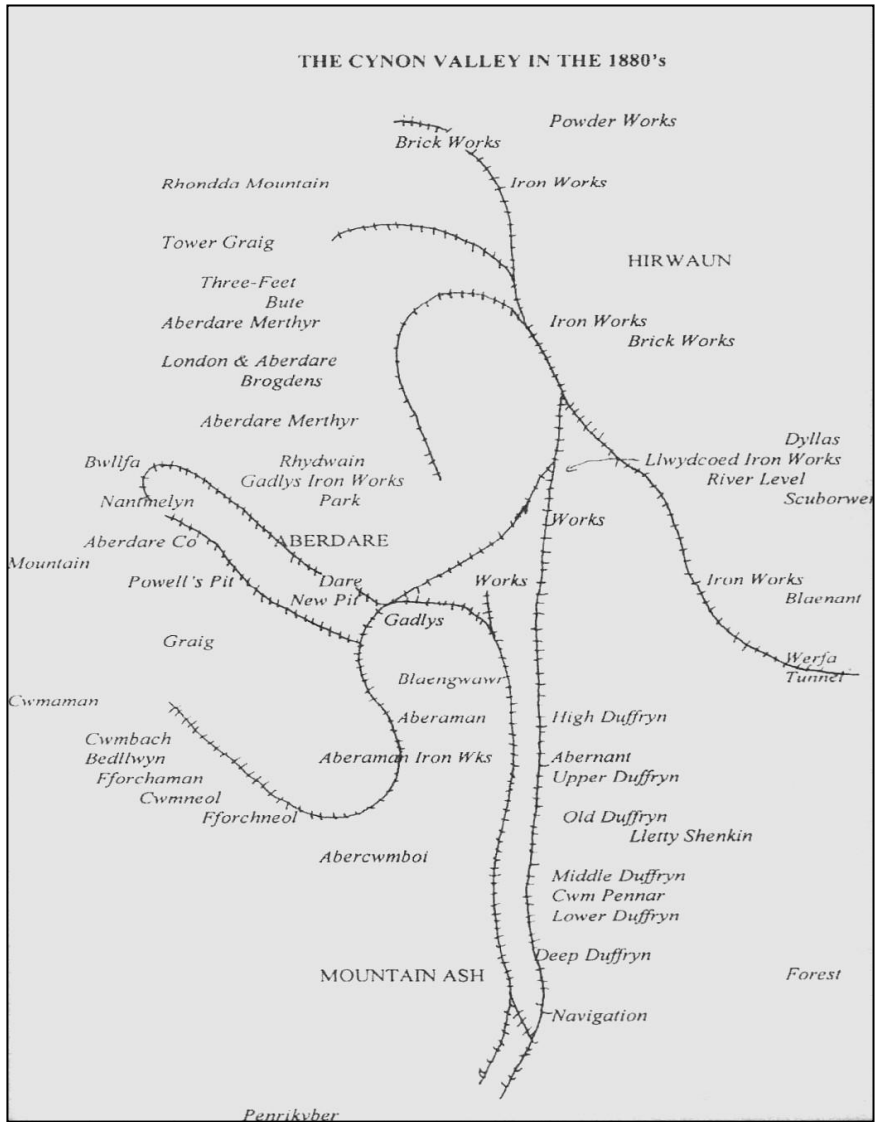
not try the air in the last return but I considered it as good as usual. I used the Davy lamp without the wire protection there. I used the naked candle in the main tram road leading to the upcast or winding pit. The air there was perfectly fresh. This was about three hours before the accident. That was in our main or principal tram road through which the whole of the coal is brought to the surface. It is also our main return or air-course, through which the whole of the air after having passed through the whole of the workings is conveyed away. I never saw a lamp fire in the main return in the general working of the colliery. Cases of explosions are caused by foul air getting into the new workings.

There are two pumps in the down-cast or engine pit. The sizes of the pumps are 14 inches and 9 inches in diameter respectively. This engine pit is the sole opening through which our air is taken from the surface to the mine. Besides the two pumps there are two sets of pit or pump rods for the workings of the plungers belonging to the said pumps, all of which remain now in the pit.

They are on about taking the 9 inch pump with the rods belonging there out of the said pit. The 14 inch pump is to remain, having been put there to replace the smaller one which we intended removing. The up-cast pit is from five to six feet square. All these pumps, chains, and rods, may confine the air a little; that is, they may obstruct the passage of air to the colliery, but we found no difference."

By Mr. Rees Rhys: - "I have not been in the heading where the explosion took place for the last week, other persons having charge of it. I do not know whether the old stalls lying to the west of the heading where the explosion took place were filled with gas or not. In the whole of the workings of the colliery, with the exception of two or three stalls, there is no part from which the whole of the coal has been excavated."

The examination of this witness occupied a considerable time. He seemed to understand very little of the matter – the cause of the accident, or the nature of the workings. In the course of the morning we were told that he is not a *mineral* agent, but simply a clerk and cashier, although he frequently entered the mine with the mineral agents.



Map showing the major Cynon Valley Collieries in the 1880s.

He commenced by tracing on the map the different air-ways, and more particularly that leading from the air-pit to Twm o'r Park's heading, in which the explosion took place. In speaking of the heading "Twm o'r Park's heading" is generally referred to. He then said most of the doors in the headings were blown down by the violence of the explosion. They were blown from the east to the west. There was an old man found from 10 to 12 yards from the face (or extreme point) of the heading. He was not very severely burnt. All the men found seemed to have run after the explosion. One of them, David Jones, had ran, I should think, 70 yards. He was dreadfully burnt. We only found John Edwards and his son in the place they were working.

Mr. Thomas (of Court, Merthyr) said it was a very common thing for persons who were dreadfully burnt to run for some distance and then fall and die. Many instances are known where men had run home, and then died instantly.

Examination of Thomas Williams continued: - "Howell David was discovered on the road or way. He was not much burnt, if at all, but was killed by the concussion of the air - driven with terrific violence against the sides of the pit. He was not more than 100 yards from the mouth of the pit. The force of the explosion was such that it blew him out of the trams. He was brought up alive."

By Mr. Thomas: - "I do not think they all suffocated except for four of five, who undoubtedly burnt to death. They were burnt so badly that even supposing it possible for them to have lived for four or five hours afterwards, the mortification on which inevitably would have taken place must have caused death.

The principal part of the poor fellows were suffocated by what is called the 'foul damp' or carbonic acid gas. Some colliers know it by the name of 'choke-damp'. I have, in my lifetime, seen many hundreds who had been burnt, but never did I see any burnt so badly as those we yesterday saw. All the bodies have been found. Some were found near a stall that leads from Twm o'r Park's heading to a little heading to the eastward of it, and they were the ones most severely burnt of any."

Mr. Nixon inquired whether anyone present had noticed the barometer on Saturday forenoon. He had been told that an explosion had taken place in other mines on that day. If explosions did on that day occur in more places than one, or were general, the accident was probably caused by some change in the pressure of the air, which change would be indicated by the barometer. The coroner said, that at Brecon on Friday, the barometer fell very suddenly.

Examination of Thomas Williams continued: - "To the best of my belief the explosion is to be attributed to either a sudden fall of the barometer, or to a fall of a portion of the roof in the old workings, thereby forcing out gas into the airway, which gas so forced out exploded at some of the workmen's naked lights, or candles, in Twm o'r Park's heading. No other part of the colliery, with the exception of this Twm o'r Park's heading, and the small heading before mentioned as leading out of it to the eastward, showed the least signs of any explosion having taken place. It seems to have been, and was, confined to that one heading.

There were men working in another part of the colliery for two hours after the explosion had occurred, and actually they were not aware that anything unusual had happened. The explosion was a very partial one, certainly not extending to the one-fortieth part of the whole colliery. The area of the part of the colliery in which the explosion took place, and to which it was confined, is not more than 30 square chains."

By Mr. Rees Rhys: - "The men had been working in that heading all the morning and several quantities of coal went up from it. In some parts of the colliery the men worked day and night. The size of the down-cast pit is 9 feet by 7 feet, and the size of the upcast pit 14 feet by 9 feet – clear within the walls. The depth is 93½ yards. The furnace is 5 feet by 4 feet. The height from the bar to the arch is five feet. The air is allowed to escape by the side of the arch surrounding the furnace, its passage not being confined to the space occupied by the furnace. The distance from the furnace to the up-cast pit is from 10 to 11 yards. I consider this furnace amply sufficient for the rarefaction of the air, being about 20 feet square. The furnace was attended day and night by a proper person. I have known the gas to kindle at the furnace in passing over it; but that

has not happened for the last six or eight months. I superintended the opening of this pit about 5 years ago, and have been there ever since.”

By Mr. Llewellyn: - “I consider Mr. Wayne’s pit to be better adapted for ventilating our pit than the means now adopted. It is higher than our pit.” Mr. Llewellyn, pointing to a spot on the map to the rise of Twm o’r Park’s heading, said to witness: - “Do you not think there ought to have been a pit sunk here long ago for the purpose of ventilation?”

Mr. Thomas Williams: - “Pits at a little distance from the spot where you point have been commenced long ago, and would have been completed had not the ground proved to be to be very troublesome – being sandy and full of water. The men have been kept working at it incessantly. They were commenced 18 or 20 months ago. They were not commenced two or three years ago because we did not consider there was any necessity for them. To the best of my belief I could not put the workings of the colliery in a better or safer condition than they were on the morning of Saturday last – that is, of course on the present system of working it or ventilating it. I have not been in the heading that exploded for a fortnight.”

By Mr. Nixon: - “I am not aware that we could have adopted any other system of ventilation with these present pits. I am not practically acquainted with the system of taking the gas from the old workings pursued in the north of England - namely, taking it from the old abandoned workings into gas-drift, and leaving it to rise to the surface, without ever allowing it to come into contact with flame or fire of any kind.”

Mr. Kirkhouse to Mr. Nixon: - “But that still does not answer why there are more accidents by one-half in the north than there are here. I saw an account the other day of 120 persons having been burnt to death.” Mr. Nixon: - “Bare in mind, the quantity of gas given out by the coal there is so great that they are obliged to adopt that system of working. There are about 40,000 colliers in the north of England. How many are there in south Wales? Mr. Kirkhouse: - “There are more in Wales.”

A conversation between these two gentlemen continued for a short time longer, after which the examination of Williams was continued as follows: - "I do not consider we have any need of the gas-drift system of ventilation in the colliery in which the explosion took place. All the miners use or work by naked flame, but every place is tried each morning by safety lamps by two regular firemen previous to the workmen entering their stalls.

The fireman who examined the mine on Saturday last was killed. The colliery has been so injured by the explosion that it will cost from £150 to £200 to put it in a working condition. I do not include in that estimate the loss and the demurrage Mr. Powell will be obliged to pay for want of coal to load the vessels or his profit on the coal if it had been worked."

David Edwards examined

David Edwards stated: - "I am a collier, and I work at Cyfarthfa. James Edwards, one of those killed, was my second cousin. As soon as I heard of the accident, on Saturday, I went down to the pit to endeavour to extricate his remains. He was not found until yesterday. Whilst I was in the colliery, on Saturday, I looked on the headings and stalls – the heading of Twm o'r Park and all. I examined that heading to the little heading. I examined the air-ways. I have worked all my life under the earth, and I can say that I never saw better air-ways in my life to any colliery than that were in this colliery. We have as good at Cyfarthfa.

I am 40 years of age, and have been a collier at Cyfarthfa since I was 6 years old. On Sunday evening I tried the air with a lamp in company with Thomas Beddoe. We found the air coming there from the coal very inflammable. I never saw any place so bad – it was impossible to be worse. This was in consequence of the air being confined by the accident in the courses. I should have no objection to working in the colliery.

I would as soon work there as where I am now working. I think they should be careful in working it, especially if strangers work it, as the air is not good; it requires extreme caution to work it. It is far more inflammable than at Cyfarthfa. There is much more danger in putting a

candle on a bay than in the coal. I believe the air must have been good on Saturday morning in the level, before the men could work in it until 10 or 11 o'clock. The explosion drove the doors from east to west, that being the direction of the explosion, as proved by the doors being driven in that direction."

Thomas Howell examined: - "I am a fireman in the Duffryn Colliery. I am appointed to see if gas or foul air is in the stalls or works in the morning. On Saturday morning last, I looked at Twm o'r Park's heading at about twenty minutes to five in the morning. I inspected the smaller heading which leads from it. I was the first person who went into that heading that morning, although there was another person named James Thomas before me at the mouth of the pit. He followed me into the heading. He is since dead. I went to the face of the heading and found the air very good. I went to each stall and also the little heading.

The air in all was good. The stalls were quite clear in all the headings. I saw no difference in any part of the colliery. I was in the works when the explosion took place – in the lowest depth. The wind blew my candle out. I knew by that an explosion had taken place and made the best of my way out. The place was full of sulphur. I kindled my candle immediately and it kept kindled."

Mr. Nixon: - "The choke-damp could not have been very strong, because a man will live where a candle will live easy enough. The explosion must have been a very partial one."

Examination of Howell resumed: - "It was a Davy lamp I had, but the gauze was not on it. I have been working for five or six years underground. I made a mark on the stalls where I considered there was danger. No man went into the stalls where I had marked. The mark was this: - I put a mandril on the entrance to the stall. None of the stalls in Twm o'r Park's heading required a mark, nor in the little heading. The man who worked in the little heading was with me when I examined it in the morning. He stayed at the entrance when I went in. 'It is all clear?' said he when I returned to join him. 'Yes, clear enough,' said I, and then he went in as usual. He was waiting for me at the point of separation

between the two headings. I had examined Twm o'r Park's heading and found it quite clear. After I found everything safe I gave the light to this James Thomas and left him. I was through all the stalls in the colliery on Wednesday last. I cannot form an opinion as to the cause of the explosion."

William Miles, a juror: - "For what purpose was such a quantity of gas kept in the works? I consider it was just like keeping a powder magazine there." ('It appeared to us, wrote the Merthyr newspaper, that this and another juror had been instructed by a man named Seymour, who was formerly in Mr. Powell's employ, to put this and other questions. Seymour, we have every reason to believe, had lately been active in spreading reports respecting the state of the colliery').

Thomas Howell: - "There is no place but which has air passing through it. I did not travel the old workings. I only saw that the places where the men worked were clear. The bays were built to keep the foul air from the works. The bays were made sometimes without mortar." A conversation ensued amongst the jurors affecting the method adopted for excluding the foul air from the works. William Miles put several questions to the witness, which induced the coroner to say to him: - "You appear to fancy that building these bays, it is the proprietor of the colliery's wish to retain or keep this foul air in his colliery for some purpose. He does not wish to keep it at all, but as he cannot get rid of it, he endeavours to keep it from entering the new works."

Mr. Thomas: - "Yes; they 'cork it up' as it were." Mr. Nixon: - "The present system of working here they cannot get rid of it." William Miles: - "Accidents cannot be prevented unless the foul air be kept out of the works." The coroner: - "The inquiry is, whether, according to the present system of working, there has been neglect in conducting that work." Mr. Nixon: - "According to the present system of ventilation, one of the witnesses said, the colliery could not be put in a better system of ventilation. The coroner, directing his attention to the spectators present: - "Is there anybody here who would give any information respecting this matter?"

William Miles then put one or two questions to Thomas Howell, who said he was not capable of answering them. These questions had reference to the system of ventilation.

Enoch Williams examined: - "I am an underground agent to Mr. Powell for this colliery, and have care of Twm o'r Park's heading. I was down the works between 7 and 8 o'clock on Saturday morning, but I was not in that heading on that day. I was in it on Friday morning. On Saturday morning I went down to the pit about 10 o'clock. I went into the drift that is across the measurers, and then went into the deep heading where I was when the explosion took place. I was in the third stall from the face of the heading. The wind blew my light out." Witness then traced on the map the various air-courses, and pointed out how Twm o'r Park's heading was ventilated.

When the explosion took place I saw nothing extraordinary in the air, with the exception that it became a little thick. The flame became redder – carried more head on its top – thereby showing the mine was becoming explosive or near the firing point. I did not consider the mine was then dangerous. The appearance of the flame did not create any alarm. When I heard the explosion I ran to the heading, and the collier who was in the next stall ran too, so that we ran against each other. "Are you burnt?" said I to him. "No, it did not fire on me." "It has fired somewhere" said I. "Very likely," said he, "and bad enough too." I had a light with him but no air to drive it. The man's named Joshua Evans. I told Llewellyn Elias and the man to make the best of their way out.

We went on as fast as we could and found the colliers running in great alarm from every direction. I waited – so many passed me by – I spoke to them, but received no distinct reply. I ran on then when I saw no more coming, and passed two bodies. I stopped and thought they were both dead, but it turned out afterwards that one was alive, although he died soon after he was carried out. I stopped there all the while. I did not come out until Sunday evening. I was within three stalls of the face of the deep heading when the accident occurred – that is, nearly 400 yards from the spot. I told the last of the colliers who were running out to stop and help me lift up the bodies, and to carry them out. They did it.

I did not touch them as there were plenty there to carry them without me. I stood with them. When I went to the bottom of the pit, I learned distinctly from the colliers that the fire had taken place in Twm o'r Park's heading. I thought it must have been in that heading, because I could get an account from men coming from the other headings, but I could not find that any had come from that heading. There were from 150 to 170 persons in the pit when the accident happened. I think that a fall in the old workings was the cause of the explosion. There were no stages in the down-cast pit. It might be more efficient if the old (or smaller) pump were taken out of it.

There is plenty of air going down. We find no difference in the air since the new pumps are in the pit. But there is as much air as before. I am of the opinion that, to the best of my belief, the works cannot be put in a safer state than they were previous to the explosion – not until we have a new pit down. If a pit had been to the rise of Twm o'r Park's level, that level would have been much safer. I do not believe there is any occasion to have a difference in the workings. I was the last man in the colliery

Thomas Seymour was examined at the request of a juror. “I came here to state to you, as far as I can, the nature of the colliery, and the cause of the accident, as far as I have seen of it. I saw the colliery last from three or four months ago. I am a mineral surveyor.”

The coroner: - “Can you give us any evidence touching the death of this person?” Thomas Seymour: - “It is about three months ago since I was in the pit. I have stated to Mr. Hiscock and many others something about this colliery. I knew very well it would come to this. I wrote a letter to Mr. Powell myself on the subject. I have not a copy of the letter. I live at Newbridge (Pontypridd). I am not particularly engaged by any at present. I have been surveying for different gentlemen lately; but not for any particular place. I was not employed by Mr. Powell when I wrote to him. I was informed that the gas was exploding in that pit, and I wrote to him to state that seeming as there was a great demand for his coal it was a pity to see the pit going to ruin. Next morning Mr. Powell went to Enoch Williams and said: - “I understand my pit is in a very bad state; if

you cannot alter it, I must have a man who can.” That came to me from one of Mr. Powell’s agents.

A juror: - “From which of them? They are now all in the room?”
Seymour: - “I do not wish to stifle any inquiry – far from it. Statements of this kind are very irregular. They may be true, or they may not be true.”

Thomas Seymour: - “I laid a wager with Enoch Williams at the Plough and Harrow public house, Aberdare, respecting this colliery. He bet me five shillings to one, and I accepted it. He then bet me another five shillings to another one, which bet I also accepted. The bet was as regards to the ventilation of the pit. After Mr. Powell received my letter, the stream of air in the pit was divided into two ways. After it was divided, I considered that it was not properly done. Enoch Williams considered it was. I went down to decide the wager. He did not. He went to the bottom of the pit – saw it – and I said there and then – ‘It is exactly as I thought.’ I then left the pit and went away. I told Mr. Powell that the air was travelling completely the wrong way. I am capable of providing to the satisfaction of the jury at any time, that the air was travelling the wrong way.”

A Juror: - “Did you not tell me that they had adopted your plan in altering the colliery, but had not required your services?” Reply: “I did.” Juror: - “Did not something more than words take place between you and Enoch Williams in the Plough and Harrow?” (No distinct answer). The coroner thought nothing satisfactory or beneficial could arise from the examination of this witness.

Mr. Matthew John, Mr. Powell’s agent – put a few questions to Seymour by the coroner’s permission, for the purpose of showing that he (Seymour) was on bad terms with Mr. Powell and his agents. The coroner shortly interposed, and said he thought the questions were irregular. Mr. John said: - “I am able to prove that this man has come here for a certain purpose.” The coroner thought Mr. John’s observation was out of order.

The juror proceeded to put questions to Seymour relative to certain statements made by him, and also relative to the ascertain which he had

made in public – namely - “that he had foretold three months ago that an explosion would take place” – when the coroner again interposed and – “This man’s evidence seems to me to have no immediate reference to the question we have to decide. Whether he is correct or incorrect in his statements I do not pretend to say. If he did say three months ago that such an accident would happen he prophesied correctly, but it is evident that he must have foreseen what others did not.” Mr. Nixon said the explosion was so very partial in its effect, having been confined to one heading, that it was perfectly absurd for Seymour or anyone else to pretend to say that they had foreseen it.

Mr. Heppel was then examined: - “I am agent for Mr. Powell’s Llantwit Colliery. Occasionally he has employed me to report on the state of this colliery. On one or two occasions I have inspected this colliery. Three months ago I made a report respecting this colliery, but it had no reference to the means adopted for ventilation. The lower part of Park’s heading is completely deranged or blown to pieces.

A sudden fall of the barometer would have driven the gas out of the old workings. The gas would steal on the candles before the men would be aware of it, and so cause the explosion. I saw the gauges or bays knocked to Adams (pieces), the arches have fallen in. The discharge of a heavy cannon could not have shattered the place more than the explosion did on Saturday.

It must have been terrific. I do mean to say that any blame is to be attached to either of the agents. Under the present system the colliery cannot be better ventilated than it is. I have no hesitation in saying that if I had the complete management of the place I would adopt a different system, but, as I have said before, under the present arrangement, I could not put it in a better position than it appears to have been.”

By a juror: - “It is certainly much better not to have the return air through the main heading. I think an improvement may be made. There can be a better system adopted, but such a system as I mean has not been introduced into Wales. I do not believe anyone here knows anything about the system I refer too. I was the inventor of the gas drift system.

The pillars in this colliery cannot be worked with safety without a gas drift. I took the current of this colliery, and it was capital. It was as well ventilated as any colliery in this neighbourhood.”

By Mr. Nixon: - “The greater the extent of workings the greater must be the current of air to clear them. This explosion, I regret to state, is only a commencement in the valley of Aberdare. If I had to begin a colliery here I would have a gas drift certainly. The gas drift system is the best to be pursued.” The gentleman’s evidence was received with great interest, in as much as it had been stated by someone that he had been a pupil of some eminent Northern collier or engineer. The coroner asked whether any of the colliers present wished to make any statements or complaint. If anyone did, he now had an opportunity offered to him.

David Jenkins, collier, examined: - “I was working in the Duffryn Colliery on Saturday last, at the time the accident happened. I went in about 6 o’clock in the morning, and worked until it was nearly 2 o’clock. I then went out of the work as usual, and when I got to the bottom of the pit, I heard, for the first time, that an explosion had taken place. I heard nothing of it myself.” (He worked 660 yards from the spot, but it was not the distance which caused the report to pass unnoticed, it was this: -

The air passes in a strong current *from* the heading in which he was at work *to* the heading where the explosion took place, and the effects of it were carried onwards by the current of air.) “I saw nothing unusual out of the usual way all the time I was working. I would just as soon work in this mine as in any other before the accident occurred.”

Police Sergeant Saddler, addressing the coroner said: - “I have asked the colliers, sir, in English and in Welsh, if they have any complaints to make, and they say they have no complaint to make.

Jacob Thomas examined: - “I put in the large set of pumps into the Duffryn Colliery.” Witness then described the pumping apparatus; and said the smaller pumps were to be taken out. There is no platform or impediment in the pit to the passage of air with the exception of the space occupied by the edge-pieces of the large lift of pumps.”

The coroner sums up - the Jury's verdict

The coroner then commenced his address to the jury, stating briefly the nature of the inquiry upon which they had entered, congratulating them upon the marked attention and patience they had exhibited during the protracted examination. He then gave a summary of the leading points of the evidence, and left the question entirely in the hands of the jury, who retired for deliberation at 8 o'clock.

At five minutes past 9 o'clock they re-entered the room, and presented the following as their verdict: - "It is the opinion of this jury that the deceased, Howell David, has come to his death from accidental circumstances; that the present system of ventilation employed in the Duffryn Colliery, though as perfect as said system will admit, is inadequate to ensure the safety of the lives of the men employed in the said works; and we strongly recommend a system which will prevent the gas oozing out of the old or abandoned workings into the tramroad will be adopted in preference as soon as possible."

A similar verdict was taken in all the similar cases, after which the court was dismissed. During the investigation the inquest room was crowded with colliers, who paid the deepest attention to the proceedings.

Another account

The explosion had attracted great interest in newspapers throughout the country and at the conclusion of the inquest they gave their thoughts on the verdict. The '*Cambrian*' newspaper of August 16th 1845, gave their short report of the explosion and the verdict of the inquest thus: -

On Saturday morning last confusion prevailed of a most alarming accident having occurred at Cwmbach, near Aberdare, in Mr. Powell's colliery. The number of men missing was in the evening reported to be 30 and some said 35. They were reported to have become the victims of fire-damp, that most destructive of underground agents. In consequence of the foul state of air within the levels, only two were brought out on Saturday evening.

The remainder, said to number about 28, were said to be immured in the heading, which was inaccessible in consequence of the quantity of choke-damp in it. On Sunday morning 10 more were had out, and in the course of the day two more were brought up from the pit. By 12 o'clock on Monday, 29 men had been recovered all of whom, with one exception, were quite dead, and he was so severely burnt that no-one expected he could survive many hours. These were understood to be all that were missing; some were severely burnt, and others much less so, and most of them died, less from being burnt than from asphyxia, or want of air.

We are completely at a loss as to the particular cause of the ignition of gas. All accounts, however, agree in stating that the vein of coal worked here is an extremely dangerous one in consequence of it being strongly impregnated with the gas, and requiring greater precautions for the protection of life than the system of ventilation in these districts affords. The coroner's jury judiciously constituted, spent Monday from 2 o'clock to 7 o'clock in viewing the bodies; and on Tuesday, sat at the Boot Inn Aberdare, to hear the evidence of the several witnesses to be examined.

The evidence of all the witnesses tended clearly to exculpate all persons from blame, as it appeared that the usual precautions had been taken to guard against the ignition of gas, and the greatest part of the workmen occupied in the other portions of the works suffered no inconvenience from the want of air, nor did they know of the explosion until 2 o'clock, when, not seeing their trams returned, they came out, although the explosion had taken place about 11 o'clock.

Upon all the evidence the explosion appeared to be partial, and confined to that portion of the works called Twm o'r Park's heading, where the gas ignited. The system of ventilating adopted in these works is the same as that at other coal works in the district, and on Saturday morning there appeared to have been a plentiful supply of air in the pit. One of the witnesses, Mr. Thomas Williams, accounted for the explosion in one of two ways, either some portions of the abandoned workings had fallen down and forced out the gas, always generated in old works, to where these men were working, or a change in the density of the atmosphere,

causing the air within the pit to be especially lighter than gas, and consequently forming no obstacle to its gas rapidly pervading the works.

Mr. Heppel, the coal agent, gave some very exciting and scientific evidence fully hearing out the opinion of Williams. The gas, liberated under either of these circumstances, would steal up upon the candle unperceived, and therefore become united. No precaution could have prevented the explosion, as the rapid formation of gas, and its absorption by the lighter air of the level, rendered it a pure accident, which no prudence could have foreseen.

He was well acquainted with the coal in that district, and from the large quantity of gas contained in it, and the difficulty of ventilating works at the depth of 93 yards, feared we should hear of still more alarming accidents; but many, indeed most, of these disasters might be obviated by the adoption of the Newcastle system of gas drifts – Mr. Williams's view as to a barometer change having taken place, Mr. Heppel's prophesy would appear to be countenanced by several facts occurring in the neighbourhood.

Mr. John Smith, coal agent to the Abernant company, stated that their works had been so full of gas for a long time as on Saturday last; the men of the Plymouth works were prevented from working that day; gas prevailed at Cyfarthfa; and a similar serious accident is rumoured to have taken place at Cymbychan, near Aberavon.

The jury, composed partially of coal agents acquainted with the nature and causes of such occurrences – partly of disinterested gentlemen, partly with experienced colliers, sat to hear a large mass of evidence, of which the above is the substance, from half-past-ten in the morning until half-past-seven in the evening, when they retired to consult upon their verdict.

After an hour's absence they returned to the room, and delivered their verdict through their foreman, Matthew Wayne Esq., and gave the following verdict of 'Accidental death.'

The terrible explosion at Aberdare

The same newspaper reported: - "Mr. Powell, the proprietor of the Duffryn Colliery, in which 28 men perished on the 2nd inst; from an explosion of foul air, has done all in his power to soothe the grief and supply the wants of the survivors of the deceased. Having secured to the latter, at his own expense, and in a most respectable manner, the last rites of sepulchre he settled upon the widows pensions of nine shillings per week, and also gave them a house to live in, with liberty to take what coal they require for their consumption. He relieved the other relatives in proportion to their needs.

Footnote: - On Tuesday evening, August 5th 1845, at Cyfarthfa, a miner named John Williams, 60 years, was killed in the level by the fall of a large stone of two tons weight upon his head. A little boy who happened to be with him sustained no injury. There are singular facts connected with this man's death – that all the men working in the same place had gone that morning to Aberdare, to the scene of the terrible catastrophe. And he alone, and his son, refused to go, and that in five minutes more he would have left the level for the night.

The public, as well, had their views and the following week the '*Cambrian*' carried this letter in the 'correspondence' section.

To the editor of the '*Cambrian*.'

Sir. – The frequent colliery explosions which have recently occurred in this neighbourhood, and the appalling accident which took place in the Duffryn Colliery, near Aberdare on the 2nd inst., by which 28 lives were lost, has naturally excited not only a deep commiseration for the unfortunate sufferers and their bereaved families, but an anxious solicitude as to the causes of such a calamitous loss of human life. The inquiry immediately suggested by these catastrophes places two important subjects, viz., firstly, the state of the mine when and before the explosion took place; and secondly, by what means the recurrence of such accidents can be avoided or prevented.

As regards to the state of the Duffryn Colliery on the morning of the accident, and previous to its occurrence, it appears by the evidence given at the coroner's inquest, that inflammable gas to a considerable extent existed in this mine; that no means are used to convey accumulated gas in the old and abandoned workings out of the colliery by separate drifts or tubes, and when by any cause it escapes, or is forced into the working parts of the mine, it necessarily mixes with and vitiates the air, on the comparative purity of which the lives of the colliers depends.

It is also admitted, if not directly proved, that the ventilation is, to say the least of it, imperfect; nor can I conceive how such a mine can be perfectly safe, when the ascending air shaft is so much below the rise of the heading. It is well known that the specific gravity of the inflammable gas in coal mines is above only about one-half of that of common air, and therefore there must always be a greater difficulty in expelling it, when you have to force it down hill through a denser fluid than itself, instead of allowing it to escape by its own rarity.

It appears also that the Davy, or other safety lamps, are not used in this colliery, or what is as bad, it is used "with the wire protection" (for without the wire gauze it is not a safety lamp), and that candles are used by the workmen. Whether the mining agents have had any instrumental means of correctly ascertaining, from time to time, the state of the atmosphere in the colliery, and hence inducing its safety or otherwise, does not clearly appear by the evidence. The indications of the barometer are, I conceive, a great safeguard in mines of this description, and it is to be regretted that the warning which it generally, if not always gives, was unheeded on this melancholy occasion.

Now, Sir, this is the view which a dispassionate perusal of the evidence has made on my mind as to the state and circumstances of the colliery prior to the explosion, the painful influence from which is, that well-know protective means have been neglected to be used; and although it is impossible to say that this accident would have been prevented, had these means been employed, yet it certainly would have been a great satisfaction to have known, that all the science and experience could

devise, had been done to guard against the possible, if not probable occurrence of such a deplorable event.

When we reflect that there are upwards of 20,000 men employed in the collieries of south Wales who are daily exposed to the fatal consequence of the "fire-damp", and who place the most explicit reliance upon the assurances of safety which are given by the agents, it surely becomes imperative on the employees to leave no means untried, regardless of expense, which promises greater safety, and diminishes the probability of accidents. Although I am far from believing, that there were all the known means used, accidents would not occur, yet this is no reason why the risk to life and limb should be increased by not attempting its diminution.

The prevailing error in the collieries of this district is the defective and imperfect system of ventilation, and, rightly or wrongly, where such an error exists, and an explosion occurs, it is attributed to this cause. Irrespective of the "fire-damp", all ill-ventilated mines are destructive of health, and ought not to be tolerated. It is to be hoped that the calamity which has happened at the Duffryn Colliery, will arouse the attention of the coal owners to this important subject, and induce them to attempt an improvement. The use of candles and other unprotected lights in mines, known to be dangerous, is highly censurable, and must inevitably have been the cause of many of the accidents which have lately happened.

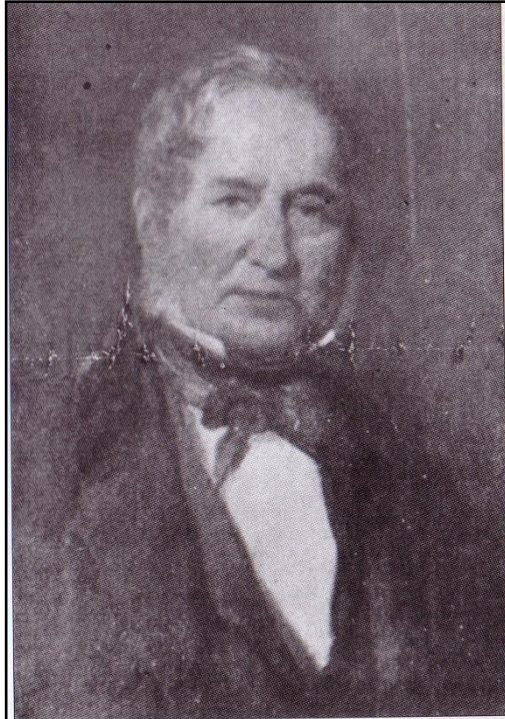
I am, Sir, yours, truly J. R., Neath, August 13th 1845.

Duffryn literally translates as = A river valley

The 28 that were killed at the Duffryn Colliery 2nd August 1845		
Name	Age	Status
Rees Williams	24	Single
Howell Williams; (bro. of above).	28	"
Howell John David	20	"
Joseph Phillips	19	"
Evan Lewis	19	"
David Jones	32	"
Thomas Smith	19	"
David Morgan	20	"
David Jenkins	37	"
James James	23	"
George Thomas	33	"
James Thomas	44	Married
David Thomas, (son of above).	10	Boy
Jake Morris	30	Single
Thomas Evans	35	Married
William Evans	31	Single
William Williams	34	Married
Evan Thomas	14	Boy
John Jones	17	Single
Thomas Rees	23	"
John Edwards	35	Married
William Edwards (son of above).	9	Boy
John Jones	17	Single
William Llewellyn	18	"
John Evans	22	"
David Evans	9	Boy
Thomas Davies	78	Widower
David Jones	27	Married

And so the first of many major ‘catastrophes’ had struck the Aberdare valley. The single deaths in the collieries must have continued at least on a weekly if not daily basis, but it would be nearly four years before any

'significant' number lost their lives in another single incident, and that was at the Lletty Shenkin Colliery at Cwmbach, but not an insignificant number died in a single incident at the Werfa (or in Welsh 'Wyrfa') Colliery in May 1849, that story follows:



Thomas Powell owned pits in the Cynon Valley and others in the Rhymney Valley. In 1862, with 16 pits producing 700,000 tons of coal, he was probably the world's largest coal exporter. He is said to have refused to pay John Nixon the royalties due to him for having sold Powell's coal on the continent.

WYRFA COLLIERY, MONDAY, MAY 14th 1849 – FIVE LIVES LOST

The village of Abernant was established in 1801 with the founding of the Abernant Ironworks. Among the first houses to be built were those at Little Row and Moss Place. The streets of Abernant reflect the importance of industry in the area in the 19th century, with streets named Engineer's Row, Foreman's Row and Collier's Row etc. Abernant Railway Station opened in 1854 along the Vale of Neath branch line to Merthyr Tydfil. For some time the village was nicknamed The Trap, possibly because the Aberdare Iron Company Tramroad crossed the Parish Road to Abernant. The Marquis of Bute maintained a small cottage hospital in the area from 1875 until World War I, which was later used as the Trap Surgery until it was demolished in 1980.

A number of collieries operated in Abernant, many originally operated by the Aberdare Iron Company. The collieries were: Werfa No. 1 (1846–1910); Werfa No. 2 (1879–1910); Mountain Pit (1866–1927); Blaenant Colliery (circa 1840–1927); Forge Pit (1851–1910) and River Level Colliery (circa 1840–1939). In 1896, a flooding disaster occurred at River Level Colliery which killed six colliers. The disaster occurred after it was inundated by water from the abandoned Ysguborwen Colliery. Although the Aberdare Iron Company was responsible for the production of much coal in the Abernant area, it was never as well documented as some of the other works in the Rhondda Valley.

The Wyrfa Colliery was owned by Nixon & Co., with Mr. John Nixon, and three partners, Mr. James Evans, Mr. Thomas Edwards Heath, and Mr. David Williams. The colliery was sunk in 1846. It was worked by a water balance, the water being pumped up by a steam engine. The shaft was oval, 13 x 20 feet and sunk about 66 yards to the bottom of the sump. On Monday, May 14th 1849, there was an explosion reported at the colliery at which three were killed and two were not expected to survive. Twelve were injured in all when a man with a Davy lamp went into a heading which was foul with gas and he was followed by a boy with a candle at which the gas exploded. A previous explosion at the colliery had taken place a week before. The *'Cardiff & Merthyr Guardian,'* of Saturday, May 19th 1849 reported: -

Dreadful Colliery Accident

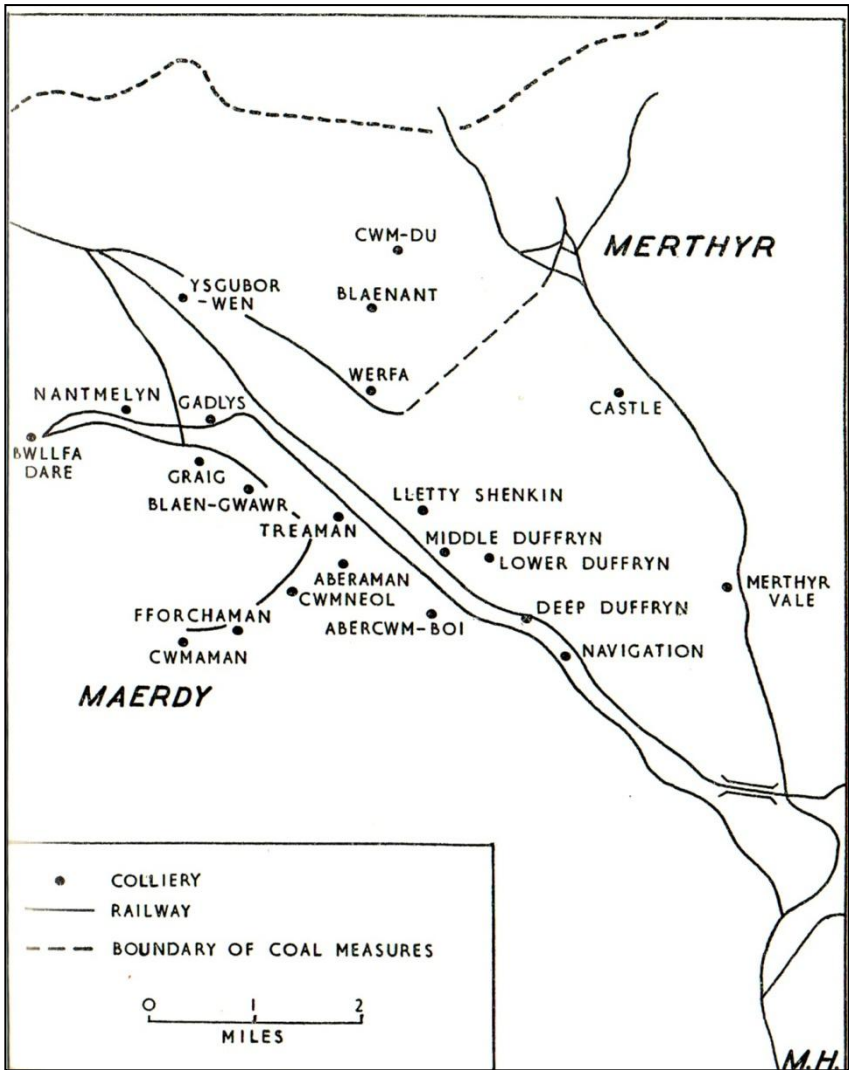
We regret to have to announce that on Monday morning last, between the hours of seven and eight o'clock, a terrific explosion took place at the Wyrfa Colliery, Abernant, near Aberdare, which spread alarm and consternation throughout an extensive and populous district, and was the means of severely burning twelve men, two of whom have since died – namely, one on Tuesday morning and another on the evening of the same day. As may be imagined, the lamentable catastrophe has created a great deal of excitement; and so on the arrival of our reporter at the scene of the mournful disaster he found the inhabitants deeply impressed with the solemnity of the event.

The inquest

On Wednesday evening an inquest was held before Mr. J. Morgan, Esq., deputy-coroner, at the Black Lion Inn, Aberdare, to view the mutilated remains of the poor fellows who had, by a miserable death, been hurried from time into eternity. Their names are, William Jones, aged 20 years, and David Clement, aged 23 years – both colliers.

John Gwilym having been sworn said: - "I am a collier, and work in the Wyrfa Colliery. I knew the deceased, William Jones. He also worked at that colliery. On Monday morning last I went down to the pit, at between seven and eight o'clock. I saw William Jones come in soon after me. I was the first going into the heading. There were a great many came in after me. I was in nearly half an hour before the explosion took place. I first took up the safety lamp; but seeing that all was right, I did not take it into my stall, but gave it to David Lewis to try his. He went and tried his stall – came back, and said there was no fire there. If there had been a fire in the pit, it would blaze in the lamp. The stall that David Lewis tried is about 25 or 30 yards from the bottom of the cross heading, or level.

When David Lewis came back he gave the lamp to his brother, Phillip Lewis, who is now in bed and very much burnt. I saw him light it and he asked William Jones, the deceased, to come to his work at the



Principal Cynon Valley Collieries 1874

uppermost stall in the heading. William Lewis's work was 15 or 20 yards lower down in the heading. I saw nothing of the safety lamp after. Phillip Lewis went on towards his father's stall, and the deceased, William Jones followed. When the hauliers came in with a horse, I began to strip to go to work. Before I commenced working the explosion took place. I have no idea what caused the explosion; all I know is that I was slightly burnt myself. I did not see the deceased again until I saw his body brought out on a board. The agent cautioned the men that morning to be very careful. It was usual for the agent to do so when the men were going into the pit. It was the duty of each to do so. The colliery is as well ventilated as any other colliery in the neighbourhood. I would not venture into it or any other colliery I did not think myself safe. There is a flue in the colliery at present large enough to ventilate the whole place. There is another flue about to be erected and I believe that when it is finished it will be much better. From my stall to the face of the heading it is about 60 or 70 yards.

It is my belief that Philip Lewis must have gone to the upper stall in the heading, which is about 10 or 12 yards from the face, before the explosion took place. I think that if the men had taken ordinary precautions, the explosion would not have taken place. I was at the face of the heading at 8 o'clock on Saturday night, and I considered then it to be safe to work, and that there was a sufficiency of air. I have lost no work at any time, nor any others in the colliery, for want of air. I never considered it unsafe to go into the colliery. There is a safety lamp to each heading, and extra ones to each air-way and door. If the men had used the safety lamp in this heading, the accident would not have happened. I am confident the accident occurred through the negligence of the workmen."

John Nixon Esq., proprietor of the Wyrfa Colliery, here produced a plan of it, and gave a very satisfactory explanation as to the workings in the pit, the air-ways, and all other matters appertaining thereto – answering with the greatest readiness any question put to him.

John Williams, collier, sworn said: - "I was working in the heading No. 4, in the Wyrfa Colliery, on Monday morning last. The explosion took place

in No. 5. The air passes through No. 5 into No. 4 heading. The air was as good that morning as ever I knew it to be. The explosion did not come to the heading I was in. I know nothing more; but I have been constantly going through the air-ways, and always found the air good. I consider it safe to work in the Wyrfa Colliery as any other in the Aberdare valley, and that it is well ventilated. I have worked in it twenty months. I heard the agent charge the men going in on Monday, to try their stalls with the safety lamp before they went to work. I consider the present mode of ventilating it sufficient to carry off any gas which might accumulate. I am certain there was no danger in the pit, but for the carelessness of the colliers on that morning. There was a slight explosion last Tuesday week; that was occasioned by some of the men going into an old working, contrary to the agent's orders. I consider the present flue quite enough to ventilate the colliery."

John Lewis, Collier, sworn, said: - "I was at work in the Wyrfa Colliery last Monday morning between 7 and 8 o'clock. I saw the deceased men, William Jones and David Clement, in the pit, near John Gwilym's parting. I did not try my stall with the safety lamp. I knew there was no gas there. My youngest son David tried his, and found it all right. He then gave it to my son Phillip, whom you have seen in bed so severely burnt, to try his; and as I got into my stall to commence work, I heard the explosion.

I got a kick from the horse at that moment in the knee. From the effects of the shock and the kick from the horse, I was knocked down. I then saw my son and David Clement coming towards me. My son was crying, and said, "For God's sake, make haste out, or we shall be smothered." Clement complained that he was kicked by the horse in the groin or thigh. He was able to walk home. I have not seen him since. I heard that he was dead. As far as I understand, the pit is properly ventilated. The agent generally cautions the men going into the pit to use the safety lamps. I had no idea from whose candle the explosion took place, or how it happened. I have been a collier 18 months. My son, who was burnt, has been a collier about six years. He is 18 years of age."

The jury then went to see the last witness's son, **Phillip Lewis**. Evidence was taken at his father's house, where he lay in a dangerous state from

the effects of the explosion. He said that he felt much pain in his head and hands and his condition was so lamentably pitiable that the deputy-coroner did not fatigue him by swearing him. However, he made a brief statement to the effect that he was going to the heading to work – that three of four others followed him with their candles – and that caused the explosion. They were then only about sixty yards from the bottom of the pit, or level. There are altogether twelve stalls in the heading, and only three above where the explosion took place. The lamp he carried was found 6 or 7 yards from the face of the heading.

The jury returned the following verdict: - **“That the deceased, William Jones and David Clement, came by their death by accident, in consequence of an explosion of fire-damp in the Wyrfa Colliery; and the jury beg to recommend that the proprietor of the above colliery should keep in future, a fireman to try the state of the works before the men enter.”**

Despite the above report the inquest into the deaths were for some reason held separately. The following was reported in the *‘Principality’* newspaper on May 18th 1849: -

Inquest on David Clements

The same witnesses were then examined relative to the death of David Clements, another of the sufferers, whose evidence was precisely the same as that given on the previous inquest, with the addition of a few particulars. The three witnesses stated that no one had instructed them as to the nature of the evidence they were to give. John Lewis said that he met David Clements and his son coming down the heading after the explosion took place. They were on fire. He assisted them to put it out. They came in contact with the horse which was much burnt, it kicked violently. The horse kicked witness and deceased severely. Witness was of opinion, however, that deceased did not die in consequence of the kick, but from the effects of the fire.

Henry Mathews deposed: - “Saw deceased coming out of the pit. Thought his death was occasioned by the kick of the horse, of the effects

of which he several times complained. He was not severely burnt." Mr. Nixon then put it to the workmen who were in the room and standing about the door whether or not they believed the evidence of the several witnesses to be correct. Several answered, "yes," and all seemed of the same opinion. The deputy-coroner then summed up, and the jury immediately returned the same verdict as in the previous case. The inquest closed at ten o'clock. The names of the men who are lying dangerously ill are William Lloyd, aged 20, single; Thomas Jones, aged 20, single; Richard Watnan, married; a son of Richard Watnan, aged 20; and Philip Lewis, aged 20. The same newspaper the 'Principality' of May 18th 1849 commented: -

The Werfa Colliery

We hear much, in these days, of negligence on the part of managers and proprietors of mines, and it is true that many of them justly deserve blame but how many are the accidents that occur simply from the wanton carelessness of the workmen themselves. If they will not use ordinary precaution — if they neglect what cannot be neglected with impunity — is it to be wondered at that such serious and distressing accidents occur? In our own neighbourhood this most obvious truth has just received another melancholy illustration. We allude to the explosion that occurred at Messrs. Nixon's colliery, near Aberdare. It appears that while one of the workmen was proceeding up the "heading" in which he worked, to see if his "stall" was safe, he was followed by two or three more, with naked candles in their hands. The consequence was, an explosion took place, and two men have already paid the penalty of their rashness with death. All the witnesses who were examined at the inquest agreed in the opinion that no accident would have occurred had ordinary precautions been used.

Fortunately, the men who died have left no wives and children to become paupers, and thus extend the consequences of their carelessness through many years. The explosion might have been, in its effects, more distressing still. As it is, there has been a wicked waste of human life. Misery and death have been needlessly incurred. In such cases as the above, where the accident could have been so easily

guarded against — where it was not more trouble to be safe than the reverse — carelessness itself becomes a crime. The workman should remember this — that if he likes to peril his own life, he has no right to peril that of his fellow-workman. At any rate, the common instinct that makes all men cling to life should be a guard against the repetition of such culpable folly as that of which Aberdare on Monday was the scene.

Another inquest at Aberdare — Death of Latter Day Saint

The '*Cardiff & Merthyr Guardian*' of May 26th 1849 reported the unusual death of another victim: - An inquest was held on Saturday last, May 19th, at the Black Lion Inn, Aberdare, before John Morgan, Esq., deputy-coroner, and a respectable jury, on view of the remains of John Pugh, collier, who was also a preacher with the Latter-day Saints. In the late explosion at the Wyrfa Colliery, the deceased was much burnt, but persisted in refusing to receive surgical aid, alleging that his "faith" was sufficient. We have received a full report of the proceedings at this inquiry; but have only room for the following outline:—

George Rosser proved, that on the day the explosion occurred, he and the deceased were in the Wyrfa Colliery; and were solemnly cautioned by Mr. Mills, the agent, as they valued their lives, not to enter a certain heading without a safety-lamp. Witness went for one; but in his short absence the deceased actually went with a naked lighted candle into the part which he had been told not to go to. Immediately on witness's return an explosion took place. He and deceased were much burnt. Deceased was subsequently seen by witness but he positively refused to have a surgeon's services, preferring the aid of one James Jones, alias "Jim Pontypool," whom witness saw ministering unto him.

Eleanor Pugh, widow of deceased, said he was 29 years of age. James Jones dressed his burns daily. John Edmunds, jun., also did. John Edmunds, sen., procured the "stuff," witness having given him 4s. to buy it. Deceased died at half-past four on Friday morning. Mr. Evans, surgeon, called and offered his services; but deceased preferred having the ordinances of the Church of God administered to him; and if his faith would prove too weak to enable him to be cured, then he would have no

objection to Mr. Evans coming to attend him. He was then quite sane. On a subsequent occasion Mr. Evans declined giving witness any oil for her husband's burns, unless she would put all the "saints" out of the house. Mr. Sims, an elder in what they call their "church" administered the ordinances of that church to deceased as soon as he was brought home after sustaining the injury.

A flask of the- "blessed oil" was brought - a shilling's worth - with which deceased was anointed; after which Mr. Sims placed his hands on deceased, and prayed to the Lord Jesus Christ. "If my husband's faith had been strong enough (said witness) he would have been cured instantly. Mr. Sims blessed all the oil that came into the house."

Mr. Price, druggist, said that he sold John Edmund's, senior, a compound for deceased, namely, 4 oz. of rosin, a pound of lard, a pennyworth of camphor, and a little bees-wax. Edmunds also had some linseed-oil and lime-water, mixed, also some olive-oil, amounting altogether in value to 10s. 6d.

John Edmunds, senior, described his mode of treating deceased. James Jones, alias 'Jim Pontypool' was called but not sworn. He informed the court that he was a "saint." According to the saints' creed no one should send for a medical man, but should rely on the ordinances of their church for cures in all cases. Had it not been for the weakness of deceased's faith he would have been cured immediately.

William Sims, also a "saint" and an "elder" to boot, generally confirmed the evidence of deceased's widow. He attributed deceased's death to "want of faith." As an "elder" it was witness's duty to exhort the "saints" to rely in cases of sickness or accident upon the ordinances of the church rather than on human agency. Witness then added- "*I do most solemnly declare that if all the flesh was burnt on my hand this moment that my blessing would cure it at once!!!* I have cured myself; many times. I have cured my wife frequently. I have performed instantaneous cures on my children by my blessing alone *and had John Pugh's faith been good, I would have cured him like placing one hand in the other* [What blasphemous balderdash – Editor]

Mr. Evans, surgeon, proved that he offered his services to deceased, and that they were declined, — deceased preferred relying on the ordinances of the church. He added- "I believe that the deceased might have recovered if ordinary means were used and the proper remedies applied to his wounds."

The deputy coroner then summed up. After a few general observations he requested the jury to consider their verdict. The jury returned the following: - **"We find that the deceased John Pugh died from the effects of an accident caused by an explosion of fire-damp at Wyrfa Colliery, May 8th, and the culpable neglect of his attendants, who were members of a certain society, called the 'Latter-day Saints,' in refusing to permit a medical gentleman to attend to his cure. The jurors beg in the strongest language to censure the conduct of these deluded people, and caution them not to repeat their foolish practices."**

The verdict was read in open court by the deputy coroner, who advised the "saints," and said that the jury had been exceedingly lenient and that their verdict was a very merciful one. He fully expected to have had to commit several of them for manslaughter; but, as it was, they had a most narrow escape this time, and he trusted that the serious caution of the jury would have due weight with them. Had they not put the fault upon the poor man who is now dead, nothing would have prevented them from being sent to a higher tribunal. The proceedings lasted nine hours.

List of those known to have died: - William Jones, David Clement, David Lewis and John Pugh, a.n.other.

Wyrfa = Literally translates as 'The cool shady place.'

LLETTY SHENKIN COLLIERY AUGUST 10th 1849

Dreadful colliery explosion near Aberdare - Fifty-three lives lost!

A most awful casualty occurred, on Friday afternoon last, August 10th 1849, in a colliery on a farm in the valley of Aberdare, the property of Mr. Morgan Morgan, called Tyr Lletty Shenkin, and occupied by Mr. William Thomas, of Wainwillt, by which over 50 lives have been sacrificed and the surrounding neighbourhood plunged into the deepest gloom, as this is by far the most calamitous event that has occurred in this country, the '*Cardiff and Merthyr Guardian*' of Saturday August 18th 1849 reported.

We spent a day on the spot endeavouring to glean from the survivors and others connected with the colliery some authentic history of the causes which led to this dire catastrophe, but were not very successful in our inquiries, as all parties seemed paralysed by the shock which they had experienced; and could tell us very little more than an explosion had taken place - what had occasioned it - in what part of the working it had originated - they seemed as ignorant of it as parties residing at the antipodes.

Lletty Shenkin Colliery, as it is popularly called, was opened about five years ago, we were informed, and had been worked with considerable success up to the period of this accident. Soon after 3 o'clock on Friday afternoon - some say about 4 o'clock - a dense volume of smoke and dust was seen shooting up the pit. This continued for some time, completely enveloping the framework at the top of the pit, the engine-house, and other objects in the immediate neighbourhood in an almost impenetrable mantle.

Those who were above ground, and had witnessed what we had described, became instantly aware that something serious had happened in the colliery; and the engine-man, David Thomas, with the utmost promptitude turned a stream of water into the workings, so as to convey a supply of fresh air down; after which he remained at his post, anxiously waiting for signals from below from parties who might be desirous of ascending. The whole neighbourhood became quite alarmed. Men, women, and children flocked to the spot.

Mothers, wives, daughters, filled the air with their sad and distressing lamentations. Husbands, fathers and brothers, were missing; and their relatives were in a state of almost heart-rending solicitude. Measures were instantly taken for rescuing those who were in the workings. Some brave fellows ventured to descend, but were soon compelled to return, as the air in the pit was loaded with sulphurous vapours.

Again and again they made the attempt, and were at length successful at the expiration of threequarters of an hour, Mr. David Thomas, the underground agent, exerting himself in a manner truly heroic, as he must have repeatedly imperilled his life.

We were informed that one of the first bodies sent up was that of a youth who had been nearly knocked to pieces; and that it was supposed that he was the only one who was actually killed by the explosion; for there were only four or five dangerously burnt, the remainder having been suffocated by the 'choke-damp,' which, we believe, generally follows an explosion. In death they appeared as if they had gently fallen asleep, their bodies leaving us external marks of the evidence; but from accounts which have reached us we feel great mental agony, at least, must have preceded the period of dissolution.

We were told that after the men in the pit had been made painfully conscious that an explosion had occurred they huddled together in small groups in the places where they were respectively at work when their operations were suspended by the awful catastrophe at hand.

The poor fellows consulted each other at the best way of escaping the destruction which they feared was impending. Many of those were in another world in a few minutes, whilst some survived to narrate their terrible sufferings while hovering on the confines of the invisible world.

Two men who had separated in the pit at a moment when they expected to be hurried into eternity, accidently met in safety on Saturday; and were so affected that they burst into tears. There was a scene of sad confusion in those subterraneous caverns, as strong men were struggling for their lives at every turn.

A young fellow who lay prostrate in the colliery, and who had given up all chances of escape, hearing several persons rushing by, made a vigorous effort, and had strength enough to say “stoppwch mab Edward a Cwmbach odi I,” (Stop, I am Edward of Cwmbach’s son), - but this man who heard him, although an intimate friend, could only reply: - “Poor boy, I cannot help you if you are not able to follow me.” This young fellow survives (his brother was one of those who was killed in the explosion of the neighbouring coal works); but his father was suffocated – he and many others made but a few respirations of the deadly gas which filled nearly every crevice and were no more!

It is strange, that the two men who were at the furthest point of the colliery should be almost the only persons who escaped perfectly uninjured. The men who had descended with the view of assisting any who might survive executed their mission with remarkable intrepidity, and nobly and unreservedly pressed forward with creditable self-devotion into the very jaws of the King of Terrors, in the hope of finding a struggling fellow-creature whom they might rescue. And they were successful beyond their most sanguine expectations, for out of 112 men and boys who were in the colliery at the time, only 53 have fallen victims to the sad occurrence. Their names are: -

Edward Llewellyn, aged 53 – Landlord of the Duffryn Arms; he has left a widow and five children. He was suffocated. **William Jones**, aged 27, suffocated. **Llewellyn Rees**, aged 11, suffocated. **John Thomas**, aged 39, suffocated; he has left a widow and 5 children. **John Jones**, aged 25, suffocated; he has left a widow and two children. **Evan Edwards**, aged 32, and his son, John Edwards, aged 8 – both suffocated; he has left a widow and four children. **Thomas Phillips**, aged 23, badly burnt; he has left a widow and 1 child. **David Davies**, aged 36, and **two sons** aged 15 and 13 respectively. They were suffocated, but their father was much burnt. **David John**, aged 22, burnt. **W. T. Davies**, aged 50, burnt; he has left 2 orphan children, as his wife died of Cholera a week ago. **Thomas Evans**, aged 51. **John Jones**, aged 22, suffocated; he has left a wife and 1 child. **John Morgan**, aged 53, and **his two sons**, aged respectively 26 and 17 years, he has left a widow. He and his sons were suffocated. **Morgan John David**, aged 40, and **his son**, aged 19. Both suffocated. He has left

a widow and 2 children, one of whom is grown up. **William Griffiths**, aged 60, and **his 2 sons**, aged respectively 22 and 15, all suffocated. He has left a widow and 2 children, one of whom is grown up. **William Williams**, aged 54, aged **his two sons**, Eza and John, aged respectively 21 and 15 years, all suffocated. He has left a widow. **Williams Williams**, aged 46, and **his two sons**, Llewellyn aged 19, and Morgan, aged 13. He was badly burnt, his sons were suffocated. He has left three children. **Ebenezer Thomas**, aged 32, suffocated; he has left a widow and 4 children. **Evan Thomas**, aged 23, suffocated; he has left a widow. **William Rowland**, aged 11, suffocated. **Benjamin John**, aged 27, suffocated. **William Thomas**, aged 11, burnt. **Rees Jenkins**, aged 23, suffocated. **Thomas Smith**, aged 12 door-keeper, burnt. **Thomas Abraham**, aged 24, suffocated.

Williams Marks, aged 33, suffocated; he has left a widow. There were two boys with him in the works, one aged 13 and the other aged 15; they came out safely from which spot he was suffocated. **Ebenezer Edwards**, aged 12, burnt. **Thomas Evans**, aged 51, slightly burnt. **Thomas Thomas**, aged 66, burnt; he has left a widow and 1 child. **Nathaniel Phillips**, aged 25, suffocated. **John Davies**, aged 28, suffocated; he has left a widow and 1 child. **John Morris**, aged 26, suffocated; he has left a widow and 1 child.

Thomas Thomas, aged 25, burnt. **Steven Rees**, aged 30, suffocated. **Isaac Jenkins**, aged 13, burnt very badly. **David Howells**, aged 34, suffocated; he has left a wife and 3 children. **Ebenezer Davies**, aged 14, severely burnt. **William Jones**, aged 35, suffocated. **Benjamin Simms**, aged 10; he came up alive, but died subsequently from the effects of the poisonous gas. **John John**, aged 32; he has left a wife and 2 children; he came up alive, but died on Sunday afternoon.

This list, we believe, is nearly correct, if not entirely accurate. We received it from parties who were on the spot, and who had the means of ascertaining its accuracy; but in the confusion that prevailed it is very possible that some minor errors have crept in. There were eleven horses in the pit at the time, six of which were killed.



Lettyshenkin Colliery.

Letty Shenkin Colliery many years after the disaster

Inquest opened and adjourned

On Saturday, August 11th 1849, Mr. Morgan, deputy-coroner, held an inquest on view of the remains of the poor fellows, upon which occasion the following inhabitants of the neighbourhood were sworn: -

Mr. David Williams, Ynyscynon, foreman; Rev. Thomas Price, William Morgan, John Smith, Lewis Lewis, Morgan Morgan, Robert Jones, David Richards, John Williams, Enoch Williams, David Hughes, John Evans, Evan Mosley, David Davies, Thomas Thomas, Thomas Thomas, and David John. The jury viewed the bodies, after which the inquest was adjourned until Friday, August 18th.

Further news

In the meantime, Mr. David Williams, Mr. Dobson (mineral agent to Hon. R. H. Clive), Mr. John Smith, Mr. David Hughes, and Mr. Daniel Jones – parties unconnected with the colliery, but fully acquainted with mining operations – were appointed to inspect the works in order to report to the jury upon the condition in which they now are, and the mode in which they had been carried on.

Police-Sergeant Parsons behaved in the most intelligent manner, and we are requested by some of the jury as to notice the very material aid rendered by him on the occasion, as through his assistance they had no trouble whatever in the discharge of their duties. Superintendent Wrenn was on the spot also, and was of considerable service in maintaining order – in fact the county police force behaved with their usual excellent conduct.

When the accident occurred nearly all the ‘safety lamps’ were in the workings, and none were to be obtained by parties who were anxious to descend with a view of rendering assistance. At this juncture Mr. David Williams, of Ynyscynon, came forward – sent to his works and to Aberdare for all the lamps there to be found, and had this want quickly supplied. Mr. Thomas Powell’s agent sent about two-dozen lamps from the Duffryn Colliery; and in other respects rendered all the assistance in his power. The editorial of the same newspaper commented: -

Awful colliery accident

We have the painful duty this week in placing before our readers an account of a dreadful colliery accident, which took place in the valley of Aberdare on Friday last. The details will be found in another column, but in the absence of further information on the subject, we refrain from making any comments, as the circumstances which have been disclosed render it necessary that a searching investigation should take place.

A coroner's jury has been empanelled; and is to meet this day at Aberdare to hear evidence. When they shall have completed their labours, and when we shall be in possession of the facts which, doubtless, will be laid before them in order that they may arrive at a just conclusion, it is very possible that we may have occasion to refer to the subject.

The jury is composed of men, who, we think, from what we know of them, will do their duty uninfluenced by fear, favour, or affection – holding the balance impartially; we trust that their verdict will be such as to fully satisfy the requirements of the case they are to investigate.

We understand, from a correspondent, that Mr. Blackwell and his assistant, the Government Inspector of Mines – went down the colliery on Wednesday with three of the examiners deputed by the jury to inspect the workings, namely – Mr. Williams, Ynyscynon; Mr. Smith, agent of the Abernant works; and Mr. Dobson, mineral agent to the Hon. R. H. Clive. The same correspondent also writes: - One of the horses, that was supposed to be one of those that were killed, was found on Saturday evening standing in the underground works, attached to a tram, quite unhurt and apparently fresh, although the poor animal had stood there at least 24 hours.

There were 114 men and boys employed at this colliery, of whom 43 were brought up dead; 10 were brought up alive, but died subsequently; 15 were insensible from the effects of 'choke-damp, but recovered; 35 were unhurt; and 12 were knocked down when the accident occurred. Its cause yet remains unascertained.

Other reports

The news of this explosion was recorded nationwide by newspapers, and some carried differing stories from the above account. *'The Times'*, of Tuesday, Aug 21st 1849, for instance carried this report: -

The colliery explosion at Aberdare

Another of those frightful events that have now become an almost weekly occurrence in colliery districts has just occurred at Aberdare, in the coal basin of Glamorganshire, by which, at one moment, no less than 52 human beings were flung into eternity. Even here, in the midst of cholera, which is sweeping away our working men by hundreds, and threatens to go on until the depopulation of the district is achieved by that mysterious power, the horrible catastrophe which has just happened has almost paralysed the minds of the public, and leaves a state of bewilderment and stupor which is difficult to imagine.

Last Saturday morning 112 descended the Lletty Shenkin Colliery, in the parish of Aberdare, the fireman having preceded them to ascertain the state of the pit. He found though fire-damp was in two or three parts, information of which he gave the colliers by the accustomed signals, yet the works were sufficiently free to allow the men to proceed with their work.

It was not observed by those poor fellows, however, not by those appointed to inspect and conduct the colliery operations, that great atmospheric changes had that day taken place, which had an important influence upon the atmosphere in the pits, and about 4 o'clock in the afternoon, just at the time when the men were busily at work below, a cloud of smoke issuing from the mouth of the pit was the only indication that an explosion of fire-damp had taken place. Yet this simple indication – unaccompanied by any report or notice, attended by the groans and cries which herald death from great accidents – was the sole announcement of the explosion which had taken place in the bowels of the earth. In a few minutes afterwards, however, the whole

neighbourhood was alarmed. The people had observed it, and the screams and cries of those who saw it immediately drew hundreds to the mouth of the pit, when, horrible to relate, it was too quickly discovered that no less than 52 had fallen victims to the terrible fire-damp and its accompanying choke-damp.

The effect of this calamitous occurrence upon the neighbourhood is awful in the extreme. There was at first a frightful suspense, as mothers and wives waited with torturing agony the bringing up of the poor fellows who had been sacrificed to the surface. As soon as the first batch of bodies, blackened, scorched, almost beyond recognition, was brought up, the rush forward of the poor women and friends was a bitter spectacle for even a stranger to witness. It was almost a scramble – almost a struggle – as the wretched creatures tore one another aside to lay hold on each black corpse, to see if their worst fears were realized.

And when here and then a corpse was recognised, the screams of anguish were frightful to hear. Scarce a cottage in the neighbourhood that had not been forsaken by its inmates, all drawn out by fear and sickly hope. And scarce a cottage at night but contained one or more of the bodies of those what had that morning gone to the hazardous labour in the bowels of the earth, with their accompanied health and cheerfulness.

The cause of this frightful occurrence may be briefly stated. The “oldfires,” which had not been beaten out by the earliest that had gone into the levels, had still lingered about; and when the men, with their usual indifference, believing all was right, took off the top of their Davy lamps, and worked by the light of the naked candle, which enabled them to add a little more to their wretched earnings than they could have done by the dim light of the gauze lamp, some of the “oldfire” traversed that way, came into contact with the light of the candle, and an instant explosion was the result. More frightful spectacles than some of the bodies presented it would be almost impossible to conceive, I saw one poor fellow whose skull was literally blown into two parts, the upper part, with some portions of his arms and legs, being still in the pit. Others presented the most frightful mutilated features and blackened, scorched-

up bodies. There were children there, too, of tender age, whose little frames were scorched-up and shrivelled frightfully; while the hair was completely burnt off their heads, leaving their skulls bare. Indeed, so horrible a calamity has never occurred in Wales before, and I pray God I never again see its repetition.

A government commissioner, who happened to be in the neighbourhood, is now proceeding with an investigation of the occurrence. He is assisted by two or three experienced surveyors of this locality, and I have no doubt gather together a mass of most extraordinary evidence for the consideration of a committee of the House of Lords, before whom an inquiry will shortly be made, with a view, I hope, of effectually remedying the glaring defects in the management of some collieries in this part of Wales.

The whole of the unfortunate creatures who were thus suddenly cut off were decently interred on Sunday, at the expense of Mr. Thomas, the proprietor of the works, in the various burial-places of the neighbourhood. Thousands of spectators were gathered together, and there was scarcely a dry eye present. A preliminary inquiry had taken place before the coroner, and an order was granted by him for the burial of the bodies yesterday morning; but the inquiry of most importance – that as to the cause of the catastrophe - will be held on Friday next. The *'Monmouthshire Merlin'* of 18th August 1849 reported: -

The Hills-mining fatalities

To the Editor of the *'Monmouthshire Merlin.'*

Sir,-In reference to the manufacturing population of South Wales, it may be truly seen and felt, that the hand of affliction is heavy upon them, and the destroying angel is going forth executing his commission, sparing neither young nor old. The hoary headed, already on the brink of the grave - the blooming maiden, and perhaps the lover of her affectionate heart, — and children, like early blighted flowers fall beneath his stroke. In addition to the sad and fearful havoc made by the cholera, we have heard of a dreadful catastrophe by the explosion of fire damp at a

colliery in the Aberdare valley — fifty-two human beings hurried out of time into eternity - how heartrending to witness the wife bewailing the loss of her husband and child; and groups of little orphans mourning a father's untimely death. What a picture of desolation!

Witness this, oh deathful danger;
Witness this — a fatal day!
Scarcely one was deemed a stranger:
All companions, snatched away.

Legislative enactments have been brought forward by such men as Lord Ashley and others, in order to teach our mining population virtue; how far have they succeeded — and how far legislative enactments give security to miners from explosive gases, may be judged by those acquainted with our hills. It has been said, we are indebted to Sir Humphrey Davy for our security in foul mines. (Not to the extent some would imagine.) The safety lamp may be worthy of its name whilst the miner holds it in his hand by way of exploring the mine, to ascertain the effects of its ventilation, but he cannot perform his labour with the lamp in his hand it must be placed in a certain position to afford him light, and should any substance fall from the roof or workings, and damage the wire gauze so that the flame should escape, it would be all over and though every precaution be taken by some, amongst the number of from fifty to an hundred, there would be some careless ones.

Then arises the difficulty of ascertaining where and how an explosion took place. Were I a working miner now, I would not be one amongst so many, depending entirely upon the safety lamp for a single hour. Much has been said and written on the ventilation of mines, chiefly by scientific men, and the experienced practical collier has too often come forward and denounced their schemes and suggestions as absurdities. They may be so in some instances, but bar out the aid of science entirely, and were mainly unacquainted with the laws of nature and there are no other laws required to secure the safe ventilation of the mines. It is a fact long established, that a sufficient current of pure atmospheric air will dilute the strongest hydrogen gas, and render it in-explosive, then what is wanted but a good, safe, roomy, well protected airway; and a little

ingenuity in conveying it to the different workings, with an air furnace of sufficient magnitude to ensure perfectly free circulation of the return air? The workmen should never enter an imperfectly ventilated mine. A bold stand should be made here, and then a better state of ventilation might be expected. Your obedient servant, **a South Wales Collier, Blaenavon**, August 14th 1849. The same newspaper continued: -

Awful Colliery Explosion.—Fifty-two Lives Lost.

Grief bends the heads, and gloom darkens the features of the inhabitants of Aberdare and Aberaman, in the Vale of Glamorgan, where a catastrophe, of horrifying extent, has just occurred, sufficiently startling and terrible to wear more the semblance of some dire convulsion of nature, than any previous calamity. On Friday morning, the 10th instant, one hundred and twelve men, youths, and several mere children, went down into the dark depths of the Lletty Shenkin colliery, at Aberaman, and proceeded with their daily toil and ere the day had closed, no less than fifty-two of that number had been suddenly, without a moment's warning, hurried into eternity, by the terrible explosion of that death-dealing element, fire-damp. There had been no fear, no thought, no calculation of danger resulting from this mysterious agency in the colliery mentioned, up to the time when so great a catastrophe occurred. Indeed, everything appeared here favourable to the success of the collier; and heaven knows, his successes are hard earned and richly deserved. On the morning of the deplorable event, the usual precautions had been taken the inspector had gone through the subterranean passages, in search of fire-damp, and discovering slight indications—but almost too slight to deserve his notice, he considered and placed the usual signals in the way and these, being duly regarded by the colliers coming after him, they avoided the indicated localities, and proceeded with their work in the more safe quarters.

Throughout the whole of the day, the colliers worked in safety but with that indifference to danger so characteristic of the miner, they had thrown aside their safety-lamps, and worked by the light of candles for, said some of the survivors, to our reporter, "we can earn twice as much by that light; and what we could earn by the lamp would scarcely buy us

victuals." Thus, to increase the means by which to support themselves and their families, these men ran the awful risk of sacrificing their lives by a sure and certain means of destruction! Between five and six o'clock in the evening, just as Mr. Christmas, the clerk, was crossing near the mouth of the four feet level, a sudden volume of dense smoke, full of sulphur, and a large body of ashes, rose up around him; and, though there was no sound of explosion, the adjacent engine perhaps drowning all other noises, he knew at once that the fire-damp had ignited, and that the whole number of the poor fellows below might at that moment be dead or dying.

An alarm was immediately sounded, and the cry spread throughout the village like an electric shock, that an explosion had taken place. It would be hard to describe the immediate effects of this sudden cry. Down poured scores and hundreds of appalled and screaming women, daughters, fathers, sons, the whole population, in fact, swarming and crushing towards the colliery, to ascertain the truth of the fearful rumour. A number of brave fellows, eager to answer the agonised inquiries of those who crowded around the mouth of the pit, descended at once, and, in the midst of smoke and sulphur, brought up the first dead body they found. This was the blackened and mangled corpse of a lad, named Thomas, aged 15, whose head was frightfully shattered—indeed, so much so, that the upper part of his skull was entirely blown off just above the ears, laying open the interior of the head, and scattering his brains around the pit. A portion of one of the poor lad's legs was also blown off; and it this was the horrid spectacle that met his poor mother's sight.

The next who was brought to the surface was but a child, aged about 11 years, and named Benjamin Sims. This unfortunate victim lingered in torturing agony for two hours, scorched and mangled fearfully. Then others were brought up, and as each was discovered by a father, brother, mother, or sister, the cries of anguish were horrible to hear until there was no sound but agonising screams and cries of terrible lamentation on every side. By next morning, fifty-two charred and blackened bodies were recovered from the pit; and on making calculations as to the number of those who had been brought up it was thought that this was

the total number of the dead. Of these, five were burned to death by the explosion; and the remainder perished of suffocation.

Forty-two were brought up dead. Ten died after they were brought to the surface. Fifteen recovered after being brought up insensible from suffocation. Thirty-five were unhurt. Twelve colliers were not down at the time. This makes a total of the one hundred and fourteen belonging to the colliery. Those who were unfortunately down at the time would have come up in an hour, according to the general rule. Several had left the dip, or lower part, and were about to ascend when arrested by death. The official inquiry will commence on Friday (this morning).

The spectacle of the burial of the dead, on Sunday, was most solemn. Fifteen coffins, enclosing their lately-living and happy tenants, were borne away from the same spot together: eight in another group; seven in another, conveyed to Merthyr and three to Cefn. The Rev. John Griffith, and his curate, the Rev. Davies, read the funeral service over those buried at Aberdare; and thousands of persons were present to witness the sad and solemn ceremony.

Among other incidents mentioned at the interview our reporter had on Monday, at the colliery, with the agents and survivors, he was informed that poor Llewellyn, the first named in the list, had been absent from work five or six weeks, and this was the first and the last day's work he ever accomplished afterwards. Two men who volunteered to go down into the pit, after the explosion, "to put out the flue," were so overcome by the sulphurous air, that they fell at the bottom, to all appearances dead and it was not until they had for some time been exposed to the action of the fresh air, that they were restored to life.

John Morris, another whose name is among those of the dead, had been working at the tip for some time, and being dissatisfied with that employment, went below, where, after working two days, died with his companions. Several colliers who were below at the time of the explosion, but at some distance, in their alarm, when they heard the report, ran into the midst of the choke - damp with difficulty, returned with their lives. Joseph Pollard and about twenty others were very near

to the spot where the explosion took place; and they, too, with great difficulty, escaped from the choke-damp or after-damp.

Eleven horses were below, at work, when the damp ignited. Six were killed; four living were got out immediately; but twenty-four hours after, when proceeding through the levels in quest of the dead, the men came up with the fifth living horse, standing upright in his yoke behaving been there in that position about twenty-four hours, without food or water. The animal is now quite recovered. The colliery is the property of William Thomas, Esq., of Abercanaid, Merthyr; and that gentleman, immediately on receiving intelligence of the lamentable event, hastened to afford every assistance to those who survived the explosion and the widows and children of those who were killed.

The coffins in which the unfortunate men were interred, were provided at his cost; and nothing has been left undone, which might alleviate the anguish of widows, or the pecuniary distresses of those who have been so suddenly deprived of their supporters. Every exertion that could be made, also, to assist and direct in bringing the dead to the surface, was exhibited by Mr. Sims, the agent; Mr. Christmas, the clerk; Mr. Faulkner, the weigher; and others - each and all having been almost exhausted by their efforts throughout Friday evening and night; and we are sorry to add, that while some of the men sat down lazily, and declined to assist, although other men from the surrounding collieries poured in by scores to render aid, those selfish fellows actually insulted Mr. Christmas and Mr. Faulkener for refusing to give them any refreshments, which they did not deserve, by slandering and aspersing the character of those two zealous men characters, however, which could not be sullied by any such attempted defamation.

With regard to the cause of this unfortunate event, we fear it may be too justly attributed to the negligence of the colliers themselves but it would be premature to pronounce an opinion upon this matter, until more competent authority shall decide. A government colliery inspector, who is a gentleman highly qualified for his office, was to inspect the pits on Tuesday, should the immense masses of rubbish which have fallen enable him to do so, aided by other gentlemen; and on Saturday, when

the deputy-coroner of the district, Mr. Morgan, opened an inquisition into the matter before twelve jurymen, at the Black Lion Inn, it was resolved, after the bodies had been viewed, and permission given for immediate burial, to appoint the three following gentlemen :—Mr. Dobson, Lord Clive's Mineral Agent; Mr. David Williams, coal master, Ynyscynon; and Mr. John Smith, coal agent at the Abernant works; who should visit and inspect the colliery, and report thereon next Friday (to-day), at the inquest; at which time no doubt the government inspector will also make some report of his official visit.

While upon this branch of the subject, we cannot but regret that Mr. Bruton's invaluable new colliery ventilator was not in operation at the Lletty Shenkin works, which has recently been proving itself so efficacious at Gelly Gaer, the colliery of Thomas Powell, Esq., of the Gaer, near this town. Had one of those cheap and commodious ventilators been in operation at the unfortunate pit, it is quite within the range of certainty to state, that this sad calamity could never have happened. The machine we have alluded to is without valves, or separate moving parts all the friction consists in that arising from a foot pivot working in oil; when at rest it offers no impediment to the air ascending from the pit; is not liable to derangement, and inexpensive. It may be driven by a steam- engine or water-wheel, and by it any degree of rarefaction, necessary to ventilation, is rendered certain, regular, under visible inspection, and certain control. The current may be greatly increased during the night, or other period when the pit is not working, and thereby prevent that stagnant and dangerous state of the air now so prevalent during suspension of work.

It also possesses the power by which the atmosphere of a colliery can, in a quarter of an hour, be subjected to an exhaustion equal to half an inch of mercury, and thereby power, fully drawing out the gas from the coal, and from the wastes and goaf* ponds during the absence of fire or light, and, consequently, of danger from explosion, and also the power of restoring the equilibrium, and clearing the colliery of fire-damp, before the men enter, by a more vigorous and energetic current of fresh air than has hitherto been attainable by the ordinary means of ventilation.

* **Goaf** - *The worked out ground of a coal mine.*

It is scarcely three years, since twenty-eight human lives were destroyed by an explosion of the same nature, near the same pit. What warnings for immediate improvements In concluding our narrative of this catastrophe, it will be right to state, that the colliers themselves now appear to be taking up the question of government interference, a meeting of about one hundred having decided on Monday to petition the legislature on the matter. It was suggested to them, we understand, that as the commissioner would be at Lletty Shenkin on the following day a deputation had better be appointed to wait on that gentleman, to express the views of the colliers in relation to this important movement. Considering the coroner's investigation which will take place this day, in respect to the explosion at Aberaman to be of vital interest to the mining population of South Wales, we shall next week present a full report thereof in the *Merlin*.

The late explosion at Lletty Shenkin Colliery in the Aberdare valley

'The Cardiff and Merthyr Guardian' of Saturday August 25th 1849 reported: - The adjourned inquest upon the suffers by the colliery explosion at Aberdare, took place at the Town Hall, on Friday last (Aug. 18th).

Charles James, Esq., solicitor, was present to watch the proceedings on behalf of Mr. William Thomas, the proprietors; and Mr. Blackwell, a gentleman, so we understand, well acquainted with these matters, was present, having been specially appointed by the Government to examine the late cause of the explosion and to examine into the cause of the accident. He had been at the place during the whole of the week, and in communication with the various persons who could throw any light upon the matter, and has also examined the whole of the pit's workings very minutely.

There were present also the Rev. J. Griffiths, Vicar of Aberdare; the Rev. Mr. Davies, D. W. James, Esq; Edward Davies Esq; Evan Davies Esq., of Merthyr; David Davies Esq., Surgeon; Rhys Rhys Esq., W. Rees Esq., Mr. Heppel, mineral agent; Mr. Thomas, and several gentlemen from the places and the neighbourhood.

The coroner, after the jury had met, pointed out the nature of the inquiry in which they were about to be engaged. They would first hear the evidence as to the identification of the bodies; afterwards medical evidence as to the cause of their deaths; than the ventilation of the pit would be enquired into, and the evidence of Mr. Dobson, Mr. Smith, and Mr. Williams, would be given there upon, and finally they should know the opinion of Mr. Blackwell, who had been sent down specially by the Government, and who, he was happy to understand, from his knowledge of such matters, would, he doubted not, materially aid them in their investigation.

He believed they would endeavour to come to a just, correct, and impartial decision upon this matter. It was an accident, he was sorry to say, so fearful and unparalled, especially in these districts, that it was deserving of their most rigorous inquiry, and which character, he doubted not, would give it all the importance it deserved.

William Williams, the first witness, was then called in, and examined through an interpreter. He is a fireman in the Cwmbach pit, belonging to Mr. William Thomas, and was down in the pit when the accident took place on Friday last, between 3 and 4 in the afternoon. He knew most of the persons killed. After being under investigation for some time, he was allowed to withdraw for some half-an-hour.

David Thomas was then sworn and examined. He is an agent to Mr. Thomas, the proprietor of the colliery, to whom he is distantly related. A plan of the colliery was here placed upon the table at the suggestion of Mr. Blackwell. All the workings are shown upon it, and it is the same as the counterpart plan made for the landlord, Mr. Jenkins, except that the airways are coloured upon the latter. When the explosion took place he was at the top of the new air-pit which he was sinking; and is not yet finished.

It is about from 600 to 700 yards from the pit where the explosion took place. He did not hear it, but the haulier beckoned to him and said that there was something wrong in the pit. He went to the pumping pit to see if it was making fresh air; found it was, and then looked for a safety lamp

and went down the pit. In answer to Mr. Blackwell he said, he went down the upcast shaft, which about 120 yards deep, and 13 feet diameter.

When he went down he examined the doors leading to the lower seam and found them alright, with the exception of one which was slightly injured. After proceeding through the last he would be going into the main intake air current, and then along the main level. The witness's evidence afterwards consisted as to finding the bodies here and there along the workings, and almost all of them were suffocated – but were not burnt with some few exceptions – and also some of the horses. It was found requisite to state very minutely where most of the bodies were found, so that the jury might partly understand where the explosion occurred.

A desultory conversation here ensued about the number actually at work, and it was thought the number killed would be about 52; more or less injured, 39; brought out alive, 2; and 11 who were at work in the lower vein, who wholly escaped. The witness went on to state at what part of the different workings the bodies were found, and what was their general appearance, which he stated that, with few exceptions, they must have been all suffocated.

He thought there must have been two explosions; one following the other very quickly; but that the greater part of the men were killed by the 'choke' or 'after-damp' of the first explosion. At this stage of the proceedings the coroner read the names of about a dozen working colliers, and asked if they chose to take any part in the inquiry then going forward, either by putting questions to the witness, or making any suggestions they liked. No answer was given, or any question asked by any one of the parties referred to.

In answer to a question by Mr. Blackwell, the witness stated that the reason the airway had not been made in a certain direct way, that the lowest stall in that works was not driven far enough. The evidence was then continued for some time, but it entirely related as to how the men were employed – whether as colliers, labourers, hauliers – and what part

of the works they happened to be in. From the evidence it appeared he showed the most undaunted courage seeking for the men, that he showed, and that he must have imperilled his own life more than once in the long search in which he was engaged.

William Williams, the first witness, was then recalled, and stated that he had worked in the pit for the last four years. He was a collier until the last fireman died, about seven weeks ago. It was his principal duty to examine the state of the air in stalls and headings, and generally go about the works before the men go to work. This he always did with a safety lamp. He has to attend to the state of the air through the day, and has never at any time found the air insufficient to clear the works. There are parts of the old works that he never goes through.

He never was through the old workings on the outside of No. 2 cross-heading; but he had gone through those on the inside of No. 2. The colliery stopped about five weeks; he therefore has only been actively employed about a fortnight. There are some of the old workings not stopped up. There is no gas in any of the workings he goes through, as he tries them every morning, but he does not go through any of the old workings between the two levels. He is not aware that any of these stalls between the two levels have fallen very high. He never was instructed to go through the stalls. Goes down from 4 to half-past 4 and it takes him from two hours to two hours and a quarter.

By a juror: - "Can you engage to say that you can try all the works in that time?" Witness: - "Yes, I am satisfied I can do so when all the tram-plates are laid."

Examination continued: - He was in the first stall, near the bottom of Daniel Rowland's heading when the explosion took place. When he heard it, he fell on his knees, as there appeared fire coming from the lower level. He attempted to escape by the last way, but found it too hot. He then went another way about 20 or 30 yards, by No. 2 cross-heading. He then sat down, and tried to persuade many of the men to stay with him, as the air there was cooler than in any place he had tried. He knew of eight who went to the lower level and were suffocated, and

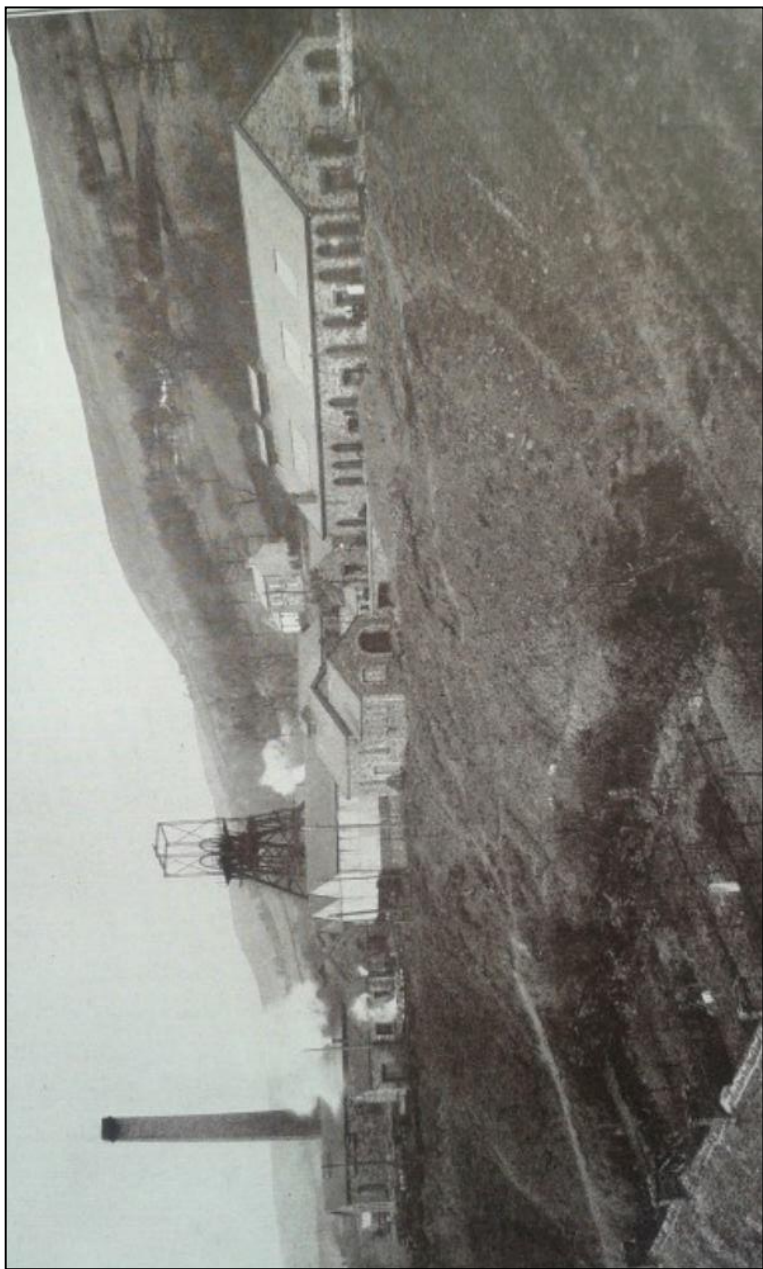
five who stayed with him were saved. They all became insensible, and he does not know how they were taken out. The evidence of this witness was very greatly protracted, from the difficulty of getting pointed answers from him; and Mr. Blackwell, who put very many questions to him through an interpreter, could obtain but few satisfactory replies. This evidence closed the proceedings of the first day.

Saturday, August 19th 1849

The proceedings on Saturday commenced at 10 o'clock, when the coroner read over the evidence given by David Thomas, but there was nothing materially altered or added thereto. William Williams's evidence was also read, and in answer to Mr. Blackwell, he said there might be a large quantity of gas in the stall, if the top had fallen very high, without being perceptible at the mouth of the headings. If a fall took place, it might force the gas out in a large quantity. He believes there are at least five stalls in No. 2 heading; does not know whether any of them are damned up, but believes they are. Mr. Blackwell said he would not put any more questions to the witness, as his answers were so ambiguous that every question required another to explain it.

He was in the employ as fireman only seven weeks, five of which the colliers had been standing out for wages, so that he was only about a fortnight fireman before the accident happened. The witness's evidence was so confusedly given that it was impossible, without some trouble, to get him to understand the questions asked. By a juror: - "There is the appearance of the witness having been tampered with since yesterday." Mr. C. James objected to some of the questions which were put, as they might have a tendency to cast some blame upon the witness himself.

David Evans was then called in and examined: - He has worked at the Lletty Shenkin Colliery about 11 months, and was there on the day of the explosion cutting coal for the flue. Thinks the explosion took place about 3 to 4 o'clock. Heard it, and was knocked over the barrow he had been wheeling the coal, by the effects of the shock. There was no gas there then. In answer to a question from Mr. Blackwell, he said the air had been the same throughout the day. He got up, and with another man



Lletty Shenkin Colliery – Date unknown

went towards the flue, when they put out the fire and then fell down exhausted. He cannot at all say what was the cause of the explosion.

In answer to a question by a juror, he said he never cut coal for the flue in any other works where he had been a flue-man. He was one at the Duffryn Colliery before he came here.

He generally went to work about six, and left in the evening, after all the colliers had left. A boy of about fourteen attended at night to throw coal upon the fire. In answer to a question by Mr. Blackwell, he said he found the air quite as good as upon other days. The heading leading to the flue to the point of junction is about 5 feet wide, and about 5½ feet high. He does not know the size of the pit.

Jonah Davies was called in and examined: - He worked in the furthest dip of the lower level, and was in his stall when he heard the explosion. He immediately put out his candle, and attempted to come out, but found the way too hot. He then returned, and sat down at the bottom of Thomas Phillips's heading.

All the men working in the dip met there. All had their candles out then, but he could not say whether they put them out themselves. He put out his in fear of the gas. There was a canvas door put up which was not at all injured.

He then described their various attempts to get out towards the pit's mouth, and many of them became insensible, but they were all brought out alive eventually. In answer of a question by Mr. C. James, witness said he never complained of the want of air.

John Morgan (third) was called in and examined: - He heard the explosion when he was at work in his stall, No. 2. It is the deepest stall in the heading of No. 2 cross-heading. When he heard it he immediately put out his light, and after going some way with some of the men, he went to the other level. He then became insensitve. In answer to questions by Mr. Blackwell, witness said that during the 12 months he has been at work there, he has never found the air insufficient.

Always worked with candles or naked lights. (this was distinctly said by all the witnesses, as Mr. Blackwell said it was important the truth were known, for he saw in *the Times* newspaper that day a paragraph which said the accident had taken place through unscrewing the top of a Davy lamp.)

The witness said he never knew there was gas in the old workings, as he had not examined them. It is the practice when there is a risk of fire to place some mark as a warning. He knows that William Williams, fireman, went around in the morning, as he met him often, and he believes he examined the air every morning. In answer to a question by a juror, witness said he never was warned by anyone, either at these works or any other place, that there were dangerous places.

John Williams examined: - He works at the dip heading, at the No. 3 crossing. He heard the explosion, but did not put out his light, which he carried in his hand up to the top of the crossing, and into the other level. He went into two stalls and put out the lights, which the men who were working in had left burning. One was Morgan John David's stall.

He then went on to describe his efforts to gain the pit's mouth, which, after many failures, he succeeded in doing. There were many with him, but most of them became insensible. Recollects his father, who was the previous fireman, and who died about seven weeks ago, stating there was gas in the old works.

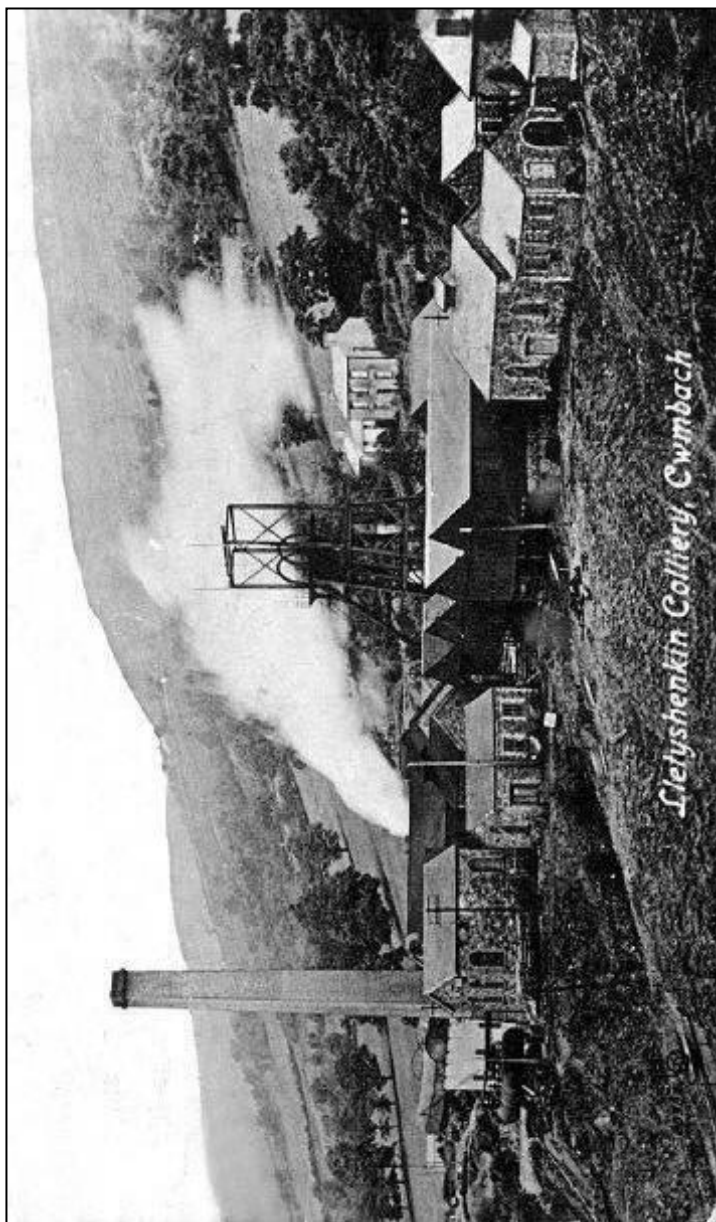
The above closed the inquiry up to Saturday evening. It was truly harrowing to hear these poor witnesses describing their efforts, and those of their fellow-workmen, to escape. Now they were trying one way, and now another, and finding all too hot – stifling and scorching them so that they could not proceed, many falling down, totally insensible, and only reviving when out at the pit's mouth, wholly unconscious through whom and by what means they were saved; and possibly almost as much astonished that they were there to give evidence as those who listened to their accounts of their perils and hair-breathe escapes from the jaws of death.

Monday, August 21st 1849

Thomas Rees sworn: - Was at work on the Friday of the explosion, at No. 4 cross-heading to the rise above the level. He heard the explosion, but did not put out the lights. Did not know where it came from. He then came out from the heading, but there was no-one with him. Saw John Williams, and then went to fetch his brother. They went to another heading, and began their way out. They carried their candles as far as the headings, 100 yards in the level. Met two or three of the men, but it was so hot that they could go no further; he was then carried out insensible. His brother also escaped. All there became insensible. In answer to Mr. Blackwell, witness said he always worked with naked lights, never saw any work by the safety lamp except the fireman. Had no cause to complain of the want of air, neither did he observe any change in the air previous to the accident; had there been any, he should have felt it. They were at the cross-heading where they used to meet, and a sort of meeting was held for the collection of money towards the support of those men who were out of employment during the late strike; there were about fifty at the meeting, but neither of the door-keepers nor the hauliers. The meeting lasted about threequarters of an hour.

Mr. Blackwell believed this witness gave correct evidence, from the pit having been working so regularly; and that the meeting could not have lasted longer, otherwise the workings would have been interrupted, which was not the case.

Daniel Rowland called in and examined: - The evidence of this witness was to the effect principally as to where the men were, and who of them he had seen before the explosion; of his having been in the meeting, and going thence towards his stall; but his evidence having been ambiguous and contradictory, he was not examined at great length. Mr. Blackwell said it was doubtful whether he had recovered his recollections since the accident of which opinion the medical men concurred. When asked if he knew that a fall would drive the gas into the level, he said he did not know. At this state of the inquiry, Mr. Blackwell, intimated it was not his intention to give evidence himself, but that the object of the government



Lletty Shenkin Colliery, Cwmbach

The Lletty Shenkin Colliery date unknown

in sending inspectors down was to collect facts, and prevent, if possible, like casualties in future.

David Thomas, agent, was called and examined by Mr. Blackwell: - Mr. Thomas, the proprietor, generally takes the direction of the main levels, but the headings are under my direction. Mr. Thomas only shows me what coal he wants. Question by Mr. Blackwell: - "Have any accidents taken place by boring?" - Answer: - "Yes; there has been an accident in the No. 1 cross-heading, and a boy was burnt, and man slightly sore, at the top of No. 1 crossing. There have been no complaints for lack of air by the workmen. I was in the pit on the day of the explosion until about 1 o'clock and then left for dinner. Did not see any difference that morning in the state of the air. Has had complaints of too much air, and of course regulated it accordingly. The system of ventilation is as follows:

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There are two pits; the Engine Pit, or Pumping Pit, is 9 feet in diameter, the Winding, or Upcast Pit, is 13 feet in diameter. There is a furnace near the mouth of the return drift, through which the air passes to the Upcast Pit; the size of the furnace is 5 feet square, and 3 feet 8 inches from the crown of the arch to the bars. The space on each side is 12 inches at least.

Part of the air passes through the furnace, the rest passes through two openings on each side of the furnace, about 5 feet 6 inches and 12 inches wide. There are two columns of pumps in the upper part of the Pumping Pit, or Downcast Pit, both are 9 inches in diameter, one column goes to the depth of 37 yards only. There are no stages in the Pumping Pit - nothing except staples, necessary to steady the pumps; nothing to intercept the air in the Downcast Pit. The depth of the Engine Pit is below the Drawing Pit about 4 yards.

There are three drifts in the upper-four-feet vein, by which the downcast air is conducted from the bottom of the Engine Pit; their dimensions are about 6 feet at the bottom by 4 feet high, and 4 feet wide at the top; one of them is about 6 feet square. Two of these air drifts, after passing round the shaft through some old headings and wastes, unite in one

main air course, about 6 foot by 5½, in the upper-four-feet vein, which continues in that cove, over the top of the stone drift, and enters the main level at the end of that stone drift.

Some part of the air having been split off before reaching that point, is brought again into the upper level just beyond the division of the two levels. The third drift in the upper level is the course which takes the air from the bottom of the pit through the working of the lower vein; after being conducted through those workings, it is then brought to the main level of the upper four feet vein, in the stone drift immediately at the back of the three doors near the bottom of the winding shaft, already described, and thence joins the intake main air current in the main level.

This main intake air current is split at the division of the levels; part of it passes the upper level by a door about 30 yards, the upper part of which, about 9 inches by six feet, being left off to regulate the quantity of air which passes up that part of the upper level. The greater part, however, of the main intake air current passes along the lower level of the dip end of the No. 1 main crossing, where a portion of it is again split off and directed towards the old wastes and workings on the rise; part of this main intake current continues along the lower level until it reaches the No. 2 crossing, where another part of it is split off and directed towards the workings on the rise; the remainder, after being conducted to reface ends of the lower level by doors and otherwise, returns down the pit, turns down the No. 5 deep cross-heading, then along two narrow stalls on the dip of the lower level, and thence to the deep through the stalls at work in No. 4 deep cross-heading, from which it returns along, and through the edge of the old goafs of the lower level to the Upcast Pit.

The air which enters the upper level, up to the mouth of No. 1 crossing, is that portion already described as the portion split off by the upper part of the door in the mouth of that level. At the rise end of No. 1 crossing it is joined by part of the air which was split off at the lower end of the crossing from the lower level, after it had passed by the mouths of the old stalls in the No. 1 crossing. The other part split off as the lower level passes through the old stalls between No. 1 and No. 2 crossing, and thence, with the other portions split off, into No. 2 crossing, from the

lower level through the old stalls and those in work, into No. 3 crossing, where it unites were the main intake air which has passed through the upper level, and unites near the face end of that level. From that point it passes up the No. 4 rise cross-heading, thence returns through the stalls between No. 3 and 4 into No. 3, where it is met by a portion which has been scaled off into No. 3 by a door; from the mouth of No. 3 it returns through the stalls between No's 3 and 2, passing into the rise end of that cross heading, where it is met by a portion scaled off into No. 2 by a door from the cross heading; thence into No. 1 cross heading, where it is met by a portion sealed off by a door at the mouth of the heading.

Passing through the rise end of that heading, it returns along and through the northern, or rise end of the old workings, and passes on through the level to the Upcast Shaft. The No. 1 upper level rises considerably, about 3 inches in the yard, from the division to near the mouth of No. 1 cross heading, a distance of about 200 yards. From that point it descends a little; so that any gas which might be discharged from any old workings between No's 1 and No. 2 cross headings, would first accumulate in that part of the level between the parting and the mouth of No. 1 crossing.

By Mr. Blackwell: - "My object in coursing the air was to sweep the gas out from the old goafs and workings. I relied upon that current to clear the works, but there might have been gas in cavities in the roofs of some of the old stalls to the west of No. 1 crossing, which the current of air would not clear off. It was possible that those accumulations of gas might be brought down suddenly by falls from the roof; it would have forced its way into the upper level, in such a case, between the parting and the mouth of No. 1 rise cross-heading, where it might come in contact with the light of the hauliers. This appears to me where the most violent part of the explosion took place.

I am not aware how the foul air returns are managed in other parts of England – where coal works are worked in which fire is, if the systems and modes are different from my own. I am aware of the necessity of preventing any air loaded with gas from coming in contact with naked lights. My opinion is it was not safe to shut up and dam out the track of

goaf which has just been described. I believe it would have been possible to dam up the old workings with safety provided a portion of the south returns had been passed over the main levels into them, by air bridges, and then conducted into the north returns; but I am not aware it has been adopted here in stalls in which there might be gas or not. I am not prepared to state that I would adopt the mode of ventilation until I would give it more consideration.”

By Mr. Charles James: - “The greatest part of the stalls in the old workings were filled with rubbish up to the roof with the exception of the roadway.” Answer to a question by a juror: - He could not say whether the trams came up between 1 o’clock and the time of the explosion very regularly.

Mr. Samuel Dobson called and examined: - He is a mineral surveyor, staying at Aberdare, and was requested by the jury to examine the colliery where the accident took place. He had considerable experience in the collieries in Northumberland and Durham. He examined the colliery on the Wednesday after the accident, and was accompanied by Mr. Blackwell, Mr. Williams and Mr. Smith. At the time we examined the pit the ventilation had only been partially restored. On descending the Winding Pit, we proceeded along the main level to the division of the levels, and turned down the lower level, along which we went until we arrived at No. 2 deep heading.

Here we found the two doors which were placed at the mouth of this steep heading had been blown *inwards*. From this heading we proceeded to No. 4 deep heading, where we found the doors of this mouth was blown *inwards*. From No. 4 we proceeded to No. 5 deep heading, beyond which point in this level we did not go, in consequence of the air being bad beyond that point. We then returned to the division of the levels, and proceeded along the upper level. We found the door which was placed some 30 yards from this division blown *outwards*.

On arriving at the double-parting on this level we found evident traces of the fire. There were four full trams of coal standing at the parting, the last of which had a portion of the coal blown upwards. The coal upon the

trams was charred, and the timber in the sides of the level were covered with coal dust.

From this double-parting we proceeded to the first crossing – or No. 1 – down which we went until we arrived at second west stall, the roof of which had fallen considerably. We examined the entrance of the stall and climbed over the fall, and the gas was fired in the lamp here. After leaving No. 1 crossing we proceeded along the level until coming at No. 1, 2, 3 rise headings. There had been doors at their mouths, all of which were blown *inwards*. There was also a door between No. 2 and No. 3 in the upper level had been blown *inwards*.

We found that the level beyond No. 3 rise heading was standing foul, viz; with gas to fire in the lamp. We saw where the persons burnt were found. The only distant signs of the explosion being mentioned to them. From the fact of the doors being blown outwards, varying from a point of No. 1 heading, from the timber in the level being burnt, and the coal upon the trams being charred from the No. 1 crossing, and five men severely burnt there, he was of the opinion the explosion must have taken place there – inclined him to conclude the point of the explosion must have occurred at or near the rise of No. 1 cross-heading. It was also the most deviated part of the level; rising towards it from all directions, and the gas most likely to lodge there in consequence.

If it had been issuing out of the goaf which is between the two levels, and which it was very likely to do there should be every accumulation of gas in that goaf. As there was there were two or three open communications from the goaf into the upper level. He judged from what he had heard, and his examination of the colliery, the accumulation of gas might take place in the goaf, and from a sudden fall of the barometer, or a fall in the roof, gas might be thrown out, and consequently produce the explosion in the present instance by coming out in No. 1 crossing, being the highest point of the upper level; the gas which would issue out of the goafs would be likely to accumulate there, and would be fired there by naked lights, probably of some of the hauliers.

Mr. Blackwell desired the witness to express his opinion as to whether he thought the mode of ventilation was sufficient for the purpose intended that was to carry away the gas from the goafs. Mr. Dobson continued: - He did not consider it safe to allow the goaf to have communication with the intake air course, because if there was any accumulation of gas in those goafs, it may issue into the air courses and produce danger. He was not prepared to say how it could be avoided. In the north of England it would be usual to force a portion of the return air through the goaf, and make a separate way, not communicating with the air course, and no possibility of going in to it or gas coming into contact with the naked lights, as it would be locked, and no-one enters it without a safety lamp.

By a juror: - "Are we to understand that Mr. Dobson considers the mode of ventilation in the collieries here more imperfect than in the north of England?" Mr. Dobson answered in the affirmative. He considered the ventilation of this pit quite as good as that of many other pits in the district, which are worked on the plan here in vogue. He could not say the quantity of air that would be necessary to the working of this pit, as the ventilation had been very imperfectly restored. He never knew an accident in the north of England take place in the main intake air course.

Tuesday, August 22nd 1849

The proceedings of the adjourned inquest were today re-opened at 10 o'clock. **Dr. David Davies**, surgeon, was called in and examined: - He is a surgeon at Aberdare, and attended to all the parties who suffered from the late accident. Benjamin Sims was severely burnt, and a few other persons, but most of them were suffocated. He did not recollect but few of them by their names, neither did he take particular notice as the cause to their death, which seemed very similar in almost all the cases. By coroner: - It appears that, from a meeting of the workmen, ten of them agreed to go into the colliery to examine the works, but they found nothing wrong. The ten did not go in, but only two who were appointed by the jury, and who were working colliers.

David Williams, foreman of the jury, of course, could not be sworn as a witness, but who gave his opinions at the request of the coroner, stated

that he, in company with Mr. Dobson, Mr. Smith, and Mr. Blackwell, examined the various headings, and he was of opinion that the gas accumulated in the No. 1 crossing, between the two levels; and thereby a fall of the roof, or a fall of the barometer, or perhaps both combined, the gas might ooze out to the upper level and come in contact with the hauliers' lights passing at the time.

He is of the opinion there were three firings (explosions), and that the gas caused by the first being driven towards the No. 1 cross heading, caused the gas which lodged probably in the upper part of No. 1 heading to be blown in contact with workmen's lights there. The Explosion in No. 1 crossing also let the gas into the two levels, and blew it down to the No. 4, or lower deep level, and caused the gas in the deep of that level, or No. 4 deep heading, to come in contact with the workmen's candles, which caused the third explosion. The witness then proceeded to describe the appearance of the coal upon the trams, and the timber of the level, nearly as Mr. Dobson had described them yesterday.

Mr. John Smith then stated he perfectly agreed with Mr. Williams, and the statement of Mr. Dobson yesterday; and he thought they had fully succeeded in fixing the place of the accident, and also its cause.

David Hughes, a workman, appointed to examine into the state of the colliery, said in Welsh (which was interpreted) that he had nothing to say different from the preceding gentleman, save that he had been in some places in the colliery where they had not. They went through No. 3 heading, which he pointed out on the map, and said they found fire in one or two places; still, there was sufficient air, in his opinion.

He also found fire in the air way, but the air ways had been turned in different directions since the accident. They could not find there had been any fire in the old dips before the lower level, and he thinks the fire first took place in the spot mentioned by Mr. Dobson and Mr. Williams. He also went through the return air courses up to the flue; there was sufficient air there, in his opinion; but unless there is room to turn the air by doors down to the deep below the lower level, there will still be danger.

He thinks they might be cleared of the gas that way, and no other way. The gas which they found in the air ways was there probably because the air ways had not been restored since the accident. Daniel Jones was with him, and both thought the air courses sufficient for the ventilation of the works. In answer to Mr. Blackwell, witness said he expressed his opinion freely down in the pit to the gentlemen, and concurred with them as to the locality and causes of the explosion.

Daniel Jones, another of the persons who viewed the pit, was then examined; but what he stated was only a corroboration of the testimony of other men and gentlemen who had examined the pit viz., as to the locality of the accident and its causes. In one place he thought the air course, from No. 2 to No. 3, was not sufficient, but does not think that would have caused the accident. He is of opinion the colliery was well ventilated.

This examination concluded the whole of the witnesses; and the coroner having enquired if there was any person who wished to say something, or to put any questions to any of the witnesses, or in any way to throw light upon the subject, then this was the time for them to come forward. Mr. Blackwell observed, that from the position in which he was placed, he could not, of course, consistently with his duties, give anything in evidence.

He had assisted in the examination of the pit, with the other gentlemen, and had very minutely examined, as far as the workings would permit, the state of the air courses. He fully concurred in the opinion expressed by Mr. Dobson, Mr. Williams, and Mr. Smith, to the cause of the explosion and wherein it had occurred.

Mr. Williams, as foreman of the jury, said the thanks of every one of them was due to Mr. Blackwell for the great aid he had given them in this inquiry; in fact, he rendered them a most material assistance, and he thought his presence had rendered the inquiry far more satisfactory than it would otherwise have been, and tended very much to give the public at large satisfaction that they had done their duty as men and jurymen. The coroner then proceeded to sum up.

The Coroner sums up

In drawing their labours to a close, he thought it would be admitted that they had been very successful in arriving at the cause of this fearful and melancholy accident. As they were so well acquainted with the facts, he would not read the evidence over, but simply an epitome of it, unless they otherwise wished it. Mr. Overton then went very succinctly over the most material portions of the evidence, commenting as he proceeded upon those parts which were most necessary to guide the jury in their verdict.

He showed what evidence established the opinions of Mr. Dobson and the other gentlemen who had examined the works, and in his opinion they fully succeeded in showing the cause of the explosion and where in the colliery it had taken place. The jury would hear in their recollection, and very necessary to the proper understanding of the matter, the evidence of David Thomas as to the mode of ventilation adopted in the pit; there might be differences of opinion in that respect, but doubtless it was ventilated as well as it could be in the method which prevails in this part of the country.

They would judge for themselves, though he (David Thomas) admitted the possibility of the explosion taking place by the process of the gas oozing out of the old workings into the air way, and coming in contact with the lights of the hauliers.

The confirmation of this was he (the coroner) thought established, as it was in evidence that several bodies were found in the place pointed out as the first mark of the explosion; and it was admitted by Thomas that the gas oozing out into the air courses might possibly produce the explosion.

In addition it was he (the coroner) thought clearly established that the old workings or goafs were full of gas, and that any portion of it coming out would very likely come in contact with the naked candles of some of the workmen. This was the view of it taken by Mr. Dobson, the portion of whose evidence relating to this part he would now read to the jury.

So also you find with the opinions of Mr. Williams and Mr. Smith, that there must have been more than one explosion, which would imply that there must be gas in more than one place. He trusted the jury fully comprehended from the evidence and the plan before them, the nature and locality of the accident. Such evidence must be attributed to one or two causes. Either from the neglect or wilfulness, for the law books laid down offences of omission as well as commission, and the first will not be parties liable to punishment. If the owner of the colliery employs people who are wanting in skill and intelligence he is guilty of a great offence.

It would be readily admitted that this is an exceedingly uncommon occurrence. If you think there was any improper omission, you might bring in manslaughter. If, however, you think it was an accident, and no prudence could avert it, then your verdict will be accident death. It is for you to decide which. The evidence of Mr. Dobson and the men is important upon this head, as one of the latter expressed there was an abundance of air for all purposes, but not properly coursed to ensure the safety of the works.

But at the same time the air courses in this colliery appear to be as good as any in the neighbouring collieries. It appears there was a large area of old workings or goafs, which were not free at any time probably from gas, and some plan ought to have been adopted to clear them, but the method used seemed quite as good as any in this district, and though other methods were described they were as yet perhaps not absolutely necessary. But from the magnitude of the works which are springing up around us, he (the coroner) thought that every effort ought to be made to obtain the best ventilation.

It was of the greatest importance to endeavour to find whether any remedy could be found for such accidents as these. It is true they are often beyond the reach of every human foresight, as the falling of the roof, or even a sudden fall of the barometer might cause these, which are likely the case now. One thing is very clear, that accidents will arise from permitting the accumulation of gas in old workings, and if a mode of ventilation can be adopted, by which it can be obviated, the sooner it

is done the better. The coroner then said that this inquiry was deserving of the most calm judgement, and he only trusted that the jury would give the evidence the most serious consideration, and by that means come to an impartial decision. The jury then retired, and were absent about two hours, and when they returned the following verdict was given in writing by their foreman: -

“We find several persons came to their death by accident in consequence of an explosion of fire-damp, caused by gas oozing out of old abandoned stalls in No. 1 crossing, caused even by a fall from the roof of those stalls, or by a sudden fall of the barometer, or by a combination of these causes. The gas sent out came into contact with the naked lights of the hauliers, at the time engaged at the upper level; and we further find that the fire that took place in No. 1 cross heading to the rise, and in the face of No. 4 deep heading, was caused by the first explosion, agitating the air and causing the gas to descend in contact with the naked lights of the men working in those places. Secondly, we also recommend that in all instances that gas that generates in the old works should be carried off by a separate air current from that which ventilates the workings, and then brought into the return air-course without any communication whatever with the intake airs. It should be kept entirely secure from any communication with the naked lights of the workmen.” **Signed David Williams, foreman.**

The *‘Cardiff and Merthyr Guardian’* commented: - It will be permitted to us to make a few observations at the close of this protracted inquiry. We have reason to think that every possible light was thrown upon what might have been the cause of the fearful calamity, and it received that deep attention and minuteness of detail which it so truly deserved. Most assuredly when some fifty of our fellow-beings are at once hurried into eternity by an enemy so fatal and so stealthy, everything should be done to prevent if possible such catastrophes.

We believe the jury gave the case the best attention, and we were happy to observe that Mr. Blackwell, who was present by the orders of the Government, carried on the examination in the fairest and most impartial manner. From first to last we did not see the slightest

disposition upon the part of any one to conceal any evidence, or throw any obstacles in the way of soliciting the truth. Doubtless the verdict of the jury will not only give satisfaction to the country at large, what is of far greater importance, satisfied the relatives of the sufferers that it was one of those calamities which could not possibly be foreseen. We have on behalf of the press tender our very sincere thanks to the coroner, in giving us every facility for reporting the proceedings.

We believe they will be found faithfully, fully, and correctly rendered. Everything was done by him that could be done towards doing so. The public will thereby be enabled to know the evidence and judge for themselves. It was very manful to hear it, and we have only to trust it will be a long time before such another accident as that at the Lletty Shenkin Colliery will take place in the collieries of this district.

The '*Cardiff & Merthyr Guardian*,' of 29th September 1849 reported: - The late sad calamity at Lletty Shenkin Colliery in this valley has already induced a very beneficial change in the character of the colliers of this district; I allude to the generally expressed desire of the workmen to obtain the greatest possible degree of safety in their perilous pursuits, by respectfully urging their employers and their agents to adopt such tried and approved methods of ventilation as may prevent the recurrence of such fearful disasters as the one to which I have referred. Soon after that accident had occurred, the colliers held meetings to determine upon what course to adopt, when they resolved to send deputations to wait on the coal proprietors, respectfully soliciting consent to visit and inspect their collieries.

It is due to their humanity and good feeling to say that in no single instance was this request refused, but, on the contrary, every desire was manifested to render every assistance that might be required to arrive at the true state of every working. I have before me now a long report of the result of the inspection. Five men for each colliery were deputed to visit all the workings and report on them. It would be unfair under present circumstances (while the report of the government inspector, Mr. Blackwell, is pending), to particularize on the subject: suffice it that the principal causes for condemnation were the inefficient size of the

airways and the accumulation of gas in the abandoned workings, sources themselves of grave import and demanding earnest attention. These errors, however, are I am told, in a fair way for speedy removal.

It is pleasing in the midst of these painful considerations to find that some few of the numerous collieries in this populous district have adopted a superior mode of ventilation. I may instance (I hope without being deemed invidious) the new colliery of the Messrs. Wayne, of Aberdare, called the Gadlys 9 ft. Seam. It must be fresh in the recollection of many of your readers that those spirited gentlemen were the first to open the Aberdare valley.

Their example after long and many doubtings, was followed by Mr. Powell, of the Gaer, and after him by various other gentlemen, until, at present, there is no doubt of Aberdare being the chief market for steam coal in the world. The report proceeds to state, after paying a just compliment to Mr. Enoch Williams, the manager, "We do not, therefore, hesitate to say that the Gadlys Colliery is in a very good condition in the windways and air, and that all the old workings and the present workings are all clear of gas; there are four wind ways circulating through the old & new works, sweeping all the gas clear from the workman, and the four windways deliver the air to the upcast pit quite in a pure condition.

We all concur that the work is well carried on and plenty of air carried all through the works and there cannot be better. By the flue, in addition to the door in daily use for the protection of the works there is placed another door in reserve fixed in frame work and on the side of the level; so that if any accident occurred to the first door, the other immediately replaces it so that there can be no danger."

Those conversant with the effects of underground explosions will readily acknowledge the utility of this precaution, the want of which has so often fearfully increased the number of lives lost after the first fatal effects of explosions. Let us all fervently hope that every remedial measure may be adopted to rid us of such a devastating scourge as is the fire-damp underground.

List of those killed	
Abraham, Thomas – aged 24	Jones, William, aged 27
David, -, aged 19	Llewellyn, Edward, aged 53
David, Morgan John, aged 40	Llewellyn, Jenkin, aged 40
Davies, -, aged 15	Marks, William, aged 33
Davies, -, aged 13	Morgan, -, aged 17
Davies, David, aged 36	Morgan, -, aged 26
Davies, Ebenezer, aged 14	Morgan, John, aged 53
Davies, John, aged 28	Morris, John, aged 26
Davies, William T., aged 50	Phillips, Nathaniel, aged 25
Edwards, Ebenezer, aged 12	Phillips, Thomas, aged 23
Edwards, Evan, aged 32	Rees, Llewellyn, aged 11
Edwards, John	Rees, Stephen, aged 30
Evans, Thomas, aged 51	Roland, William, aged 11
Griffiths, -, aged 22	Sims, Benjamin, aged 10
Griffiths, -, aged 15	Smith, Thomas, aged 12
Griffiths, William, aged 60	Thomas, Ebenezer, aged 32
Howell, David, aged 34	Thomas, Evan, aged 23
Jenkins, Isaac, aged 13	Thomas, John, aged 39
Jenkins, Rees, aged 23	Thomas, Thomas, aged 25
John, Benjamin, aged 27	Thomas, Thomas, aged 66
John, David, aged 22	Thomas, William, aged 11
John, John, aged 32	Williams, Esa, aged 21
Jones, John, aged 22	Williams, John, aged 15
Jones, John, aged 25	Williams, Llewellyn, aged 19
Jones, William, aged 35	Williams, Morgan, aged 13
	Williams, William, aged 46
	Williams, William, aged 54
Deaths within 3 weeks of explosion unreported as victims: - James Thomas aged 44 and David Thomas his son, aged 10; John Edwards aged 25 and his son William Edwards aged 9.	

Inspection of coal mines

By an act passed on the 14th August 1850, the Secretary of State is empowered to appoint inspectors of coal mines. The duty of an inspector will be to enter, inspect, and examine any coal mine or colliery, and the works and machinery, at all reasonable times, by day or night, as also to

inquire into the ventilation, &co. of the mines. Every facility is to be afforded to inspectors, and no one is to be appointed to the office who is a land agent or manager. Notice of accidents in mines is to be sent to the Home Secretary, and previous notice of inquests is to be given to the Home Secretary of deaths from accidents in mines. Owners or agents of mines, or other persons, obstructing an inspector, may be fined not less than £5 and not exceeding £10. The act does not extend to Ireland.

The meaning of Lletty Shenkin

Lletty Shenkin literally translates as = Shencin's lodge / Abode. The colliery of that name was sunk in 1743 by William Thomas, son of Lucy Thomas, reputed mother of Welsh steam coal. It consisted of an upper and lower shaft. The upper was sunk 885 feet, and the lower to 450 feet. In 1891 there were 386 men employed underground and 95 on the surface. It closed in 1922, but was used by the Powell Duffryn Co. to ventilate the Aberaman Colliery east level and as a second way out for that colliery. It closed along with the Aberaman Colliery in 1962, and was demolished within the next 24 months.

NEW (MIDDLE) DUFFRYN COLLIERY, TUESDAY, DECEMBER 12th 1850
Thirteen miners deceased

On Tuesday, December 12th 1850 the inhabitants of that portion of Aberdare Valley, south Wales, in which is situate the New Duffryn Colliery, the property of Thomas Powell, Esq., of the Gaer, Newport, were thrown into a state of the utmost confusion and consternation in consequence of a dreadful explosion of fire-damp having taken place, by which several lives were lost. In the first moments of confusion the shrieks of the wives and other female relatives congregated around the pit were terrific, as a large number of men were known to be in the pit at the time. By dint of great exertion they were, with the exception of five, got out alive. The '*Times*' newspaper brought further news nationwide the following day: -

The fatal colliery explosion at Aberdare

The Aberdare parish has again been the scene of a colliery explosion. It is scarcely 12 months since 52 lives were lost in one pit, and three years before that 28, and now 13 are severely burnt, 3 actually killed, and several of the wounded not expected to survive. All this, it is frightful to think of, has occurred in three neighbouring pits within a very few hundred yards of each other, and two of them belonging to the same owner. Had not the most strenuous exertions been made, every one of the survivors in the last accident must have been suffocated – that is, from 30 to 40 human beings. The character of the explosion was such, that the partition wall dividing the air-pit was shattered in every direction, and a large portion of the lower part fell in, thus choking up the mouth of the pit and falling on one of the carriages which conveys the men up and down, then at the bottom of the pit.

The contractor by whom the pit was worked happened to be one of the unfortunate men below. The only responsible person at the mouth of the pit at this time was the engineer, that is, the man who works the engine. Thinking, most rashly, that he could lift the carriage at the bottom, with all the super incumbent weight of the fallen partition, in a pit 167 yards deep, he set the engine at work, and the natural consequence was, the engine was broken and totally disabled, thus

cutting off from the poor men below from the best hope they had of being extricated. The only remedy now was to send a bucket down the pumping pit. This bucket took nearly one hour to go down; such was the character of the only machinery at hand such was the reckless folly of the engineer. It was after midnight before the last man (a corpse) was got up. Two more are missing, but they will probably be found today. They are supposed to be lying under a portion of the road which has fallen in.

This pit had not been in work more than six months, which makes an investigation into the method of its working the more necessary, as all new pits are generally clean and free from gas. It is to be hoped the government will lose no time in sending down one of the three new inspectors, as that part of this parish has become now sadly notorious for these accidents. In a small way, more or less, men are continually being burnt in them. The public hear only of these more fearful explosions.

The daring bravery of the poor men who risked their lives on behalf of their fellow-creatures could never been too highly praised. Such was the escape of gas from the mouth of the pit that no one dared go with a naked candle near it. It was seen issuing like smoke from a chimney; yet it was through this perilous atmosphere, holding a Davy lamp, that they dared to descend, in the most dangerous manner even in the purest atmosphere, with the means of assistance and the word of comfort to the ill-fated sufferers below.

The appearance of those burnt, when brought up to the mouth of the pit, was frightful to the last degree. Their skins were hanging in shreds about them. We have seen many burnt, but seldom any more fearfully. The wailing of the women and the shrieks of children, as well as the whole scene, in the gleaming fires lighted around, must be imagined as a picture of horror which can never be described. The '*Cardiff & Merthyr Guardian*', of December 14th 1850 reported: -

Disastrous and fatal colliery explosion at Aberdare Valley

Scarcely had we recovered from the shock which the information from Taibach had occasioned, namely the account of a fatal explosion in

Messrs. Vivian's Morfa Colliery – than we were again alarmed by the receipt of intelligence from our Aberdare correspondent, that a most serious explosion had taken place at the New Duffryn Colliery, the property of Thomas Powell, Esq., the Gaer, near Newport, which, it is conjectured, will prove, on enquiry, to be attended by disastrous consequences. Our correspondent writes as follows: -

Tuesday, 4 o'clock

At about 3 o'clock this afternoon an explosion was heard in the New Duffryn Pit. At present all is consternation and confusion, and people do not know what to do or say. No one can tell what the extent of the accident may be, but their fears lead them to suppose the worst. What a mournful scene surrounds the pit! It is said that there were fifty-four persons down, of whom three only have been brought up. They are, thank providence, uninjured.

But here comes the evil – the winding machine is broken; and they cannot get down from the surface to render assistance to the poor fellows, whom a little assistance might rescue from a dreadful death by suffocation, or by the keener agency of fire! The three men who were saved say that they were nearly suffocated in coming to the mouth of the pit; and, they gave a very poor account of those that are behind. But the works being new, I am inclined to think that the accumulation of gas could not have been extensive; and if I am right, the fears of the people must have exaggerated the consequences which are to be apprehended.

The agent of the colliery, Mr. Meredith, had only just gone down before the explosion occurred, and he is now in the midst of those who are below – sharing their fate, whatever that may be. The winding engine being useless (broken) makes me suppose that the delay in sending down will prove a serious cause of danger, as in circumstances of this nature promptitude is everything; but now, the only means of communication with the pit is by means of a bucket, wound by a crab; and that occupies half-an-hour to go down to the bottom; and when down but very few can be brought up in it.

The explosion was terrific – awfully terrific. The reports were like the discharge of heavy pieces of ordnance, spreading dismay through every heart; for in that neighbourhood well it is known what such sounds signify. These are all the particulars with which we are at present (Friday 9 o'clock) acquainted, as the coal trains brought down no information. We have seen Mr. Powell's agent from Newport, who was hurrying up to render all the assistance in his power; and he is strongly impressed with the conviction that, in consequence of the very recent period in which the works were brought into practical operation, that the loss of life or damage to the works cannot prove extensive.

Friday, 10 a. m.

A verbal message has just been received into our office from Aberdare to this effect: - "Two have been brought out dead, three yet missing. All the rest are brought out of the pit." Thus, happily, the occurrence has not been so destructive to life as was first apprehended. Comment: - However, the death toll would continue to rise. The '*Cardiff & Merthyr Guardian*,' of December 21st 1850 reported: -

Recent colliery explosion in Aberdare Valley

The hurried account which we gave in our last number of an explosion which had occurred in the New Middle Duffryn Colliery, has probably filled our readers with anxiety to know more of the details connected with the melancholy affair; and we, therefore, place before them the following account, which we gathered in the immediate neighbourhood of Aberdare.

The Middle Duffryn New Colliery is worked by one of the most extensive, public-spirited, and humane colliery proprietors in this or the adjoining counties – Thomas Powell Esq., of the 'Gaer' – and has not long been in operation. It had hitherto proceeded most satisfactory; but in order to make assurance doubly sure, Mr. Powell had taken measures for using the most efficient means in the ventilation of the works, so as to make the air-courses and the conditions of the workmen so perfect as human ingenuity could render them.

With that view he had determined upon taking the steps which will be found described by his principal viewer, Mr. Williams, upon oath at the inquest; but unfortunately ere his anxious plans could be carried into effect, a most disastrous explosion occurred, which has caused the death of several individuals, a circumstance which we assure no-one regrets more deeply than Mr. Powell. It is one sad consolation, however, to know that the fate of those who survived will be smoothed by his benevolent agency and that the widows and fatherless will not be destitute as long as they shall require aid and he has the means to assist them.

Many speculations are afloat as to the cause of the explosion and much gossip circulates in the neighbourhood. It is only too necessary for us to give the evidence adduced at the inquest before Mr, George Overton, Esq., coroner, who conducted it with the most rigid impartiality, and who was most ably assisted by Mr. Blackwell, Government Inspector of Mines – a gentleman of great scientific attainments. Mr. R. H. Lewis Rhys, attended the proceedings on behalf of Mr. Powell.

Thursday, December 14th 1850

The coroner's inquest

On Saturday the 14th inst., the coroner formerly opened the inquiry; and took the evidence of the resident manager and fireman which we subjoin, as they had been rather seriously injured; and might sink from the combined effects of great bodily fatigue, mental excitement, and physical suffering. The following gentlemen were sworn as the jury: -

Messrs. David Llewellyn; Thomas Evans, John Jones, Philip Johns, Lewis James, Daniel Edwards, Griffith Thomas, George Watts, Lewis Lewis, John Jenkins, Enoch Williams, Thomas Morgan, Morgan Morgan, William Thomas, and Evan Thomas.

Henry Jenkins, collier, said: - "I was fireman in the Middle Duffryn Colliery. The top of the middle stall in the first cross heading was bad and likely to fall; and Ruck, George Ready, and several more were engaged in trying to prop it up while I was engaged in opening a fresh

wind-way. When we were so engaged part of the roof fell, and a blower came out against my candle and an explosion took place. I had been in the stall about five minutes before, and there was no gas there then.

I am quite certain that it was from my candle that the gas took fire. I had my lamp with me, but as it did not give sufficient light to enable me to remove the plates*, I had a lighted candle. I had been engaged about an hour before taking up the plates.

The roof of the stall had shown symptoms of falling, and that was the reason I had taken up the plates. I hung my lamp in the stall to show if there was any gas in the stall, and I am quite positive that there was no gas there until the part of the roof fell, when some gas came against my candle.

* Plates: Metal or wooden supports for carrying the rails that were used to move the tram loads of coal.

The stall in question formed a part of the wind-way; and that was the reason I was so anxious to keep it open. I fell down directly I saw the explosion, and as soon as it was over I got up and ran to the bottom of the pit. I was quite sensible the whole of the time. The top of the stall was very unusual; and several men who were collected near the spot were looking at the precautions I was taking, and that was the reason they were injured. If they had been at work in their places they would not, I think, have been injured. There were about 14, I think, near me. Thomas Meredith was assisting me. I was down at the bottom of the pit about seven hours before I was carried up."

William Meredith, master of the level, said: - "Henry Jenkins was engaged making a fresh wind-way, because we were doubtful that stall, No. 2 in No. 4 heading might fall in and stop the air-course. I was about six yards from him at the time. There were no men in the stall at the time. There had been some working there that day, but they had come out. They had been working coal that day, but were afraid the roof was going to fall in, and had come out and taken the plates.

The men had sent to me to inform me of it, and I had just gone down when the accident happened. I am sure the gas came from that stall, and lighted by Henry Jenkins's candle. There was plenty of ventilation in the place where we were at the time. The stall had taken to work, and we were trying to prevent it. I heard some bits falling in the stall; I think there must have been a fall and a blower had broken out, as there was plenty of air where we were. We only used the safety-lamp in the morning and when we think there is occasion. The firemen go round the whole of the works every morning." Thus it will be seen that the resident manager and the fireman on the spot where the explosion originated. The following is a list of the persons who suffered fatality in the accident:

-

Edward Beard, 22, hitcher, married, but leaves no children. He was killed on the 12th inst.

William Davies, aged 17, haulier, son of David Davies, collier. He was killed on the 12th inst.

William Saunders, aged 12, door-keeper, son of Daniel Saunders, collier. He was killed on the 12th inst.

William Jones, aged 17, sawyer, son of John Jones, He was killed at the top of the pit. He was killed on the 12th inst.

David Thomas, aged 23, collier, a single man. He died on the 11th from the effects of the fire.

James Morgan, aged, 20, collier, a single man. He died on the 14th from the effects of the fire.

James Burgam, aged 24, collier, a married man. He leaves a wife and three children. He died on the 16th due to the effects of the fire.

Matthew Tingle, aged 35, collier, a married man. He has left a wife and six children. He died on the 19th inst. from the effects of the fire.

The following persons, it will be seen, did not suffer fatality: -

Henry Jenkins, fireman, married and has five children. He was severely burnt.

William Meredith, under-ground agent, is a married man. He was severely burnt.

Thomas Meredith, collier, son of William Meredith. He was much burnt.

Richard Tingle, collier, a married man, has five children, two of whom and himself were severely burnt.

George Meredith, collier, a married man, has four children. He and one of his sons are much burnt.

Peter Price, collier, a single man, much burnt. **John Ruck**, collier, a married man with four children, he is slightly burnt.

James Williams, collier, a married man and has one child. He is severely burnt.

Mr. Powell's chief colliery viewer, Mr. **Thomas Williams**, resides at Gelligaer – a distance of about eight miles from the Duffryn Colliery, but he hastened to the spot as soon as he heard of the melancholy catastrophe, and although the accident took place between 3 or 4 p. m. he was busily engaged with others after 10 p.m. the same day in rendering all the assistance in his power.

It will be seen from the evidence that the engine was broken and that a brick partition was blown down by the impetuous blast. The stage by which communication was carried on between the surface of the ground and the works below was down at the explosion, and an immense body of masonry fell upon it rendering it immovable; but the engineman was ignorant of that circumstance; and as he was anxious to lift it to safety as speedily as possible, he put the whole force of the engine to bear upon it, but, of course, without success; the rope, a new one, bore the forced that was exercised; but we regret one of the wheels was broken, hence the inability to use the engine. A crab and bucket, was therefore, the

means used to get the injured men up; the others who had escaped ascended by the ladders.

Friday, December 16th 1850

The adjourned inquest

The inquiry was resumed this forenoon at the Boot Inn, Aberdare. The coroner opened the proceedings by briefly recapitulating the steps that had been taken on the 14th inst., and then examined **John Jones**, formerly of St. Mary Hill, Court, near Bridgend, but now residing at Aberdare, where he carries on the trade of a sawyer. He said: - "The deceased William Jones was my son. He was seventeen years of age; and worked with me as a pitman in the saw-pit within 50 or 100 yards from the Middle Duffryn coal-pit, where the explosion took place.

Last Thursday, between 3 and 4 o'clock in the afternoon I wanted an axe. I employed a wedge boy, and I sent him for one at the carpenter's shop. The carpenter was not within; and the boy came back without it. My son, William Jones, on seeing him return without his axe, ran every step of the way with the intention of fetching it himself; and the path which he had to take passes close by the mouth of the pit.

The last sight I had of him was when he was over the bridge that leads to the carpenter's shop. The coal-pit is beneath the bridge and the shop; and my son was running as fast as he could. At that moment I saw the top of the pit flying up into the air before I heard the sound of an explosion, and in an instant the wedges boy told me - "There's William for it." I ran there and saw John Lewis pick him up. He was quite insensible. If he had been a moment sooner or a moment later he would have escaped.

There are gates at the mouth of the pit that prevent anything falling in the pit; and I consider that my son was killed by being struck by these gates that were blown violently against him. His thigh was fractured in two places; and he was dreadfully injured in his chest and head. There were apprehensions of a second explosion, and the men ran away from the place, but I stayed with my son and saw his lips move. He was

carried into a house. He did not speak at all but groaned. He lingered until about 9 o'clock the following morning when he died, having been unconscious since the accident.

Jeremiah Jones examined: - "I am a collier, working under Mr. Powell in the Middle Duffryn Colliery. I was not at work on the 12th, having come up out of the pit that morning about 4 o'clock. I was in bed when the explosion took place, and my wife came and told me that there was fire in the pit and the men burnt. I put on my trousers and shoes, and ran to the top of the pit, and made the best of my way down to the pit, over the ladder in the pumping pit. I could hear a deal of noise when I went to the bottom – men screeching out – and the first I saw was John Williams, just on the bottom of the pumping pit. He stood there uninjured, with one knee on the ground and supporting David Thomas, a man who was burnt and knocked about, and who is since dead. I had a lamp with me.

I could not stop with them but went on to look for the rest, I went on towards the binding-pit; and met John Jones and George Evans." Mr. Blackwell said it was not important to trace the respective positions of the men, as it already been proved where the explosion took place.

Jeremiah Jones continued: - "John Jones and John Evans were uninjured. I saw James Robbins. I met several escaping up the ladder as I was going down. All the men I have named (except David Thomas) stayed with me in the pit 8 or 9 hours, to help the men who were burnt.

The persons who were injured were about the place – some lying down and some standing on their feet. There are several ladders between the top and the bottom of the pit – going from stage to stage.

I met all the men who were injured on the road between the two pits. Some of them were very severely burnt, and were obliged to be sent up in a bucket; all the men who were able to walk went up the ladder." Witness then enumerated the parties who lost their lives by the explosion and its effects. "I found William Saunders under the end of a loaded tram – before the wheels, but one leg was under the wheels. The tram was in its place by the winding pit. He was quite dead.

He was a door-boy. He was not much burnt - a little on his hands and about his head." Witness then described the appearance of the pit. The explosion had broken down the partition in the winding pit. There was a large quantity of bricks, mortar, & Co. on the floor of the pit under which some of the men were. As the winding engine was broken, the injured men were got out, three at a time, by the means of a bucket hoisted by a crab.

They came up the pumping pit; and men were stationed on the ladders to guide the bucket in its ascent. Oil and other necessities were promptly sent down the pit, which were applied to the men and soothed the injured men. It was about two hours or two hours and a half elapsed before the injured men could be sent up in the bucket." From other statements made by this witness it appears that every effort was used to extricate them from their painful position. After the crab, & Co; had been brought into operation, three men were sent up every twenty minutes. It was between 2 and 3 o'clock on Friday morning when William Saunders's corpse was got to the top of the pit. If a similar accident were to happen again in another pit under similar circumstances, the men could not be got up in less time by a crab; everybody was doing his best.

Mr. Blackwell spoke of the necessity for using every exertion to bring men out of a colliery after an explosion; and seemed to be of the opinion that the apparatus employed – a bucket and crab – was insufficient. Jeremy Jones entered in renewed explanations to show that no time was lost in making the most strenuous efforts to extricate the men from the pit. He did not think it was practical to bring the men up in less time than they had been brought. The agent who superintends the colliery is William Meredith. He was burnt. The management of the pit was entrusted to William Meredith. Thomas Williams is the chief manager; and visits the pit about twice a week. Witness did not see Thomas Williams in the pit on the first day. He (Mr. Williams) resides about eight miles from the place. Francis Pearce was in the pit. He attends to the pumps; and is often seen at the bottom of the pit. He was assisting in getting the men up. Mr. Oakley observed that Frances Pearce understood the pits better than anybody else.

Daniel Saunders, father of Williams Saunders, who was killed, was next examined: - At the time the explosion took place he was at work in a remote part the works; but he instantly became aware of the calamity, as a puff of wind put his candle out and “he heard a crash.” He jumped up – told his partner, who was at work with him, that he was sure “the pit had fired;” and it behoved them to make the best of their way out.

Saunders first ran to see for his son, but as soon as he saw the locality where the explosion had extended its main force he perceived that his son’s death was inevitable. After ascertaining that mournful fact he escaped up the ladder; and was instrumental in guiding some persons who were running wildly in a wrong direction.

Thomas Williams examined: - “I am the chief underground manager of the whole of Mr. Powell’s collieries; and live at Gelligaer. It is my duty to direct all the underground workings; and to see that the ventilation of the colliery is in a safe and effective state. I go occasionally to them all. I am the chief viewer in all his collieries, a plan of all the workings are arranged by me subject to Mr. Powell’s supervision. He has other surveyors besides me.” Mr. Oakley: - “But you are the principal one, others are under you?” Thomas Williams: - “Yes.”

Thomas Williams continued: - “It is about three weeks now since I was underground at the New Duffryn Colliery – that is, about a fortnight before the accident. There are two shafts at the colliery – one shaft employed for pumping exclusively, and one for winding, the pumping shaft being the up-cast and the winding shaft the down-cast. A sectional area of the pumping shaft is 9 feet by 13 feet, and about 168 yards in depth. The area of the winding shaft is about 13 feet 6 inches by 19 feet, and 163 yards deep. The pumping shaft is partially occupied by pit work and scaffolds. I do not know what clear sectional area we have with it independent of the scaffolds which are there to carry the different stages of ladders.

The pumps are in three lengths, and form one all the way. They are forcing pumps; viz; there are two forces; the bottom one is a drawing lift. Previous to the accident, the winding shaft was divided, for about 100

yards from the bottom, by a nine-inch brick wall or partition, which separated it into two parts. The side in which the winding carriages were is 11 feet 9 inches in diameter, by 13 feet; the other side, which is intended when completed, to be made the upcast for the colliery, is 13 feet 6 inches by 6 feet 6 inches; the pumping shaft and the other part of the winding shaft to be the down-cast. At the time of the explosion, the means that I employed for keeping up a circulation of air in the colliery was – placing a lamp at the bottom of a pumping shaft. A “lamp” is a large iron basket, about 18 inches in diameter, and is kept continually full of burning coal. I do not know whose duty it was to keep that lamp fed, and I expect it was kept full of fire by night and day; that was left to Meredith.

The area of the down-cast would be upwards of 200 square feet, and the up-cast nearly 100 square feet, as they existed at the time of the explosion. The area of some of the air-passages in the pit itself is not more than 25 square feet; and the whole of the air circulated the pit would be confined to one of these passages. We intend to make other arrangements for it. The whole of the single air current circulating through the pit has to pass by the wagon road to the face of the stall, along the face of that shaft, and then to return by the side of the goaf or gob by a single air thurling* to the next stall; so that if any casualty happens in any of the wagon roads, in any of the stalls, or in the face of the stalls, or to the air-way between the gob and the deep pillar, the whole of the ventilation of the colliery is liable to be indefectible; but I have not known it to be the case.

There has not been any time since the colliery has been opened to make two air-ways; but it was our intention to make them. I have not yet taken the quantity of air circulating in the works, but I have judged it be from 6,000 to 7,000 cubic feet per minute. I am afraid that the seam of coal we are now working at the Duffryn Colliery is a fiery seam. I consider it subject to give out blowers at the commencement of the workings.

***Thurling** - The point where one heading breaks into another.

I believe that there are from 1,400 and 1,500 men and boys working underground in all Mr. Powell's collieries; but the number of men employed does not vary much when trade is very brisk. I have considered it my duty to obtain all the information I could on the use of the safety lamps. The brick partition is all blown down, with the exception of 8 to 10 yards; but there are about 35 yards at the top which are not affected at all. The mortar in the part that was blown down had not had time to set; the work was quite green."

By Mr. R. Lewis Reece: - "The colliery is quite in its infancy and has only been worked about three months, and only between 2,000 and 3,000 tons worked altogether. At the time of the accident there was but one air-course, but it was contemplated to divide the air, which arrangement would require over three months to complete. It was proposed to have steam pit there, and the cuttings were there for that purpose. I am aware that in the infancy of a colliery blowers are more likely to be found than at any other time, the occurrence of which are very likely to lead to explosions.

I know of some shafts that are partitioned off to two parts, but after what occurred in the present instance, I should not approve of it. I do not think it would be safe to work a seam of coal of the fiery nature of Duffryn coal pit. Mr. Powell has no colliery with less than two shafts. There are two shafts at present in course of sinking. We are now driving a heading towards the place we intend building a furnace for ventilation, and Mr. Powell has expressed his intention of adopting other means, if they did not succeed, as I am now aware it was a fiery seam. Mr. Powell has anxiously expressed his extreme desire to employ the very best as for ventilation, regardless of expense."

Mr. Powell has tried the steam-jet, and Mr. Brunton's patent at his colliery in Gelligaer, and intends using them in this colliery. I was on the spot when the accident occurred, between four or five hours after it took place, but I did not go in, because Francis Pearce and Charles Pugh were both down, and were better accustomed to the shaft than I was. They are both engineers, and not colliers. I was told by Pugh and others that all the men injured were at the bottom.

David Richards, one of Mr. Powell's contractors, was at the top of the pit when I went there. William Meredith was the sub and resident agent for this pit. He has been there for between three or four months. He came there from Abersychan. I have examined the stall in which Henry Jenkins states the gas was said to have proceeded from, since the accident, and find that there has been a fall from the roof there, and also in No. 3 stall as well. I consider that the more deep coal is worked, the more fiery it becomes. There are no collieries on the same vein as worked to the dip of the Duffryn, and no other collieries at present in work within a mile of it."

David Davies, surgeon, of Aberdare, on his oath said: - "I am surgeon to the Duffryn Colliery. I was sent for to attend to the deceased, William Saunders and the other persons injured by the explosion. William Saunders died from injuries received in the explosion. He was severely hurt and slightly burnt. Edmund Beard died from bruises, and William Davies and William Jones died from the same cause; David Thomas, James Burgam and James Morgan were severely burnt, and have died since the accident from the burns; one on Saturday and the other two on Sunday last. Mr. Blackwell intimated that he had made an inspection of the colliery since the accident, and the report of the result of his inspection is attached to those dispositions.

The inquest was then further adjourned. The examination of Mr. Thomas Williams was wholly conducted by Mr. Blackwell, so that nothing was concealed which the public or anyone else had a right to be acquainted with. Unfortunately the next report from the '*Cardiff & Merthyr Guardian*', plus the Christmas and New Year holidays, saw further proceedings and the verdict missing, and as there were mostly weekly newspapers at the time, the reports have been lost. The '*Times*' newspaper, however, concluded with the following report: -

The verdict

The jury returned the following verdict: - "We find that the death of the deceased was caused accidentally; and we believe that the fall in the

stalls of No. 2 and No. 3 in the north heading was the cause of the gas being in contact with the fireman's naked candle, and thereby causing the explosion. And we find that there is no culpable neglect attached to any of the agents connected with the Duffryn Colliery, but most emphatically condemn the mode of ventilation hitherto applied, and particularly recommend Mr. Blackwell's system of ventilation to be adopted immediately; and we also condemn the use of brattices* in all pits. The ninth (unnamed) sufferer expired on Monday last."

(***Brattice cloth** – A kind of plastic sheet for covering ventilation doors; also for directing air-flow into places of working. Formerly made of tarred hessian).

And so the latest inquest had concluded, but Mr. Blackwell still had to give his report to the Home Office: -

Mr. J. Kenyon Blackwell's report to the Home Office

Having examined the Duffryn New Colliery, in conformity to my duties as inspector, I have stated that I have no doubt of the correctness of the evidence already given, with regard to the origin and immediate cause of the explosion. With reference to this accident, I beg to offer the following remarks:—

This colliery has recently commenced working. It is to the depth of, and at a distance from, all the other collieries in the Aberdare Valley. It is sunk to a seam of coal which is well known to be very fiery, and in which many very serious explosions have taken place. Fire-damp exists in coal seams, apparently not in combination with the coal, but in a state of condensation in their fissures, and also in the fissures of the other measures in contiguity with them to which it has been able to penetrate, from the coal and carbonaceous strata which are its original sources.

The degree of pressure under which fire-damp exists is often very considerable, and is found to augment with the depth of the seam, provided no channels have existed for its escape, either by percolation through the strata above, by faults, or by workings in the seam. When coal seams thus highly charged with this gas are newly opened, sudden and large discharges (in addition to the constant exudation from the

pores and cleavage planes of the coal) frequently take place, on penetrating the larger and more extensive fissures which exist in it, or from the rupture of the roof or floor, either from super incumbent weight, or the pressure of the condensed gas contained in the strata which form them.

The indications of such a state of pressure on the fire-damp of coal mines are always evident to experienced miners, and I have elsewhere stated that in such cases, the exclusive use of the Davy lamp in mines in this state is the only effectual safeguard. But a large and perfect ventilation is also necessary in such seams, since the Davy lamp itself is liable to accident, especially if long exposed to an explosive atmosphere. In the Duffryn New Colliery the seam of coal worked is evidently in the condition described – viz; highly charged with fire-damp, in a state of condensation; naked lights were used in it, and this explosion appears to have taken place from a sudden discharge from the roof of the seam, and in one of the stalls, at the period of the first weight or rupture of the strata, from working, which came on in the pit. Though I recommend the exclusive use of the Davy lamp in such a colliery as that under consideration, an efficient ventilation is also a most important requisite to safety; and, in my opinion, if it had existed, it would probably have prevented the accident which has occurred.

It appears to me that the means taken to produce a circulation of air in the pit, by the placing of a fire grate in the upcast shaft, were not adequate. The entire disproportion between the area of the shafts and of the air channels in the pit ought to be remarked. The following facts also compel me to conclude that the ventilation in the pit must have been very weak: -

It was confined to a single column which was compelled to force its way in one current successively through a great number of small and insecure air passages. From the inefficient nature of the motive-power (the fire grate or lamp) applied to produce a circulation, there could be little air moved; while, from the character of the air channels in the pit, it would be liable to return, by leakage, back to the upcast shaft, without traversing the whole of the pit; and there must have also existed much

impediment to its motion, by friction, from the smallness of the area of the air passages.

It is also to be remarked that it was liable to immediate and complete stoppage by falls, which were likely to take place throughout a large extent of the single and insecure air passage to which it was confined. The great number of doors required to preserve in operation the system of ventilation adopted in this pit ought to be observed, as they rendered it extremely insecure, and so great a number was unnecessary, if the circulation had been properly arranged.

I, therefore, conclude that if a more efficient ventilation had existed in this pit than what appears to have been the case under the system adopted, it is probable that this accident would not have occurred. Looking at the plan of the colliery now before me, I am compelled to say that the works in progress are defective in their arrangement, and that a better contrived and more complete formation of air channels, to insure a larger circulation of air, ought to have been effected, before the workings of the coal had been commenced. Even in the works as now carried out a better and safer ventilation would have been obtained by dividing the air into three columns or currents - viz; one for the east level, one for the west, and one for the north cross-heading.

And further, by adopting regulators at the exit, into the return air way, instead of doors in the wagon road, as less liable to accident, to determine the amount of air in each current. For the future and extensive workings of the colliery, however, better arranged and more secure return air ways, possessing areas more proportional to the downcast and upcast shafts, than those now in progress, would be required; for, unless these be provided neither the number of shafts, nor their magnitude, nor the amount of motive-power in furnaces, steam-jets, or other means, will produce efficient ventilation.

I have elsewhere pointed out the principles on which the proportions which ought to exist in these parts of mines may be calculated. It is important that these proportions should be observed, both in the area of the shafts and in the air passages of a mine. It does not appear to be

generally known, that when the furnace is applied as the ventilating power, an upcast shaft of a disproportionately large area to the column of air required, is an evil, from the extra amount of fuel it requires to keep up the necessary difference in temperature (and that of weight in the columns of air) in the upcast and downcast shafts.

There is one other observation which I wish to make, on the experience derived from this explosion, showing the necessity for two shafts in all collieries, with means of ready ingress and egress for the men in all cases by the downcast shaft, and the danger which exists from the brattice in shafts, as the means of dividing the ingoing and outgoing air. I have elsewhere stated that such shafts ought not to be used, and when they cannot be avoided, no naked lights ought to be allowed to go below the surface in them.

In conclusion, I would observe, that I think the present accident arose from the imperfect system of ventilation and lighting adopted in this colliery, and not from culpable negligence on the part of any individual. I also beg to thank the coroner and gentlemen of the jury for their courtesy to me on this present occasion.

J. Kenyon Blackwell, Aberdare, December 29th 1850

The late dreadful colliery explosions — An impudent quack

The '*Cardiff & Merthyr Guardian*' of 21st Dec. 1850 reported: - We beg to caution the public against one of the most audacious and insolent impostors it has ever been our lot to fall in with. He is going about the houses of the victims of the late colliery accidents, and professing to cure them by the inhalation of the gases of a lamp which he applies to their persons. He assumes great authority, and states that he has been sent down by the Government to cure them, which he will do in twenty minutes.

In several instances he has thrown the clothes off the patients, torn their plasters off, and dragged them out of bed, while the poor sufferers were in such a dangerous state that the smallest amount of exertion or

excitement might have proved fatal to them. In one instance he obstructed the medical attendant in the execution of his duty, and used the most blasphemous and abuse language towards him.

We hope the magistrates will keep him in view. We would suggest that he should be committed as a rogue and vagabond. The police have a description of his person and are watching him.

Colliery accidents

The '*Morning Chronicle*', of Thursday, December 26th 1850, summed up the 1850 explosions in the following way: - The appearance, during the last few months of several colliery explosions – attended with loss of human life, the disablement of survivors, and the entailment of present and lasting distress upon the families who have suddenly been bereft of a husband, father, or a brother – recalls our attention to the subject on which we have more than once dwelt, and to which we return with pain.

On the present occasion we forbear in alluding to the present explosion which recently happened in certain collieries in the North of England, further than to say that the frequency of those calamities in that great coalfield, where it is generally understood the economy of the pits is as perfect as it is anywhere, sufficiently demonstrates the inefficiency of the precautionary measures in use, and shows that nothing short of a parliamentary revision will secure that protection of human life the perilous occupation of a miner demands, and which it is the duty of society to provide.

It is but a few days ago that two explosions, both resulting in loss of life, occurred in Glamorganshire. One of these happened in the Morfa Pit, belonging to Messrs. Vivian, the copper-smelters at Swansea; and on that occasion two men were killed, and thirty more were severely injured. The other took place, the same day, at the New Duffryn Colliery, Aberdare; and there, as our informant states, "three were actually killed, thirteen were severely burnt, and several of the wounded were so much injured that they are not expected to survive."

The collieries in the valley of Aberdare have, of late years, acquired a painful notoriety in the wholesale sacrifice of the lives of the hardy men who, a hundred fathoms deep, in dark, and sulphurous chambers, excavate the minerals, and raise them to the surface. Scarcely a season passes without the occurrence of at least one extensive explosion within this limited area of four miles.

It is just eleven months since our Special Correspondent for Wales, in the course of his inquiries into the existing strike of colliers, paid a visit to the locality of the late accident. Not many weeks previously, an awful explosion in a neighbouring coal-pit had swept away 52 human beings, appalling the hearts of the bravest of their fellow-workmen, and carrying permanent desolation to many a hearth. Some idea of the destitution and suffering occasioned by that accident may be formed from the statistical details which our Correspondent gathered with reference to that calamity. We transcribe his statements: -

“In this small valley, within five years past, there have been killed no fewer than 100 persons by explosions of fire-damp, not to mention the numerous deaths by the falling-in of the roof and walls of the pits. Unless one of the catastrophes includes a score or two of human beings it passes by the public. Many fatal explosions are never reported in the papers. In the year 1845 an explosion happened in which 25 lives were lost; and again, at the close of last summer a second tremendous explosion occurred here, at the Letty Shenkin Colliery, by which 52 human beings were hurried into eternity.

It is right that the public should know that, within five weeks of the last mentioned accident, two more explosions occurred in the same pit, by which some miners were burnt. This was kept as private as possible. I made some inquiries into the distress occasioned by the Letty Shenkin explosion, and I found that there were remaining in the parish of the families belonging to the miners killed, 19 widows – of whom four were left with five children each, others with four, and three widows with two young orphan children. All these were left wholly unprovided for; and I was informed nothing whatever was done by the proprietor of the pit for the assistance of the widows or the children.”

Such are the fruits of a system where all is left to the superintendence of the owners of collieries, and to the precautions of the workmen. With regard to the latter, it well-known that a long familiarity with danger is a habit which, if does not actually beget a careless confidence, extinguishes fear; indeed, men cannot for ever be vigilant and on their guard – yet a moment's forgetfulness, or the mere lifting of a candle to the head, may occasion death to hundreds.

In South Wales, the use of the Davy lamp is not common, excepting for examining the workings before the men enter in the mornings; and the temptation to set it aside – so miserable is the light it gives – and to employ a naked candle in the worse than Egyptian darkness where the men work, is so great, when they wish to make the most of their time, as to be often irresistible.

If, on the other hand, we scrutinise the conduct of the colliery proprietors, we find, no doubt, that some are more conscientious in providing for the safety of their workmen than others; but, speaking of them as a class, it cannot be denied that a jealous regard for their pecuniary interests too frequently takes the precedence of a just and benevolent solicitude for the security of human life. We find explosion after explosion taking place in the same pits, year after year; and these accidents do not diminish if, indeed, they do not increase in number.

The value of a practical proposal, suggested by a common-sense view of what is needed at a colliery when an explosion has occurred, or when an injury has happened to the lifting machinery, was never more strongly exemplified than in the case of a deficiency which was pointed out in the communication of our special correspondent, written from the scene of the calamity in the Lletty Shenkin Pit.

He suggests that there “should always be at command a horse-gin or a capstan for manual power, which may be resorted to in the event of injury to the machinery, or the temporary stoppage of a ventilator (where such is employed) from accident or for repair.”

He showed that, if such a provision had been made, an explosion that had just taken place in Eskern Colliery (owing for a want of means to work a ventilator where the usual motive power was accidentally deranged) would have been prevented. It now clearly appears that, if this suggestion – simple and inexpensive as the instrument is – had been adopted at the Gellygair Pit, where the late accident occurred, assistance would have been rendered to those below much earlier than was found practical under the existing arrangement. The published account of the recent explosion (at the New Duffryn Colliery) contains the following statement: -

“The only person at the mouth of the pit at the time of the accident was the engineer. Thinking, most rashly, that he could lift the carriage at the bottom with all the super incumbent weight of the shattered and fallen bratticing upon it, in a pit 167 yards deep, he set the engine at work, and the natural consequence was, the engine was broken and totally disabled, thus cutting off from the poor men below the best hope they had of being extricated. The only remedy now was to send a bucket down the pumping pit. This bucket took nearly one hour to go down; such was the character of the only machinery at hand such was the reckless folly of the engineer. It was after midnight before the last man (a cooper) was got up. Two more are missing, but they will probably be found today. They are supposed to be lying under a portion of the road which has fallen in.”

We need hardly say, had an auxiliary motive power, such as our correspondent suggested, been at hand, a delay of five minutes would have been the most that could have intervened between the breaking down of the engine and the placing of the capstan in gear; and, under such circumstances, men might have descended into the very pit where their companions lay buried, and perhaps have saved their lives; whereas, as the case stood, they were compelled to descend another, and probably a distant pit, after an interval of at least an hour and a half, during which the sufferers remained unassisted. This, however, is but one of many instances in which insufficient means are provided by the masters for the protection of human life. The employment of unsteady and careless superintendents – too often arising from parsimonious

considerations – is another evil to be complained of. The superintendent infrequently himself a workman, who receives small extra pay for his peculiar office. Experience has afforded appalled proofs that both of the parties engaged in coal-mining – the masters and the men – are to blame; the one for not providing an efficient ventilation, together with the best means of escape when an accident occurs – and the other for using naked candles where the Davy lamp alone should be employed. The question arises, therefore, how is this state of things to be remedied?

We believe that the end can only be obtained by Parliamentary interference. We fully appreciate the objection commonly urged against State interposition in matters of trade and commerce, and there cannot be a doubt that the latter should be encouraged in self-reliance rather than encumbered by Legislative regulations. But the utter insufficiency of the existing provisions and safeguards for the security of life must strike every observer, and, indeed, the necessity for State interference has been publicly admitted by the appointment of Government officers for the inspection of mines. But what has hitherto been done for the correction of the evil has proved altogether inadequate to the exigencies of the case.

An accident occurs; a Government Commissioner hurries down to the spot; an inquiry is instituted, and evidence is taken – but it all results in nothing, for when do we hear of a prosecution being ordered, or a conviction obtained? Matters resume their old course, and, perhaps within six months, a second explosion takes place in the same pit – of which, as it injures or destroys only a few, the public are uninformed.

In the present advanced state of science (we say it advisably, without forgetting the difficulties that are to be overcome), there is no excuse for the insufficient ventilation of our coal-pits – which occasions nine-tenths of the casualties that prove so destructive of human life, besides producing a deplorable amount of destitution and suffering. All that is necessary for the purification of a coalmine is the free movement, at a given velocity, of a current of air along a continuous passage, with an outlet. This, with the admirable inventions of Brunton, Struve, or

Gurney, is always attainable; and the force of the current can be increased at pleasure, when the pressure of the superincumbent air is lessened (indicated in a fall in the barometer), and when the tenacity of the inflammable gas is thereby augmented so as to occasion danger of an explosion – or whenever there is, from the opening of new inlets for it, a greater flow of gas than usual in the pit.

Another class of accidents – namely, the breaking of the rope or chain, and the drawing of the cage over the pulley (and the annual total of deaths from these causes is not inconsiderable) – may always be rendered harmless by one of Foudrinier’s ingenious apparatus. It has often been tested, and, we believe, has never failed; yet there are extremely few collieries where it has been adopted. We earnestly hope that new consideration will be given to the facts to which we have now set forth. We will only add, in conclusion, that it is the bounden duty of the State to take every possible care of the gallant men through whose nerve and sinew, skill and courage, that mineral is raised upon which reposes the substantial prosperity of this kingdom – and who are content, not merely to face a momentary danger, but to work for many hours daily in continual peril, for a pittance of 12 shilling a week, and with an average duration of life extending only to the age of forty.

The Middle Duffryn Colliery (A short history)

The Middle Duffryn colliery, sunk in the 1840s by Thomas Powell, lay beside the canal, midway between Aberdare and Mountain Ash. This was one of the earlier collieries to work the steam coal seams in this area. There were two shafts No.1 & No.2 each 167 yards deep. Later No. 1 was deepened to the Gellideg seam at 293 yards. The ventilation shaft was divided throughout its depth by brattice cloth secured to a timber frame, thereby allowing both an upcast and a downcast airflow. A disaster here occurred on the 12th December 1850 when a roof fall brought down a pocket of gas, which was ignited by the naked flame of a candle. The resulting explosion killed 8 miners outright, including one man on the surface, who was killed when the force of the blast smashed the staging at the pit top on which he was standing. Five others later

died of their injuries. Just 18 months later on 15th May 1852, another explosion claimed the lives of 55 men and boys. Nine other were killed when attempting to escape via the pumping shaft, after a wooden platform on which they had gathered collapsed falling to the pit bottom. Later, 1864, it came under the ownership of the Powell, Duffryn Steam Coal Company. This mine ceased production in the late 1880s. From the inspector of mines list for 1896, it was kept for pumping and ventilation only.

List of those killed	Seven of the five of the below died later
Edward Beard, 22.	Henry Jenkins
William Saunders, aged 12.	William Meredith
William Jones, aged 17.	Thomas Meredith
David Thomas, aged 23.	George Meredith
James Morgan, aged, 20.	Richard Tingle
James Burgam, aged 24.	Peter Price
William Davies, aged 17.	James Williams
Matthew Tingle, aged 35.	

THE WYRFA (Werfa) COLLIERY, SEPTEMBER 4th 1851 FOURTEEN LIVES SACRIFICED

Another serious accident occurred on Thursday morning, September 4th 1851 at the Wyrfa Colliery, Aberdare, where it appeared that the chain on the cage by which eleven men were being lowered down the shaft in the balance pit suddenly broke, and these men, who had left their homes in health and strength, plus three who were ascending, were in a moment sent down the shaft 66 yards and hurried into eternity. The accident occurred at 7 a.m. and news quickly spread through the neighbourhood where it was quickly learned and passed to the waiting crowd that all the men were dead, killed instantly. The *'Cardiff & Merthyr Guardian'* of September 13th 1851 reported:-

Fearful accident near Aberdare

By a most calamitous occurrence 14 lives were sacrificed on the morning of Thursday week, at the Wyrfa Colliery, Abernant, in the immediate neighbourhood of Aberdare; and although a protracted inquiry has taken place before Mr. George Overton, Esq; coroner, the circumstances which occasioned the accident are still undiscovered. It seems to have been one of those fatal events which ordinary foresight could not guard against and which human ingenuity could not avert.

The Wyrfa Colliery is worked by Messrs. John Nixon, James Evans, Thomas Edward Heath, and David Williams – the former being the managing director. It was commenced in 1846, and its condition is fully described by Mr. Nixon in his evidence, who added: - "It was fitted up in the safest way possible – and he would be bound to say there is not another balance-pit in the district which is fitted up so well." We know very little of the fitting up of other works; but it appears that the proprietors of the Wyrfa Colliery had taken the precaution of having their chains, bars, bolts, &Co. made of the most approved materials. For example, the four rods which hold the bucket in the "cross" were made of No. 3 iron, whose toughness was tested before it was used, yet, strange to relate, "they snapped like carrots," in the thread of the screws, although the weights suspended by them was comparatively

trifling and unimportant. Upon looking over the evidence of Mr. Nixon we find that he has entered so fully into details and given such a complete description of the pit and its machinery that very little is left for us to add. From a rough drawing of the works (which was kindly furnished to us) we perceived that a height of several feet above the level of the top of the pit a “spring-beam” crosses it and rests on each side upon masonry.

About the centre of this “spring beam” there is a sheave through which the winding or sheave chain traverses – the ends of the chain being attached to massive iron “crosses” - that is, castings in form resembling the letter X – and from each “cross” there is a huge bucket suspended by very strong iron bars.

The ends of those bars pass through the extremities of the “crosses” and are kept in their position by screws and nuts in the usual way. Without the assistance of a woodcut we fear it would be impossible to convey to the general reader an accurate idea of the machinery; and we shall, therefore, merely observe that various means were adopted for the purpose of facilitating the passage of the buckets, the speed being registered by a lever which acts upon the sheave and is worked by a “breaksman”.

As will be seen from the evidence of the local manager, the accident occurred soon after seven in the morning; and although there was no explosion, the whole neighbourhood quickly heard of the lamentable catastrophe. In reply to a question from the pit’s mouth the mournful answer heard from below was – “They are all dead!” Fourteen individuals were instantly hurried into eternity without a moment’s notice!

The sad fate which had overtaken the poor fellows whose remains were then shattered at the bottom might have been the lot of those who were in safety at the surface, as a great many men were waiting to be lowered for the purpose of resuming their daily labour; and the danger from which they had providentially been delivered together with the awful suddenness of the fearful event for a moment paralyzed the energies of

all. But this state of inactivity lasted only a few seconds, for as soon as the men had collected their thoughts means were promptly taken to get up the bodies of their hapless companions. The following is a list of those who were killed: -

John Perkins, aged 36 years, unmarried; **David Humphrey**, 29, married, and had two children; **Thomas Humphrey**, 11; **Thomas Lewis**, 27, married, and had two children; **John Rogers**, 35, married, and had 1 child; **David Williams**, 20, unmarried; **Richard Humphrey**, 37, married; **William Jones**, 28, married; **Rhys Morgan**, 41, married, and had 5 children, the eldest being not more than 8 years of age; **David Watkins**, 27, unmarried; **Thomas Griffiths**, 17, unmarried; **David Lewis**, 22, unmarried; **William Cole**, 16, unmarried; **John Anthony**, 13. Of the foregoing, John Rogers, Rhys Morgan, and Thomas Griffiths, were in the ascending bucket.

A message sent to the Monmouthshire Merlin on that Thursday evening read: -

“A cloud of gloom hangs over our neighbourhood, for we have had the misfortune of a most lamentable and fatal occurrence involving the violent deaths of from twelve to sixteen colliers, who, in an instant of time, and without, perhaps, having the opportunity of evoking the mercy of God, were sent to their account. The nature of the calamity is briefly told. A number of men were in the act of descending the Werva Coal Pit when, melancholy to relate, the chain from which the stage depended, snapped asunder, precipitating the ill-fated colliers, about, it is said, 160 feet!

The alarm was immediately given, and the people connected with the works and others, immediately prepared for a descent to the fatal spot, where, alas death revelled in horrors! The crowds that rushed to the pit's mouth, many of them with countenances on which alarm and horror were depicted, and wringing their hands in the agony of apprehension, could with difficulty be kept back, so as to admit of a communication with the shaft.

Who that was present can ever forget the terrors of suspense during the preparations to reach those who lay below in crushed heaps? Perhaps life, fast ebbing, might, by succour, be stayed, and some poor fellows saved to wife, children, and parents. But how sad may ever be the impression on the minds of those who witnessed the bringing up to light the bodies of mangled men! What piercing screams, as if the last efforts of the struggling hearts of the hopelessly wretched!

Excuse this hasty scrawl, my feelings are utterly prostrated. May he whose ever-glorious precepts are fraught with charity, and to whom it is pleasing that we should visit the fatherless and widows in their affliction, raise up friends for those made desolate by this calamity! The corpses of the sufferers are being brought up.”

The inquest

The inquiry before the coroner commenced shortly before 11 a.m. on Tuesday, September 9th 1851. The jurors were: - Mr. George (foreman); William Hodges, John John, David Morgan, John Morgan, William Thomas, John Hancock, David Edwards, John Williams, John Davies, Evan Edmunds, and Lewis Rees. Opening the proceedings, Mr. Overton said that he was sorry to appear again before the jury on such a melancholy occasion, his presence in his official capacity having been rendered necessary by the occurrence of an awful accident – the violent death of 14 of their fellow creatures. He would not make any observations on the case, but simply state the course he intended pursuing, namely, he would first require evidence as to the ownership of the works, their management, and the machinery in use.

He should then enquire into the circumstances which attended the accident, and those which immediately proceeded it; and then proceed to endeavour to assert as to its cause. He had expected that he and the jury would have had the assistance of a government inspector, but it seemed that Mr. Blackwell, who, had hitherto discharged the duties of that office in an able and impartial manner, had resigned the position and that his successor had not been appointed. He repeated that he had hoped that they should have the assistance of some gentleman of

experience in those matters, as it would be a source of satisfaction to all, to have some impartial person present, whose scientific attainments might enable him to render them great assistance; but no functionary of that description had arrived, and he (the coroner) and jury would go in the best manner they could and endeavour to arrive at a correct result.

The evidence

Mr. John Nixon, examined: - "I reside principally at Cardiff. I am one of the proprietors of the Wyrfa Colliery, I have three partners, Mr. James Edwards, Mr. Thomas Edwards Heath, and Mr. David Williams. The pit was commenced in 1846. It has been in work, I think, about four years. It is worked by a water balance, the water being pumped up by a steam engine. The dimensions of the pit are 13 ft. broad by 20 ft. long. It is an oval pit.

The depth is about sixty-six yards, to the bottom of the sump. There is a division in the pit – one for the pumps and one for the winding apparatus. That division is 5 ft. - 6 in. from the Northern end, and it is for the purpose of pumping, which 5 ft. – 6 ins. is taken out of the 20 ft., and reduces the winding part to 14 ft. 6 ins. The pit is divided by a wooden brattice. There are two buckets used. They are each about 5 ft – 9 in. in diameter, and are round. We have three guide-rods to each bucket. They are made of wire-rope; but they are called "rods" on account of iron-rods having been originally used.

A round chain is used for suspending the buckets, which chain is an inch and seven-sixteenths in diameter, and made by Messrs. Brown Lenox & Co. It was proved before it left the manufacturer at a strain of 37 tons. I did not see it proved, but I have the manufacturers' certificate to that effect. The chains and buckets have been used since 1846; but we have had three sets of buckets-rods. The chain has never broken.

The first bucket-rods were smaller, and we replaced them with larger ones. The first $1\frac{1}{4}$ ins., the second $1\frac{3}{4}$ ins. which were put in April, 1848. In September, 1848, we put in two new rods, and repaired the others. That was done in consequence of an accident.

In April, 1849, four new screws and four new shoulders were put to the buckets. The shoulders connect the buckets with the screws, and the screws are fastened to the cross-roads at the top, which sustain the bucket. There are forty-five yards of walling in the pit, twenty yards being at the top. There is some fireclay in the pit, and that portion is also protected by walling. I have examined the pit carefully; there are no projections in it.

The accident happened 15 yards from the top. There is ample room in the pit. The brattice is quite smooth. The guide-rods keep the buckets from touching. When the buckets are descending by their own gravity, the least thing will keep them in their proper places. If a man were to jump into a bucket when it starts I do not think it would thereby leave an impetus which would cause it to oscillate in its descent. There is a balance of two chains of 1 inch diameter each, attached to the under part of each bucket. The superintendence and management of the colliery is entirely entrusted to Matthew Mills, subject to my directions. He has been with us since we commenced. He overlooks the machinery, and he has full authority to correct anything that he finds wrong. David Charles is the breaksman.

The Gadlys Iron Company made the cross-beam. When the pit ran wild the crosses broke, and we had new ones made – stronger than the former beams. Those cross-beams were new at the time the rods were replaced. Whenever there is an accident the beams are surely broken. I know nothing of the accident, as I was not present. I was there about seven on Thursday evening, and was shown three of these screws belong to the uprights or bucket-rods, and a portion of the cross-beam.

I discovered that about half-past-seven in the morning 11 men and boys were descending in one of the buckets, and that there were three persons coming up on the opposite side in the other bucket. When the bucket from the top arrived, at about 15 yards down, there was an accident – something broke or gave way – either the cross-line beam or one of the bucket-rods, I fancy the latter. The consequence was that the whole of the 11 persons fell to the bottom, and were killed. The other three were killed either by the shock, or by the chain falling upon them;

they fell in, and with the ascending bucket. Three of the screws of the bucket-rods were found on the surface, and one in the bottom of the pit, on the contrary side from the bucket to which it belonged; and the question to be solved is – how did that fourth screw get down to the place in which it was found?

All the bucket-rods were broken just in the same place, the fracture having occurred about 10 inches from the end, in the screw where they passed through the cross-beam. All the nuts were on. Three of the arms of the cross were broken by coming in contact with the spring-beams at the surface. This I conclude, from the fact that three screws were found at the top, and the fourth being found below. The other arm was found at the bottom. The rods ought to bear 50 tons each, being $1\frac{3}{4}$ in. diameter. The pit was fitted up in the strongest way possible, and I will be bound to say there is not another balance-pit in the district which is fitted up so well. On examining the drum of the cross-beams from which the arms reach out, it was apparent that in the centre part where one arm was attached to the drum was a large air-hole, or flaw, in the casting; but this did not appear to have caused the accident as the screw of that arm was found on the surface, showing that the arm was broken by the collision of the cross-beam with the spring-beam at the top of the pit.”

Mr. Nixon said that the bucket which fell 15 yards was uninjured, although the chain fell upon it, thereby showing that it was made of good material. He believed the iron in the rods was the best; he had paid the highest price. The two 1 in. balance chains and the shieve-chain were totally uninjured. The quantity of coal worked at the pit is about 35,000 tons a year.

Matthew Mills, of Cwmbach, examined: - “I am a coal agent, and superintend the Wyrfa Colliery. I have been employed there from the

commencement. I have been used to collieries at Dowlais, but I was not agent there. My duties are to look over everything – both under-ground and outside – to examine the machinery and superintend the colliery. I

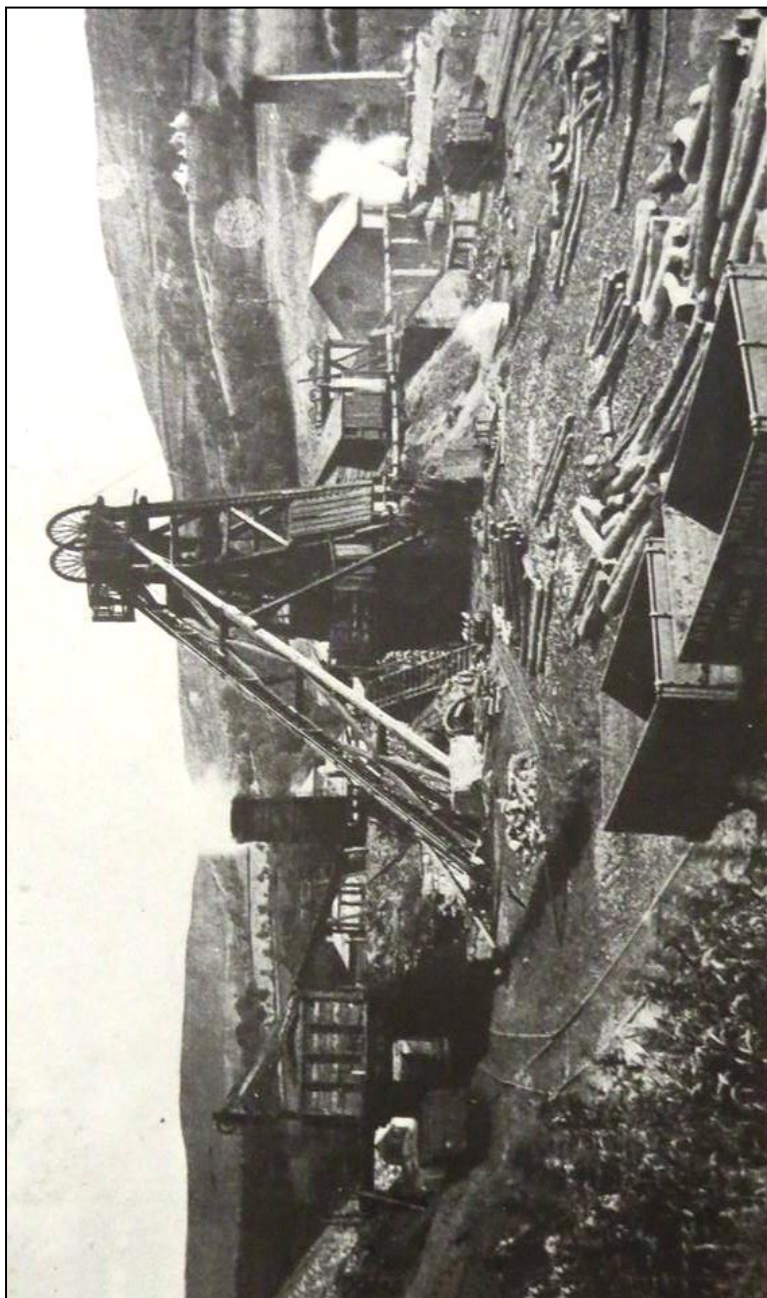
was at the colliery on the top of the pit on Thursday morning when the accident happened. I was there at 5 o'clock.

The accident happened at half-past-seven. I looked on as 50 or 60 men were let down. We have about 130 at work all together. One man had been let down before I got there in the morning. Sixteen trams of coal and four trams of rubbish were brought up after the men went down. A tram and its load of coal weigh a ton and a half. Only one tram was brought up at a time. Eight horses were sent down - one at a time. David Charles was the breaksman; and he has been breaksman nearly two years.

I said to them, "Do not push in that manner, or else, sometime or other, you will push one another down the pit." When the bucket went down they were not too many – the balance was rather light. I was not angry with them because their weight would be too much, but because they were rushing on so recklessly and would not go in an orderly way.

David Llewellyn, who I pulled back, would go down; and was killed. The breaksman generally asks if they are ready; but I do not know he did so on this occasion. The bucket went down very slowly as there was barely sufficient weight to balance it. I watched it for three yards, as I happened to be standing there. There were eleven persons in it, one of them was John Perkins, aged 56 years. (Witness here illuminated the various persons).

I then went from four to five yards back and I heard as if something was breaking. I turned my head back, and saw the chain by which the men were let down playing backwards and forwards, and the other chain made a stand for in an instant. The descending chain returned back then – the cross struck the spring-beams – the chain went up to the top of the sheaves – fell upon the spring-beam on the opposite side, which it broke, and then fell down into the pit. In two or three minutes I directed a man to call out to know if any of the descending men were alive, and the answer was that they were none – everyone had been killed – eleven who were descending in one bucket and the three who were ascending



The Werfa Colliery much later

in the other; two of the three, Rees Morgan and John Rogers, had been working all night. They were all killed upon the spot – dying instantly. We prepared a rope and a crab, wherewith to communicate with the pit.

About 11 o'clock that forenoon all the bodies had been brought up. We then proceeded to get the men up who were at work, about fifty or sixty, and when we got them all up before 2 o'clock. We afterwards found three pieces of the bucket-rods produced; and also the rods of two arms of the cross. On Friday I went down to the pit and saw the end of the fourth bucket-rod. The four rods had broken in the same place – in the screw – about nine inches from the top. The chain was all perfect at the bottom, fastened on one side to the bucket, on the other to the centre-piece of the cross.

The breaksman was at the break at the time when the bucket commenced to descend; and I saw him putting the break down. The bucket did not go down faster than usual – it did not go so fast as it usually went. Nothing had occurred to damage the chains or the rods. I think the accident was occasioned by the breaking of the rods, but that is only a surmise of mine. There was no weight whatever in the bucket except those eleven persons. Iron is more likely to break in the screw than anywhere else. The pit was fitted up very good in every respect.”

Thomas Evans, collier, examined: - “I was at Wyrfa Colliery when the accident happened. The pit was working when I went there. The lander was going to let men down and asked the hitcher if it was all right, and was answered in the affirmative. I left the carriage, as I was told there were too many in it. It then went down; and after descending about 15 yards, something broke and down it went. The lander was at the break at the time. I was at the edge of the pit at the time. I saw no-one jump in after the bucket commenced to descend. I was not at all apprehensive of any accident. I have worked in other balance-pits.”

Richard Clayton examined: - The witness is hitcher to the Wyrfa Colliery and resides at Cwmbach. He was at his post in the bottom of the pit at the time the accident occurred. He saw the buckets falling down. He heard a noise and stepped out of the way. Two of those who were going

up were in the sump and also one of the descending party; the others were in the bucket. Witness had been three or four months in his situation, but never heard of any accident to any of the machinery. The poor fellows were all killed on the spot. There was plenty of balance in the bucket, and it started properly – going up at the usual rate. When he found the carriages at the bottom, the chain was over part of one, and the guide ropes lying across both, partly broken.

John Evans, pit carpenter, for the Dowlais Company, examined: - “I have had about thirty years’ experience in collieries. It was I who put this pit up. I surveyed it on Monday. My opinion is that one of the bucket-rods must have been broken – perhaps a week ago and in the cross, and so have occasioned the accident. The cross was not broken in the pit, but by coming into violent collision with the top. If the descending bucket had gone down a little further, the weight of the cross, sided by the break, might have totally arrested the ascending bucket. I did not perceive any crack or flaw in either of the bucket rods. It is a very common occurrence for rods to break, and they generally go about the screw part - near the cross. A sudden jar might occasion a fracture.

I have seen a $\frac{3}{4}$ inch bar hold 35 tons, but the bars are much stronger being $1\frac{3}{4}$ inch, and quite strong enough for any working purpose, as they are beyond the usual size and fitted up well. They are amply strong enough. They were not worn much, but are in good working condition. The iron of which they are made is very good. I think that it is possible that the carriages could have struck against the sides of the pit. There are three guide wire-ropes to each bucket. Wire-ropes are not so good in deep pits as rods; but for a pit of 66 yards they will do quite as well. I cannot account for the accident further than this - that one of the bucket rods must have given way and caused the others to break also. Ten men could not have pushed the bucket against the side.

John Snelling, of Merthyr, examined: - “I am a smith. I made those rods, and I am in the habit of making rods of this kind. I have heard what Mr. Nixon said of the time at which the rods were made, and it agrees with my time. I cannot see anything of any flaw in those screws to make any account of it; but there is a slight appearance of a flaw in one, which

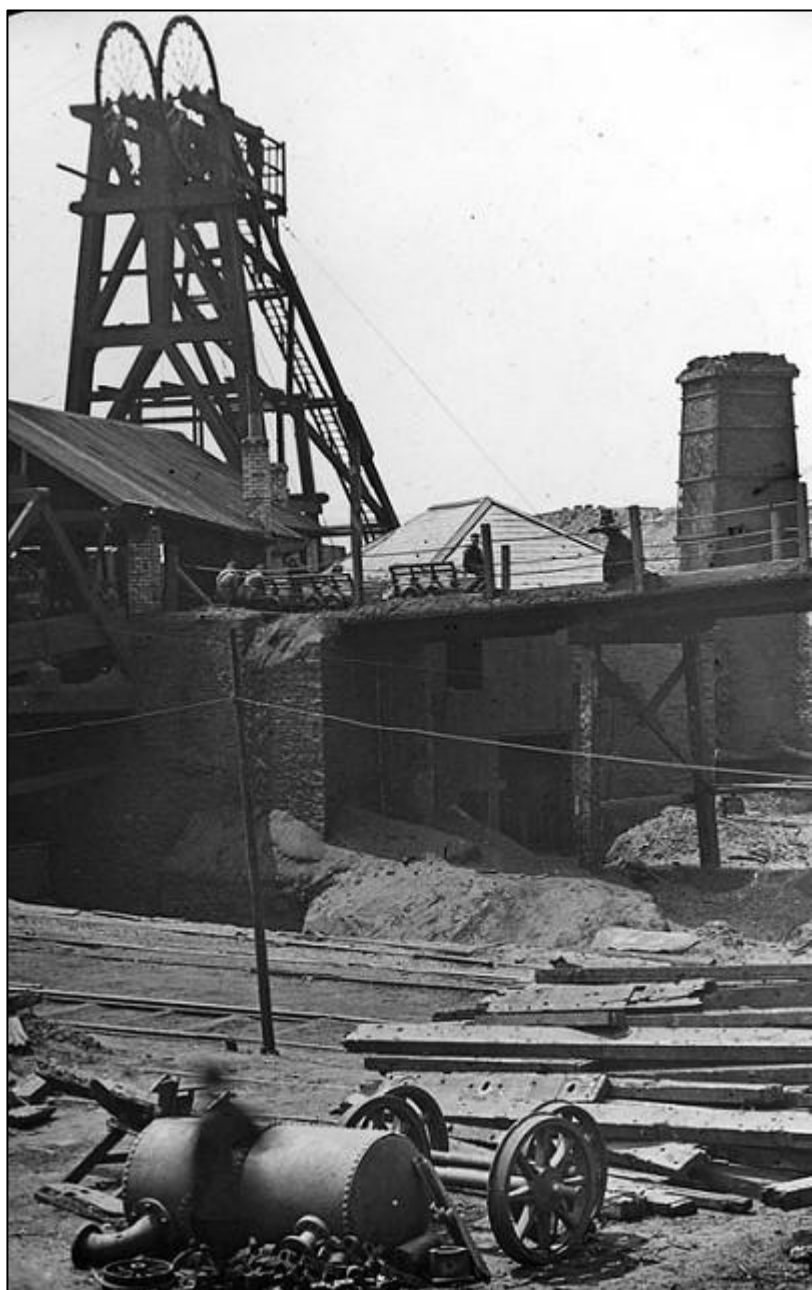
appearance I think, was caused recently by a blow. The iron is No. 3, and the very best quality made at Mr. Antony Hill's Plymouth forge.

I cannot account for iron breaking short off in this way without a jar; but when iron breaks in a screw it always breaks across - following the thread of the screw; but if there be no screw, it rips along and does not break short off. These bars are made larger than the size generally used, namely, $1\frac{1}{2}$ inch, these are $1\frac{3}{4}$ inch; and rods used before they were fixed were only $1\frac{1}{4}$ inch. I cannot conjecture how the accident could have occurred. Rods often break; but generally in the screw, and through some jar. A sudden jerk may do it. We proved the bar-iron before it was worked. We bent it double when it was cold, to prove it was capable of doing work. If one of the rods had broken, it is difficult to think how the other three could have broken without a second jar."

Throughout the proceedings – which were carried on at snail's pace – reference was made to the rods, crosses, &Co., and attempts were made to ascertain whether any flaw existed; but up to five o'clock nothing was discovered which could throw any light on the matter. At the hour named a juror declared that he was not satisfied, and wished to have further evidence. Mr. Overton said that several of the men were present, and might be examined. P. S. Parsons, who had been most assiduous in completing all preliminary matters, said that all the men nearly gave the same account of the occurrence.

The Coroner sums up

The Coroner then proceeded to sum up to the jury. He observed that it was not necessary to detain them longer, by any additional evidence; as all that could be obtained, in explanation of the lamentable occurrence, had been delivered. He was sorry, however, that the inquiry had not terminated differently - that the cause of the sad accident was wrapped in complete mystery. It had no doubt happened either from the breaking of the cross, or of the upright rods of the bucket carriage; and the greatest probability was, that the latter must have been the case. But how rods of such strength and magnitude could have so suddenly



Undated photograph of the Werfa Colliery

snapped asunder, and each at about the same place, was still unaccounted for. They were told that the iron was of the very best texture; and how it could have been broken, without external application of force, such as a sudden blow, a jarring against another substance, or what was termed a “surge,” none of which causes had been noticed, was most inexplicable.

Mr. Evans, a practical man, had intimated, however, the possibility of a flaw or weakness in one of the rods, previous to the accident; and that a slight alteration of the equilibrium might have occurred when the bucket was started on its descent, which suddenly increased that flaw, snapped the rod, and at the same moment broke the remaining rods.

That was the only shadow of information they had on the important point. While, then, they had done their utmost, ineffectually, to discover the cause of the accident, they had now to see if there was a want of proper care and good management, on the part of those who had the control of the work; and also whether the proprietors had employed competent persons to manage the colliery, for a responsibility on this head, certainly rested upon the owners.

There had been recent instances where this fact had been strikingly illustrated; and but a few days since, near Bristol, where several lives were lost, in consequence of the sudden breaking of a rope.

It was manifest that the rope was not sufficiently good for its purposes; whereupon the jury had very properly pronounced, that the managers were guilty of gross carelessness and neglect, and had also returned a verdict of manslaughter against them. In this decision, the jury had acted perfectly right, and in strict accordance with the law.

In regard to the management of the *Werfa Colliery*, however, no such carelessness was made apparent. The materials used, were described by competent witnesses, as being of the very best quality; the men placed as managers appeared to be trustworthy, and to have performed their duties correctly, so that if no cause could be found for the occurrence of the accident, neither could there be any blame attributable to the



Werfa Colliers c.1903

materials used, in the pit, nor to the parties managing the works. However seriously then, the jury might deplore the sad catastrophe, by which fourteen souls were instantly hurried into eternity, they had no evidence before them, the coroner considered, which would enable them to trace it to any negligence or want of better materials in the machinery.

At the same time, while they might now find their verdict, it should be in reference to the death of one man only; so that the inquest might be adjourned to Monday next, to afford time for the visit of the government inspector - should one be sent. And if it were necessary to summon the jury again on that day, consequent on the inspector's visit, they would be duly apprised thereof.

The verdict

The Coroner then thanked the jury for the patience and attention manifested by them in this long and important inquiry, and directed the room to be cleared, that a verdict might be considered. On our return into the room, in about ten minutes, we found that the jury had returned the following verdict: -

"Accidental death, caused by the breaking of the iron rod which connect the cross and the bucket; but the jury cannot separate, without expressing their disapproval of the present system of allowing men to go down to their work in the same way as they get up the materials."

The jury also recommended that drifts (or side roadways from the surface) should be made in this and all similar workings, so as to enable the colliers to get to their work without danger.

In respect to the recommendation of the jury, Mr. Nixon said he would most cheerfully adopt that system, if he could obtain ground for making a drift. The proceedings then terminated, having occupied from half-past ten in the forenoon, until seven in the evening. The unfortunate men were buried on Saturday last, on which solemn occasion, all the colliers of the neighbourhood were permitted by Mr. Powell and other

proprietors to attend. We understand the interments were conducted wholly at the expense of the Werfa Colliery proprietors.

There is however, no benefit club attached to the Colliery, that the widows and children of men thus suddenly cut off from existence, might receive some temporary assistance in their hour of need but Mr. Nixon has frequently impressed the necessity for forming such a society to the attention of the workmen; and we trust the late fearful calamity will cause the survivors to carry his kind suggestions into effect. The '*Monmouthshire Merlin*' like several others of the time made the following appeal: -

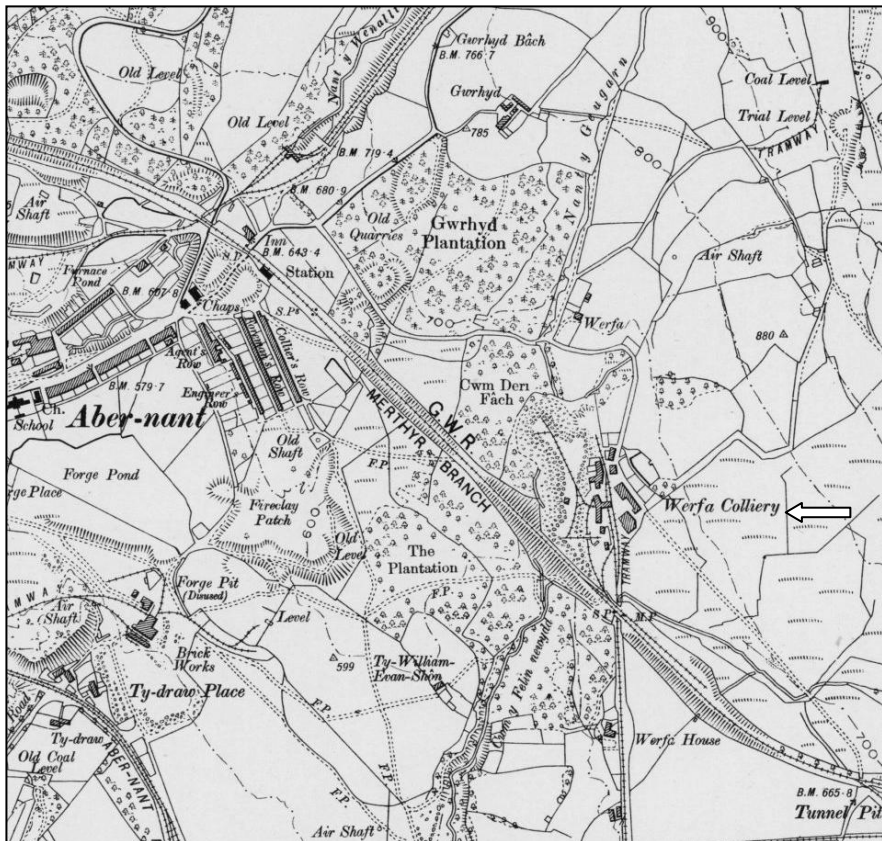
The Aberdare catastrophe

Our first duty, with relation to this dreadful calamity, is to lay before the public generally, the wants of the bereaved widows and orphans of the poor fellows who have thus been hurried out of the world. Some benevolent spirits, as usual, have been prompt in the blessed work of charity; but they need extended aid and co-operation.

These appeals, we know, are frequently being made we and wish their frequency were less necessary. But the wants and sufferings of those who are left on each occasion, are as great as if no such event had ever occurred before and we cannot doubt that the liberality which has been put forth on former occasions, will again be manifest.

The unfortunate deceased were of that class who, at continual risk, minister to our comfort, our wealth, and our greatness who labour for the benefit, not only of their employers, but of this district, and of the nation. They have died in and through the performance of those labours by their death, their widows and children are left in destitution and the community which they have helped to enrich should, and doubtless will, give help to the bereaved.

List of those killed			
Name	Age	Name	Age
John Perkins	36	William Jones	28
David Humphrey	29	Rees Morgan	41
Thomas Humphrey	11	David Watkins	27
Thomas Lewis	27	Thomas Griffiths	17
John Rogers	35	David Lewis	22
David Williams	20	William Cole	16
Richard Humphrey	37	John Anthony	13



Location of the Werfa Colliery on the 1874 O.S. Map

MIDDLE DUFFRYN COLLIERY, MONDAY, MAY 10th 1852 SIXTY-FOUR LIVES LOST

The Middle Duffryn Colliery situated between the original (or old) Duffryn or Cwmpennar Colliery at Cwmbach, and the Lower Duffryn Colliery at Mountain Ash, was sunk in 1843 by Thomas Powell. A disaster occurred here on Monday, May 10th, 1852, which claimed the lives of 64 (there might have been a few more or less, depending on different newspaper reports) men and boys. This was one of the earliest collieries to work the steam coal seams in the district. There were two shafts, No. 1 and No. 2, each 167 yards deep. The ventilation shaft was divided throughout its depth by brattice cloth secured to a timber frame, thereby allowing both an upcast and downcast air flow. Fifty-five were killed in an explosion and a further nine died while attempting to escape via the winding shaft, after a wooden platform on which they were gathered collapsed and fell to the pit bottom. This is the full story: -

Frightful loss of life at Middle Duffryn Colliery.

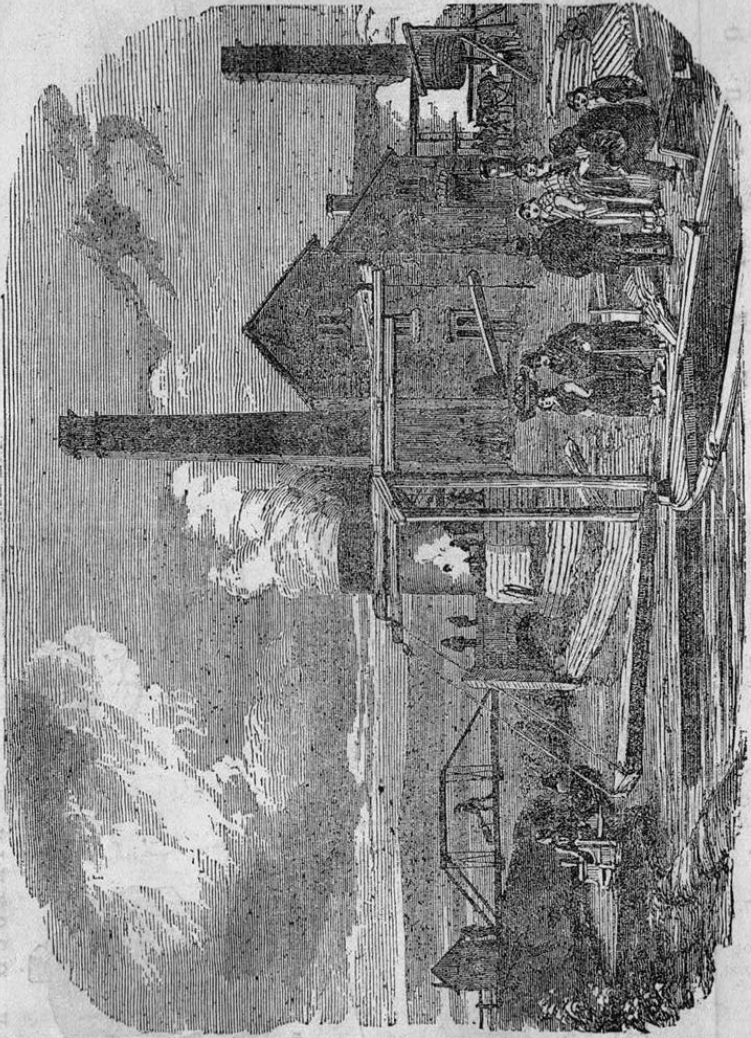
Intelligence of this dreadful event reached our office on Monday night (wrote the *'Monmouthshire Merlin'*) and on proceeding to the spot next morning our reporter immediately put himself in communication with the agents at the Colliery, from whom he received every attention, and the fullest information that could be obtained upon all matters in connection with the lamentable catastrophe. The Middle Duffryn pit and works are situated in the Aberdare valley, at the foot of the wood-crowned Duffryn mountain, almost directly opposite the residence of Crawshay Bailey, Esq., M.P., and the iron furnaces of that gentleman, at Aberaman. The Colliery thus lies on the right hand side of the valley, about two miles up from the Mountain Ash station on the Taff Vale Railway, adjoining the canal, and distant from Aberdare about two miles. The cottages in which the workmen principally resided, are adjacent to the Lletty Shenkin Colliery; and this quiet and picturesque locality was on Monday night converted into a sad and terrible "place of mourning." We have stated that every information was readily afforded; indeed, after Messrs. Williams and Shipley, the intelligent and experienced agents, and Mr. Daniel, the clerk, had replied to all questions put to them, our

reporter was solicited to make enquiries of the colliers who were then at the pit's mouth, some of whom were called in; and their answers were also freely and unreservedly given.

It appears that on Sunday, Mr. Shipley, agent, and Evan Beddoe, fireman, with others, were below ground, attending to various works, in respect to new headings, &c.; and that on Sunday evening, the pit was left, apparently free from gas. Next morning, two firemen went in at four o'clock, attended to the furnace fire, made a thorough examination, and found all right; after which, they returned, and acted in accordance with the following rule of the works : - The firemen to examine the whole of the working places, and the main returns every morning, and afterwards return to the lamp room for the purpose of supplying lamps to the workmen, and giving them necessary instructions until they have all proceeded "in-bye;" and no workman shall, on any account, proceed to the in-bye side of the lamp room, before the firemen have returned to that place, and reported the workings safe."

Evan Beddoe, one of the firemen, whom we saw at his own house, suffering slightly from burns, stated that he was one of those firemen, and added "I saw nothing like gas anywhere, nor anything dangerous - no, not a cause to fear anywhere." Everything being thus reported quite safe, the colliers and boys, at about half-past six o'clock, began to descend in lots of eight; and ninety-two human beings, with several horses, were all busily engaged at eight o'clock in their subterranean occupations. There were, at this time, several naked candles burning in parts of the working; but this, we understood, was usual, and permitted, under the following regulation: - *"No person is allowed, under any pretext whatever, to work without a safety lamp, in any place where there is the least appearance of fire-damp; and the firemen are hereby authorised to compel any person to leave the mine immediately, who persists in using a naked light, after having been ordered to use a safety lamp; and such person shall not be allowed to resume work again without orders from the manager."*

Between seven and eight o'clock, Beddoe, the fireman, discovered indications of a fall in the deep heading, that is, some of the stuff



THE ABERDARE COLLIERY.—GENERAL VIEW OF THE WORKS.

Scene at the pithead at the time of the 1852 Middle Duffryn Colliery disaster as taken from a newspaper print.

apparently becoming loose and disengaged in the roof of the heading. He at once apprised Mr. Shipley of this circumstance, who proceeded to examine the spot with naked candles, the fireman having previously pronounced it free from gas. Mr. Shipley directed four men to be sent for, who were to erect a ceiling of timber to prevent the anticipated fall and preparations for this work were soon after commenced. At this time, the ventilation of the pit was very strong; indeed, one of the colliers informed us that he was obliged to shelter his candle in a lantern, to prevent its being blown out by the current of air.

There were then from twenty-eight thousand to thirty thousand cubic feet of pure atmospheric air, driven into the works per minute this being accomplished by two modes, the ventilating furnace, at the bottom of the descending or winding shaft, which forces the air through the works in a particular direction, and the steam jet, which works at the top of the upcast shaft, drawing out all the foul air which the atmospheric current has displaced.

The ventilation goes on night and day continuously. There was, then, not the slightest apprehension of danger, or of the frightful calamity which presently afterwards ensued. The men who were directed to board up the apprehended fall, proceeded about the work, just previously to nine o'clock, and all was going forward in the accustomed manner. Suddenly, a loud booming roar, and an upflying cloud at the pit's mouth, told the terrified men on the surface, that an explosion of fire-damp had taken place.

Horror and consternation deprived those who heard and saw those frightful indications of the appalling event which had occurred, of all power to speak or move for many seconds, till Mr. Shipley, the agent, bidding some men follow him, proceeded down the ladders of the descending shaft, as fast as possible, to render assistance in bringing those who might have escaped the deadly effects of the fire-blast, to the surface. Some men were hurrying up the ladder, having been near the pit's mouth when the explosion took place, and able to escape. Shipley carried on but on coming to the place of the bottom ladder, which was about 20 yards long, he found that it had broken away. Laying hold of a

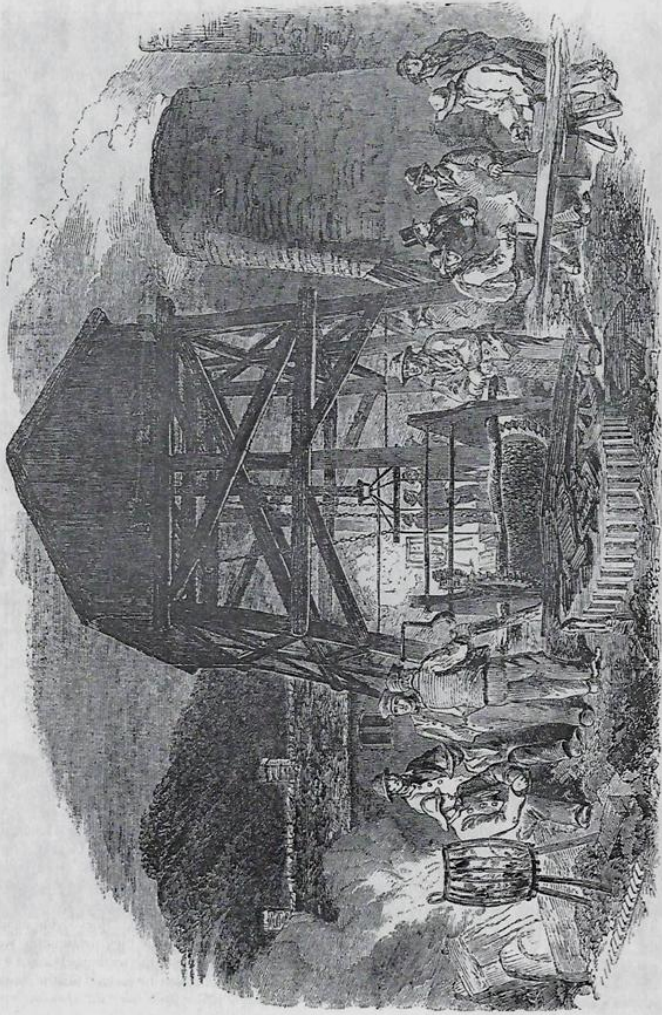
swinging rope, he slid to the bottom by it, and there found three or four dead men. They were the party he had sent to repair the heading; and it was probable that before they could arrive at that place, the fall had occurred, either by a "blower," or explosion of fire-damp, or from some other cause, and had dislodged the gas which might have been pent up there; and then, these poor fellows rushing back, fled to their only means of escape, the ladder which being broken, as above stated, they were killed by the fall.

Mr. Shipley and his assistants proceeded into the levels, so far as the after-damp, or choke-damp, permitted. They first met some poor fellows staggering along, half suffocated, and almost insensible. These were helped out. Stumbling over one or two dead bodies in their way, they returned, and renewed an air-door, which had been blown away by the explosion. After that, they proceeded to the deep heading end, and found one man alive. Him they rescued then they came upon more of the dead. This was all on the east side of the working, where the explosion was supposed to have occurred. They next met four men staggering along, like people inebriated, having imbibed some of the terrible choke-damp, and others being slightly burnt. All the men in the west side escaped easily: and those who were injured were quickly removed to the surface, twenty-eight men and youths being saved, out of the ninety-two.

Beddoe, the fireman, stated that when he found the fall had taken place in the deep heading, he "met the gas" himself, rushing along the levels. He cried out to his partner to run one way, while he ran the other, to give warning, and take precautionary measures and he says that, knowing the danger if the gas reached the flue, or furnace, he saw that he could perhaps avoid the explosion, if he had time to rush forward, and close the air-doorway. But at that moment, he heard the explosion. He was then about eighty yards from the bottom of the shaft. The force of the explosion struck him down. He arose in a short time, and lost himself for a bit, then he heard voices, recovered his consciousness and ran before the choke-damp, with other men whom he found at the bottom of the downcast, to the pumping pit, where the fresh wind was rushing down, and he and his companions were saved.

Returning to Shipley and his brave companions, we find them pursuing their way amidst all the horrors of the place, and ultimately, at about one hundred yards from the winding shaft, stumbling over a large heap of dead bodies. These poor fellows had, it may be supposed, rushed towards the shaft, on hearing the explosion, but being met by the fatal "choke damp" on their way, the foremost perhaps fell, and then those who followed, fell also, until the accumulating pile of dead men stopped all further progress. The bodies were conveyed to the surface and the men still went on, presently coming to a second heap of the dead. These, too, had no doubt, staggered along, till, obstructed by the fall of one of their companions, all fell likewise, and perished on the ground. The last groans, the last prayers, the farewells, uttered for those who, at home, were at that moment unconscious of their sons', their husbands', or their brothers' fearful doom, - alas! None can tell how agonizing were these.

Harrowing as even the general details of this calamity must be, there were incidents connected therewith which give to it additional painfulness. Among those who were killed were a father and his two boys. Happy youths on the Sabbath day before then proceeding cheerfully on the first day of labour, to toil anew with their father, for the maintenance of their mother, at home, and themselves. They were but children - ten and eleven years of age. Among the ghastly heap of the dead, poor Morris, the father, was found, clasping his boys, one under each arm, to his sides; and there they were, cold and stark and dead. God only knows the dreadful apprehension, the strong affection, the despair, of that poor father, when, endeavouring to snatch his children from the 'Destroyer,' he rushed along the dark level, with the hope of life and parental affection impelling him onwards. But their companions had fallen; the path was choked up and escape impossible; and the terrible after-damp quickly executed its work. Near them, also, were two fine youths, who were the only support of their mother; and she was a widow. Imagination may portray the utter desolation of her home on that Monday night. Some lay clasping each other - perhaps in their blind and bewildered moments of death, grasping, as drowning men will do, at their companions, and falling down lifeless together.



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**Scene at the Pithead at the time of the 1852
Middle Duffryn Colliery disaster**

But the spectacle exhibited at the pit's mouth surpassed all others. There were aged mothers, awaiting with frightful suspense, to clasp the bodies of their darling sons – wives, staring wildly over each other's shoulders to catch the first glimpse of their husbands' countenances – sisters, looking with speechless apprehension for brothers; and young maidens, fearing that among each fresh lot of human corpses brought up, they might recognize those whom they had loved. Language would fail to depict this harrowing spectacle in its true colours.

Humanity is always prominent, in the hour of danger and distress among the Welsh colliers and it was well displayed on this occasion, for the moment the intelligence spread throughout the district that an explosion had taken place at the Middle Duffryn a large number colliers and others ran to the scene of disaster, from all the works in the locality. Indeed, we were informed that more than a thousand had gathered together in a few hours afterwards, all anxious to render some service, and administering rough but timely consolation to the suffering widows and mothers they saw around them.

The first bodies were brought up at about eleven o'clock, and the whole sixty-four were up soon after six. Two men who had been very severely burnt, expired after they had been taken to their homes. All the bodies were conveyed from the pit at once to the lodgings or houses which had been their place of abode, on being handed over to the friends who were present to receive them. Three horses were killed by the after-damp. They were brought up on Tuesday evening. There were fifteen persons burnt by the explosion, but escaped the after-damp; although two, as we stated above, died from the effects of the injuries received.

The intelligence was conveyed to Mr. Powell, at the Gaer, near this town, by special messenger; and Mr. Oakley, manager for Mr. Powell, and Mr. Watson, the engineer, at once proceeded to the spot, where Mr Oakley rendered every assistance to the unfortunate families that had been thus suddenly deprived of their protectors, and gave the necessary instructions for the interment of the dead. Twenty-four men were at once put to work to prepare coffins; and those colliers who were injured by burns, were promptly attended by Mr. Davies, of Aberdare, the

surgeon of the works. That gentleman, on an examination of the dead, declared it as his opinion that not a single death had been occasioned by burning, except the two which occurred after the sufferers had been brought from the pit. We understand that the explosion did not occasion so much damage to the works, as the great loss of life might lead one to expect. It may be correctly inferred from this fact, that the deaths were rather the result of the "choke," or "after-damp," than "fire-damp."

A mineral surveyor of considerable eminence (Mr. Llewellyn, of Pontypool) inspected the colliery on behalf of J. B. Price, Esp., the landlord, only on the previous Thursday; and we have seen a letter from him, written to Mr. Powell, in which he expressed himself as quite satisfied and pleased with the manner in which the colliery was managed, especially in respect to the ventilation. Mr. Llewellyn will be called upon, without doubt, to give evidence on this point, at the inquest.

It will be consolatory to the friends of the deceased, and especially to Mr. Powell, the proprietor, that the lamentable casualty was one of those against which, apparently, human forethought and experienced ingenuity could devise no more effectual means than were adopted and that, consequently, no blame is attachable to any person or persons as to its cause. Several other explosions have occurred in the locality. The explosion of fire-damp at Lletty Shenkin, where the same highly-gaseous seam of coal is worked, and which happened about four years ago, occasioned the deaths of fifty-two in the pits, and two on the surface.

The proper notice of the explosion was despatched to the Home Government, shortly after its occurrence, by H. A. Bruce, Esq., magistrate, and it was fortunately the case that Mr. J. Mackworth, Esq., government inspector, was at Cardiff when the intelligence reached that place. He at once proceeded to the spot, and made a minute examination of the plans of the workings, and instituted inquiries, which will be carried to a greater extent, when the works are sufficiently cleared below to permit examination. All this will doubtlessly occupy about a week from the time of the accident, during which time the colliers will suspend work.

On Tuesday, Mr. Overton, of Merthyr, the coroner, visited the spot, and summoned his jury, who made personal observations at the colliery, and viewed the bodies; and their further inquiry was then adjourned to Wednesday next. he following is the list of the sufferers: -

Leaving widows and children

Edward Davies, age 34, 5 children.

Evan Evans, Junior, 28, 1 child.

Richard Smith, 38, 3 children.

Samuel Rees, 37, 1 child.

Ebenezer Morris, 32, 4 children

Thomas Pritchard, 36, 4 children.

James Jones, 37, 4 children.

Charles Thomas, 45, 4 children.

Rees Hopkins, 50, 1 child.

David Jones, 38, 2 children.

Jenkin Aubrey, 28, 1 child.

Lewis Jones, 42, 4 children.

David Lewis, 32, 2 children.

Owen Evans, 56, 3 children.

Thomas Williams, 28, 4 children.

Daniel Dear, 26, 2 children.

John Rees, 36, 1 child.

Thomas Williams, 30, 4 children.

David Jenkins, 38, 5 children.

David James, 26, 3 children.

Charles White, 35, leaving a widow and three children, had never worked in a pit before the morning of the calamity, and had begged off from another engagement in order to enter upon his work in this colliery, where he had not been employed more than an hour.

William Andrews, 29, leaving a widow, and, it is believed, some children, but, being a stranger, their number is not known. **Richard Jonathan**, 43, wife.

Widowers leaving children: -

David Rees, 52, 2 children.

Richard Richards, 35, 2 children.

Rosser Thomas, 32, 1 child.

Single men and boys: -

David Davis, 14.

Richard Smith, 17.

David Morris, 9.

John Morris, 10.

William Jones, 12.

Daniel Matthews, 18.

Owen Jenkins, 27.

William Lewis, 33.

John Hopkins, 15.

Jenkin Rosser, 22.

John Thomas, 12.

William Ashton, 22.

Edmund Phillips, 16.

Richard Evans, 11.

William Richards, 16.

John Richards, 12.

James Griffith, 20.

Thomas Rees, 13.

John Jenkins, 12.

Evan Thomas, 19.

David Thomas, 17.

Charles Thomas, 11.

Andrew Davis, 26.

Rowland Rowlands, 43.

William Jones, 16.

John Jones, 14.

William Samuel, 16.

John Griffith, 21.

Levi Harris, 27.

Thomas Richards, 20.

William Marks, 15.

Charles Marks, 11.

The father of the last two (Marks) boys was killed by an explosion in the Letty Shenkin Pit, in December last. **David John**, 11, and **Thomas Morgan**, 23, were brought out alive, but died the following day. Six of the bodies were discovered disfigured by the fire, the others, it would seem, were suffocated by the after-damp. It is a singular fact that so recently as Wednesday morning, in going down the pit, and to the end of the main level heading, one of the horses was found quite well and uninjured and there is but little doubt, had the unfortunate men and boys remained where they were at work, for half an hour or an hour, instead of rushing out into the danger, where they fell over each other and were suffocated by the choke or after-damp that nearly the whole of them might have survived. We understand that Mr. Powell, being

overwhelmed with grief has not left his room since the occurrence of the above appalling catastrophe.

The inquest adjourned

An inquest commenced on Tuesday, May 11th 1852, before Mr. George Overton, the coroner of the district, but as it was necessary that the government inspector should be present, the jury, having been sworn, proceeded to view the bodies, and the inquest was adjourned until Wednesday week.

The effect of the gas upon the bodies was to render their immediate interment indispensable. Carpenters, to the number of twenty-five, were set to work at once, assisted by other men; and on Wednesday the whole of the bodies were conveyed to their last resting place; some to Aberdare, some to Neath, and some to Merthyr. It is due to Mr. Powell to say that prompt and liberal assistance was rendered to the families of the deceased in their hour of need, his agent having been instructed to make every provision for their wants. We also understand that, as in former cases, he will supply a weekly allowance to the bereaved families.

The accident is supposed to have been caused by what is technically called "a blower," being a sudden dislodgement of gas from some fissure, which, on its escape, had rushed towards the furnace already alluded to for causing a current of air in the pit, where it became ignited; or it may have met an open light before arriving there, and been fired by the lamp.

The explosion was not to any extent as great as may be supposed from the heavy loss of life, which was occasioned more by the coke-damp or after-damp than by the fire-damp. We understand that a mineral surveyor of considerable eminence inspected this colliery, on the behalf of the landlord, so recently as Thursday last, and was much pleased in the manner in which the colliery was managed, especially in respect to the ventilation.

It appears from the rules of the works that safety lamps are employed in any places where there is the least appearance of fire-damp, and very

stringent orders were given on the point. From the statement of the under-ground agent it appeared that the air passages had been measured by the usual process a short time before the explosion, when it was found that from 25,000 to 30,000 cubic feet of air per minute, divided into three parts, was circulating through the pit, which was considered a proper quantity, quite equal to the requirements of the case. At the time of writing this account, Thursday afternoon, the damage, with the exception of about 19 yards of partition, had been repaired, and when the whole shall have been completed the working will be resumed.

The Colliery explosion at Aberdare – Loss of 63 lives

The '*Daily News*' of Thursday, May 13th 1852 also carried a report of the explosion, but added more detail: - Another frightful page has been added to the dismal history of mining accidents by an explosion of fire-damp which occurred at the Middle Duffryn Colliery, in the valley of Aberdare, about six miles from Merthyr Tydfil, and on Monday morning last, when no less than 67 men and boys perished in the full vigour of life and strength, while 21 others were rescued with difficulty from a similar fate by the energetic exertions of their brave fellow-workmen.

The pit, which has been the scene of this melancholy event, is one opened at a comparatively recent date for the supply of steam coal, for which this valley is celebrated, to foreign vessels loaded in the Cardiff Docks, and, from the present great demand for this article in every part of the world. Relays of men were kept at work night and day, a circumstance which, in the opinion of some competent judges, greatly added to the danger by exposing large surfaces of the coal faster than the current of air at a depth of 190 yards could carry it off.

The proprietor, Thomas Powell., of Gaer, who is extensively engaged in the coal trade, has other extensive works, known as the Upper Duffryn and Lower Duffryn, in the immediate vicinity, besides others in various parts of Glamorganshire and Monmouthshire. The time of the sad occurrence was 9 o'clock, at which time the men engaged in landing at the pit's mouth were alarmed by the sound of an explosion in a distant

part of the workings, which was followed in three or four minutes by another, which was louder, and evidently nearer, and broke the timbers erected for the support of the winding apparatus, but fortunately without bringing them down; a third weaker one followed, and was succeeded by the stillness of death.

The sound of those harbingers of destruction was, however, too well known in that neighbourhood, and speedily the shaft was surrounded by hundreds of men, women, and children, excited by alternate hope and fear, for the fate of relatives – but in the majority of instances doomed to find the gloomiest anticipations realized by the result of the search which was speedily undertaken by the agents, aided by men from the works adjacent.

It was deemed prudent, from the state of the shaft, only to work one carriage, and the work was thus carried on slowly, and frequently impeded by the operations necessary to force fresh air below, the brattices having been blown away, and a portion of the roof of one of the levels having fallen in; thus impeding the ventilation, and causing the greater portion of the melancholy loss of life on the occasion by the formation of the fatal choke-damp.

Several of the men from the distant workings made their way to the bottom of the shaft, while others who could not get to the better air so speedily, or had been disabled by the explosion, fell and were suffocated by the deadly choke-damp which invariably follows such explosions. Some of the scenes presented when the dead were brought up were of a highly painful nature, especially in one instance, where a poor woman saw her husband and three sons brought up lifeless, leaving her desolate in the world.

In another case, a father and two boys were brought up, but in such a general calamity, individual bereavements passed almost unheeded, while the characteristic recklessness of the colliers speedily got the better of the sensations which the sweeping nature of the catastrophe was calculated to excite, and long ere their melancholy task was done they appeared to regard it as one of almost an everyday character.

By nightfall it was announced as the opinion of the most experienced agents that there were no more bodies below, and in making up the mournful memoranda kept by the police during the day, it was found that 25 had been brought to the surface of the ground living, but in very perilous state, some of them having been much burned, others having fractured limbs, and others insensible from the effects of foul air.

The number of dead bodies brought up amounted to 63, very few of whom had been burnt. Some had been much bruised and mangled by the explosion, but by far the greater number had perished by suffocation, after having got to some distance from the heading at which they had been at work.

Three horses were got out alive; three others were dead, and one was missing, supposed to have been buried under a fall of the roof. As all those had perished who could give any account of the cause of the dreadful occurrence, it is to be feared that it must remain in mystery.

It was a rule of the work, rigidly enforced on pain of instant dismissal, that no man should be allowed to work by any other light than a Davy lamp; but in spite of this men were known frequently to carry candles concealed about their persons into the pit. There were no old workings, ventilation was considered good, but some experienced men are of the opinion that there should have been an upcast pit for additional ventilation. On Monday morning, the barometer fell very considerably, and it is worthy of remark that many of the very fatal explosions in coal works have been accompanied by similar indications of a change in the amount of atmospheric pressure.

The valley of Aberdare has had its full share of these calamities, for some seven years back 29 men were killed by an explosion in the Upper Duffryn Pit. Three years since no less than 53 men and boys were killed in the Lletty Shenkin Colliery; and 15 months ago 8 men were killed in the pit which has been the scene of the catastrophe of Monday last. Eleven men were also killed by the breaking of a chain in the Werfa Colliery, nearly adjacent, about ten months since.

The number now killed, however, exceeds anything of the kind ever experienced in South Wales before; and, as mining operations in this district are now carried forward on a gigantic scale, it is to be hoped that some measures will be adopted to prevent a similar sacrifice of human life in future.

Among those early on the spot were Mr. George Overton, Esq., coroner of the district; the Rev. Mr. Griffiths, Vicar of the parish, who laboured incessantly and energetically in attendance of the wounded throughout the day; Mr. Dawes, surgeon to the works, and the Superintendents and Sergeants of the police from Merthyr and Newbridge, as well as Aberdare.

The proprietors, agents, and workmen from all the numerous iron and coal works in the valley, evinced every readiness to give assistance, while the immediate agents of the work went down the pit and shared the dangers of the men engaged in the work of saving lives and recovering the bodies of the dead.

Disgraceful conduct

The '*Welshman*' of May 14th 1852 reported: - On Monday evening, while a policeman was engaged at the Middle Duffryn Colliery, Aberdare, in keeping the mouth of the pit clear of the crowd, three or four drunken ruffians set upon him, hurled him to the ground, and beat him severely. Superintendents Thomas and Wrenn were in the neighbourhood and on witnessing the commotion ran forward to ascertain the cause. Upon reaching the spot they saw the prostrate condition of the policeman, and quickly extricated him. They also took one of the principal offenders into custody, and conveyed him to Aberdare station; but on their way they were followed by a mob who pelted them with stones, one of which struck Superintendent Thomas on his head, and inflicted a severe cut. It was useless to make further attempts to take either of the cowardly miscreants into custody, as darkness was getting in, and the officers in an encounter would have had fearful odds against them. The occurrence, however, is most disgraceful, and shows the brutal state of degradation

to which intoxication will reduce men who, but for its baneful influence, would be orderly and well conducted.

The *'Cardiff and Merthyr Guardian'*, of Saturday, May 15th 1852, also reported the explosion, but also reflects on the life of a collier and that this was the second major disaster at the Duffryn Colliery: -

Sixty-three lives lost in the Aberdare valley by a colliery explosion

The Middle Duffryn Colliery, in the Aberdare valley, has once more been visited with a most afflicting and heartrending calamity, resulting in the awful loss of 63 lives! This distressing event occurred on Monday morning last, and has filled the whole neighbourhood with gloom and despondency, for it had been confidently hoped, from the means employed to avert catastrophes of this nature, that this colliery, at all events, would not again be the scene of human desolation; but those expectations have proved in vain, as the melancholy affair we are proceeding to describe is the most disastrous which ever took place in South Wales, and if the statements to us made may be relied upon, tends to show the hopelessness of ensuring the non-recurrence of similar accidents, or it is to confirm that measures have been taken, in the ventilation of the works, to make the air-courses, and the condition of the workmen as perfect as human ingenuity and skill could render them.

Evan Beddoe, fireman, who narrowly escaped with his life, gave us the following history of the explosion and the circumstances which preceded it. He said: - "I was in the pit the first thing in the morning, and I saw no signs of danger whatever. The air was as clear and pure in the workings as it is on the surface of the earth. I went down at 4 o'clock on Monday morning to see if all was safe. There was a little fall (that is, a portion of the roof had fallen) in the deep heading; and I went up to tell Master (Mr. Shipley, the manager of the pit) of it, so as to contrive something what was best to be done.

I saw no signs of foul air there at all. We contrived what timber was to be put down to support the place, and what men were to do it; and they were to take Davy lamps, lest there should be fire-damp there, all that

was done. When I went to the deep heading the second time, that is, between the hours of 8 and 9 on Monday morning, after putting up the timber, I met gas myself in the deep heading; it showed itself on my lamp, and so much of it as gave me to understand that something had fallen there since I had last been there. I had a lamp in my hand, and that gave signs of fire-damp being around me. I ran away instantly as soon as I saw the danger, to hinder anyone to bring naked lights there, and to give notice to the men.”

The man went on to say, in substance, that he also intended to have directed large volumes of atmospheric air into the district containing fire-damp, so to have diluted the latter and carried it off; but before he had time to carry his intentions into effect he heard an explosion. He was struck down by its force, lost his hat and his lamp and was much bruised. He was then about 80 yards from the bottom of the shaft. In a state of great mental confusion he instinctively jumped up and made the best of his way towards the shaft. He reached the bottom of the pumping-pit, where there was a little fresh air coming down, and thereby obtained the relief. He heard no cries of alarm; the choke-damp must have quickly dispatched its victims – in an instant hurrying men into eternity. Such is this man’s account. He was slightly burnt.

By reference to the *‘Cardiff & Merthyr Guardian’* of December 21st, 1850, we see the following description of the Middle Duffryn Colliery given before the coroner at Aberdare, by Mr. Thomas Williams, manager of the works: - “There are two shafts at the colliery – one shaft employed for pumping exclusively, and for winding, the pumping shaft being the up-cast, and the winding shaft the down-cast.

The sectional area of the pumping shaft is 9 feet by 13 feet, and about 168 yards in depth. The area of the winding shaft is about 13 feet 6 inches by 19 feet, and 165 yards deep. The pumps are in three lengths, and form one all the way. They are forcing pumps; that is, there are two forces; the bottom one is a drawing lift. I am afraid the seam of coal we are working at the Duffryn Colliery is a fiery seam. I consider it subject to give out blowers at the commencement of the workings.”

Since this evidence was given the underground workings have been much extended; but the dimensions of the pit remain the same, we presume. Mr. Powell has then given instructions “to employ the very best means for ventilation regardless of expense,” and we are told his wishes have been attended to – that the air-courses are clear and effective, and that a steam-jet was in operation as an auxiliary ventilating agent to a furnace.

With a view to further precautions, this pit was, since the accident in December, 1850, entrusted to Mr. Shipley, who, with his experience in the north of England and in Cwmavon, came into Mr. Powell’s service highly recommended as a sound practical man. This person assured us that all the directions usually given for the safe regulation of collieries were rigidly and invariably observed by him and the men immediately under his authority.

The cause of the accident is at present hidden in obscurity; and it is not very probable that it ever be clearly ascertained. It is generally attributed to a ‘blower’ – that is, to the sudden bursting or puffing out of large quantity of inflammable gas in the deep heading – the rupture, as it were, of an immense bag of gas which quickly spread through the workings, came in contact with a light, exploded, and led to the lamentable catastrophe that followed.

In this instance although the explosion was severe, but very few, comparatively, lost their lives by fire, - three only being seriously, but not fatally burnt; death was occasioned by the masses of choke-damp formed by the combustion of the carburetted - hydrogen, or fire-damp, and from which there were no chances of escape to those who were within its poisonous influence.

“Blowers” we are told, are not infrequent during barometrical changes, and as the occurrence of variations in the state of the atmosphere are made known means might be used to guard against the consequences of an eruption of foul air by keeping the men out of the colliery until it has been ascertained that they might prosecute their labours without incurring the fearful risk to which they would otherwise be exposed.

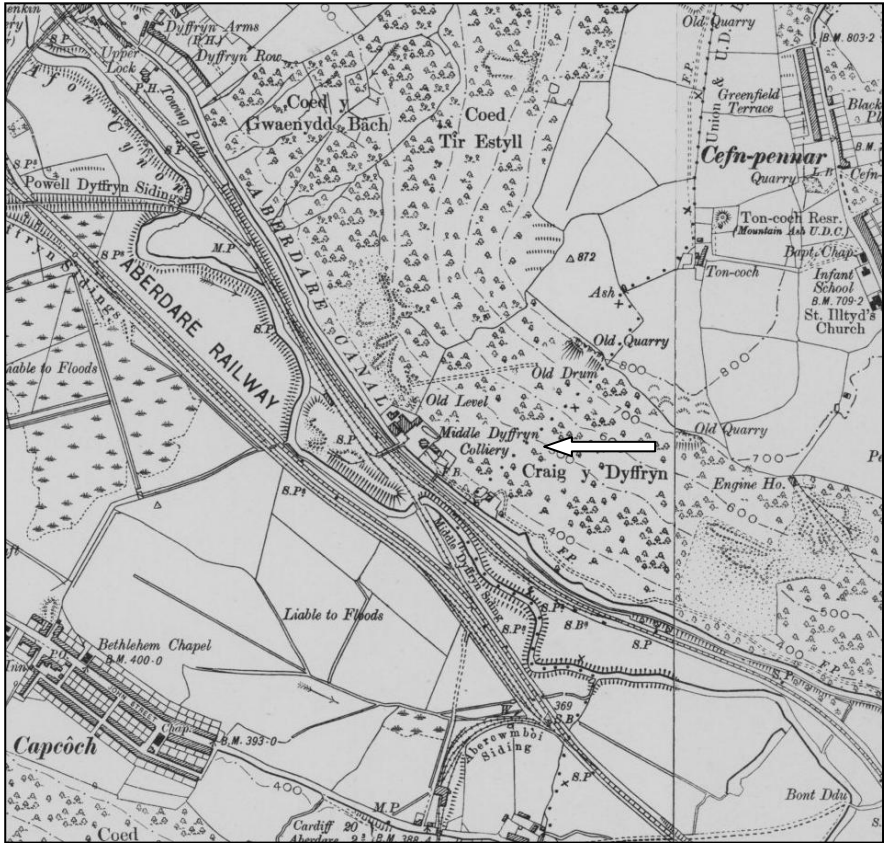
On Sunday last, it is notorious, there was a great change in the condition of the atmosphere; and it will be for the manager of this pit to show before the coroner that he took every necessary precaution to ascertain the state of all the workings before he permitted the men to enter on Monday. The evidence of firemen will scarcely be sufficient if uncorroborated; should the explosion have occurred in consequence of their neglect to make thorough examinations of the colliery, or to give timely warning of danger, it is not to be expected that they would proclaim their own culpable negligence, and, therefore, it is desirable that the most satisfactory proof should be adduced that adequate precautionary measures were taken.

In the management of this pit, especially, vigilance should not slumber for a moment; the men employed in carrying out details of the ventilating process should not only be told what to do, but some highly trustworthy official should see the work done. The great demand for the Duffryn coal has caused underground operations here to be prosecuted with extraordinary energy and untiring zeal.

Large quantities are constantly sent forth for being transmitted to Cardiff for shipment to various parts of the world where it is eagerly sought. Fresh surfaces of coal were thereby exposed in rapid succession, and the amount of gas exuded there from must have been proportionally vast.

All these things produced increased danger, and we trust the manager will be able to prove he used increased vigilance. From the statements made by various workmen we have no doubt it will be said that due care was invariably taken, and that the causes which led to the awful destruction of human life, and made so many home desolate, do not fall within the circumstances which human prudence, or ordinary intelligence, can guard against awful scenes.

We spoke to several colliers at different times during our stay at the pit's mouth, and they all concurred in the statement that the air in the pit, up to the accident, was quite free - one man said that it occasionally amounted to a gale, and could not fail to carry impurities away with it, as



1874 O.S. map showing the Middle Duffryn Colliery

it swept through all the ramifications of the works. This is an important point. It is comparatively easy to direct a strong current of air down one pit and up another; but the great object to be obtained is to carry a sufficient supply of fresh air through all the interstices (if we might use the term) of the colliery and to leave no blatant source of danger behind.

Another account

The *'Times'* newspaper May 14th 1852 in its editorial commenting on colliery disasters stated:- Our newspaper this morning carries an account of another awful colliery explosion in South Wales, nor is the more complete intelligence from Newport calculated to remove any of the painful feelings with which the first news of that colliery explosion had been received. The calamity has even exceeded anticipation. No fewer than 64 persons, for the most part in the prime of life, with wives and families dependent upon their exertions, have been hurried prematurely to the grave.

Twenty-eight men were brought up alive, and their escape appears to have been miraculous. It has been more than once our painful duty to comment upon mining accidents, and we have generally been able to fix the blame somewhere. Sometimes it was the perniciousness of the proprietor – sometimes the carelessness of his agents, which was found to be at fault. There is, however, another class of accidents, for which no blame is in fairness to imputed either to proprietor or agent.

The perilous vocation of the miner begets a familiarity with danger, and that familiarity in turn generates a contempt for the precautions which the progress of science has placed within the miner's reach. It is either to indulge in declamation against the spirit of indifference in the minds of men. We may call it foolhardiness – we may call it what we will, but there it exists – a reality with which we have to grapple as really as with the 'fire-damp' or its yet more fatal attendant the 'after-damp.'

The moral problem must be dealt with as well as the physical difficulty. It is in accordance with all we know of the laws of human mind that men who live in constant presence of danger which is indicated only by a

vague apprehension will in time forget its immanency, and act as though it had no existence. But condemn the poor miner who in the midst of his tedium and his darkness removes the safety screen from the Davy lamp. We are apt to say complacently, "his blood be upon his own head if he will not avail himself of the safeguards provided to his hand." Death, however, is a somewhat surer contingency to us all as fire-damp to the miner. Do we always act as if we were in constant presence of this certain termination to our most cherished projects?

It is well to recognize facts for what they are. In dealing with the case of colliery explosions, we should take into account amongst other considerations the exceeding difficulty, not to say the impossibility, of compelling all the workmen in a mine to keep the guard down upon their lamps. If 100 men are working in a pit, it is not sufficient that 99 men adhere to the rule. Nor will it avail of the single defaulter should excuse ordinary prudence for 364 days out of the year, nor for 24 hours out of the remaining day.

One momentary slip committed by a single individual may sweep a multitude of poor creatures to destruction, as in the melancholy case on which we are now engaged. We would not anticipate the revelations of the inquest, but from the intelligence we published today, it is difficult to suppose that this Aberdare tragedy is not rather due to the carelessness of a single miner than to any criminal neglect in a more responsible quarter.

At 4 o'clock on Monday morning, the day of the explosion, a very careful investigation appears to have taken place, and the mine was reported free from gas. A few hours afterwards another fireman was sent down. This scout discovered symptoms of an approaching fall in a certain section of the mine. When the intelligence was conveyed to the agent above, orders were immediately given to a party to descend and use the necessary means to prevent the anticipated fall.

This was about 7 o'clock, and two hours afterwards the agent, and some persons who were standing with him, heard the report which gave token of the terrible tragedy which had occurred below. Nothing could be

more energetic or praiseworthy than the conduct of Mr. Shipley appears to have been. He descended at once by the winding shaft, and passed some poor wretches who had just escaped from the terrors of the explosion. At the bottom of the shaft eight of the men who had been despatched to prop up the roof were found dead.

What followed appears to us to exceed in horror well-nigh any calamity of which a record has been preserved. As Mr. Shipley proceeded to grope his way he next encountered a few half-suffocated men who were staggering to the mouth of the pit, if it might be found. The next spectacle that met his eyes was a heap of dead bodies, the one piled upon the other, scarcely at a hundred yards' distance from the pit. To account for the mass of corpses congregated at this point it is suggested that some of those who were not instantly stricken down by the noxious vapour had rushed in a body toward the well-known point of egress.

The strength of one failed and he fell. The second fell upon the first, and so in succession. To fall once was to rise no more. The remaining strength of the poor fellows was not sufficient to enable them to clear themselves from the super incumbent mass. When a certain number had fallen the entrance was effectually choked up, and no hope remained for the miserable creatures behind, who were thus impounded as it were in the influence of the fatal gas by the bodies of their fellow-labourers.

A little further on – about fifty yards – Mr. Shipley and his companions came upon just such another pile as the first. The two together contained the bodies of about 46 men and children. We copy here a few lines from our report: - “A father and his two sons were found amongst one of the heaps of the dead. The poor man in his frantic eagerness and anxiety to save himself and his two sons had clutched one under each arm, and thus he sought to escape, but death seized them in the terrible entrance, and all three fell together clasped in each other's arms amongst the ghastly dead.”

Sixty-four persons have perished altogether, according to the list which has been forwarded to us. As may be supposed, the scenes that

occurred at the pit-mouth as the bodies were drawn up to the surface appear to have been of the most terrible description. The whole valley is covered by gloom. Even those of the population who are not connected by ties of blood or affection to the poor creatures who are gone feel that the same fate may await them tomorrow unless some more effectual precaution be devised.

Now, what is to be done in a case of this kind? The only point in the report that strikes us as affecting the management of the mine is that the coal which is excavated is described as being of a peculiarly gaseous quality. How far it is to work a mine of this description without most extraordinary precaution we will not venture to say, for it is a question only within the competence of practical men. We simply take the facts before us. Here is a history of one dreadful explosion – another occurred in the same place about 15 months ago.

Cargoes of this coal which had been placed on board ship at Cardiff have exploded frequently, and destroyed the vessels in which they were stored. The excavation of the coal in this pit appears to be attended with unusual danger. We will not say that the case occurs here, but it is easy enough to suppose cases in which it would be the duty of Government to interfere and absolutely prohibit the working of a mine until it be shown that extraordinary precautions have been taken commensurate with the extraordinary danger.

What remedy then, can be proposed as a check against this tendency of the miners to underrate the perils to which they are exposed – simply because they are exposed to them every day? Inspection and supervision have done what they could, and we see the result. Who is to look after the supervisors and inspectors? On the whole, is it not time to give ear to the suggestions of those who tell us that by a judicious system of ventilation the main perils connected with fire-damp may be materially reduced, if not prevented altogether?

In our impression of yesterday we printed a letter from Mr. Goldsworthy Gurney, who strenuously maintains this opinion. He numbers up the dead of the last fortnight in consequence of these colliery explosions.

Twenty-two men were killed in Durham; 10 near Wigan; and now this hecatomb in Wales – in all, upwards of 100 lives in the course of the fortnight.

This gentleman states: - “I give this as my opinion, from personal experience and communication with practical men. At the same time I will state that it is not in the power of any man, or any set of men, no matter what their qualifications, to grapple effectually with this subject; but it can be done by a combination of talent – a combination of the knowledge of the day properly brought together.” Surely, if this be so, no time should be lost in arriving – or, at least, in aiming - at so desirable a consummation.

The ghastly witnesses of this necessity are yet lying unburied in the Welsh valley. Hundreds and thousands of women and children who are now living in decent comfort under the protecting care of their husbands and their fathers may – nay, inevitably will – be reduced to the condition of widows and orphans if we delay all remedy. A least let the thing be tried. Here we have competent people coming forward to tell us that the thing can be accomplished; let us not turn a deaf ear to their remonstrations.

The inquest adjourned – The scene at the pit mouth

An inquest on the bodies of the sufferers was commenced at the Boot Inn, Aberdare, on Tuesday afternoon, May 11th, 1852, before Mr. George Overton, Esq; coroner, and the following jury: - Mr. John Lewis (foreman), Mr. Thomas (Letty Shenkin), David Davis, Daniel Davies, Matthew Mills, M. Morgan (Duffryn), M. Morgan (Abercwmboi), Richard Jenkins, Daniel Lewis, Nicholas Davis, Jacob Giles, John Roberts, Thomas Thomas, George Watts, David Williams, John Davis, David Griffiths, Nathaniel Jones and John Jones.

After the enquiry had formally been opened the inquest was adjourned to the Wednesday next, in order that the coroner may communicate with the Secretary of State (as now required by law), and that Mr. Mackworth, the Government Inspector of Mines, &Co., may have time to prepare his

report on the state of the colliery. He was at the place on Tuesday, and will in conjunction with Mr. Dobson, mineral surveyor to the Hon. R. H. Clive, make a survey of the works generally. The following gentlemen have promised to make a survey of the colliery and to report to the jury on Wednesday next: - Majors Nicholas Davies, William Thomas, David Williams, David Griffiths and Matthew Mills.

Further incidents of the tragedy

As will be imagined, uttermost distress prevails in the neighbourhood, and the scene at the pit's mouth immediately after the accident, and throughout Monday, was painful beyond description. There were nearly a hundred lives exposed to the explosion and its subsequent effects; and the wives, mothers, children, and other relatives of the poor creatures who were out of the reach of human aid, far in the deep caverns of the colliery, rent the air with their cries. It was an awful period.

As soon as the first moment of consternation had passed away prompt means were taken to afford succour to the parties underground. Mr. Shipley, with great intrepidity, instantly went down, and his example was followed by others. He was armed with a Davy lamp, and was frequently, with the men who accompanied him, obliged to retire after penetrating some distance into the works; but they proceeded with indomitable courage in the hope of saving lives. The sufferers were lying in two heaps – nearly all huddled together, and seemed to have been quickly overpowered by the 'last enemy,' for their countenances were placid and there was no indication of struggling.

The survivors were first attended to; and before 11 o'clock in the morning they were all conveyed to the surface. Two men who were taken up alive died subsequently. All the bodies were brought out before 6 o'clock in the evening. Three were burnt severely and several others slightly, as we have previously stated, the principal cause of death was 'choke-damp.' One of the survivors had a leg fractured and another an arm dislocated. Three horses were destroyed.

An effecting incident was made known to us respecting a poor fellow, named Ebenezer Morris. He was found quite dead with the lifeless bodies of his two sons in his arms, evidently having rushed to their rescue in the hope of saving them regardless of his own chance of escape if an incumbent, - parental affection being stronger than the love of life, and even at that dreadful moment absorbing every other feeling. The three formed a group worthy of being commemorated in marble and surely this heroic moving instance of parental love would afford an admirable subject for the sculpture.

Mr. Powell has undertaken to defray all the funeral expenses; and we have no doubt that he will, with characteristic kindness, minister to the wants of the widows and the fatherless. His intelligent and feeling agent, Mr. Okeley, reached the colliery on Monday evening, and remained there until Tuesday night, giving directions on various matters and affording assurances of relief to the families of the poor men who had suffered. The following is a list of the deceased: -

Edward Davies, 34, wife & 5 children.

Richard Smith, 38, Wife & 2 children.

David Davies, 14, single, son of above.

Richard Smith, 17, single, son of above.

Richard Jonathan, 43, wife.

David Rees, 52, 2 children.

Ebenezer Morris, 32, wife & 4 children

James Jones, 37, wife & 4 children.

David Morris, 10, son of above.

William Jones, 12, single, son of above.

John Morris, 11, Ditto

Daniel Matthews, 18, single.

Richard Richards, 55, 2 children.

Thomas Jenkin Rees, 29, wife.

Owen Jenkins, 27, single.

William Lewis, 23, single.

Rees Hopkins, 50, wife & 1 child.

John Hopkins, 15, son of above

William Marks, 15. Brother of below.

Charles Marks, 11, leaving mother & 3 children, whom they maintained.
Jenkin Rosser, 22, single.
John Thomas, 12.
Jenkin Aubrey, 28, wife & 1 child.
David Lewis, 32, wife & 2 children.
Thomas Williams, 28, wife & 4 children.
John Rees, 36, wife & 1 child.
William Ashton, 22, single.
David Jenkins, 36, wife & 5 children.
Edmund Phillips, 16, single.
Charles Davis, 46, wife.
Evan Evans, 47.
Samuel Rees, 37, wife & 1 child.
Evan Evans, 21, son of above.
Charles White, 35, wife & 3 children.
Richard Evans, 11, ditto
Thomas Pritchard, 36, wife & 4 children.
William Richards, 16, single.
John Richards, 12, single.
Thomas Rees, 23, wife.
Williams Andrews, 29, family unknown.
James Griffiths, 20, single.
Thomas Rees, 13, single.
John Jenkins, 12, single.
Thomas Evans, 41, wife.
Charles Thomas, 46, wife & 4 children
Henry Davies, 26, single.
Rosser Thomas, 32, 1 child.
David Thomas, 17, single, son of above.
Charles Thomas, 11, brother of above.
Rowland Rowlands, 43, single.
David Jones, 38, wife & 2 children.
Lewis Jones, 42, wife & 4 children.
William Jones, 16, single.
John Jones, 14, brother of above.
Owen Evans, 56, wife & 3 children.
Thomas Morgan, 23, single.

William Samuel, 16, single.
John Griffiths, 21, single.
Daniel Deer, 26, wife & 2 children.
David John, 11, single.
Levi Harris, 27, single.
Thomas Phillips, 30, wife & 4 children.
David James, 36, wife & 3 children.
Evan Thomas, 19.

Thus by this appalling calamity twenty-eight women have been made widows and sixty-eight children deprived of their natural supporters! The following are the survivors: -

John Jones, David Edwards, David Rowlands, William Leyshon, David Jones, John Edwards, David Evans, Morgan Rosser, David Griffiths, William Jones, Thomas Lewis, David Davies, Jenkin Griffiths, William Williams, Jenkin Thomas, John Morris, Evan Buddle, D. Davies & son, Jenkin Jones, Mike Barry, William Thomas, David Harris, David Lewis, John Thomas, David Williams, Rees Leyshon, Walter Price, and Thomas Morgan.

The report of Mr. Mackworth is anxiously looked for by the agents and the public generally; the former confidently anticipate that it will fully exonerate them from all blame. Since the above was in type we have ascertained that the explosion was not so great in extent as to be supposed from the fearful loss of life.

On the Thursday preceding the fatal occurrence, Mr. W. Llewelin, of Pontypool, mineral agent of Mr. Bruce Pryce, had been down in the pit, and reported the ventilation to be excellent, - and the colliers, up to the sad moment boasted of the abundance of air in the pit!! Mr. Llewelin is a surveyor of considerable eminence, and was much pleased in the manner the colliery was managed, especially in respect to the ventilation; this gentleman will give evidence at the inquest.

It must be consolatory to the friends of those who have suffered, as well as Mr. Powell, to know this – that the accident must have occurred from

some cause against which no ordinary care or precaution could prevail. The firemen and the manager, Mr. Shipley, went down (we remind our readers) on Monday morning before any of the workmen, and, they affirm, found everything safe and in perfect order, so that, according to their account, nothing further could be done by them.

Underground operations have been partially – or almost entirely, in some places, suspended since Monday morning; and the colliers have assembled in groups to talk over matters. It is a regular fact that so recently as Wednesday morning one of the horses was found quite well and uninjured at the end of the level heading; and there is little doubt that had the unfortunate men and boys remained where they were at work for half-an-hour or an hour, instead of rushing out into the danger, where they fell over each other and were suffocated by the choke or after-damp, that most of them would have escaped. The list with which we have been furnished shows that 64 persons have lost their lives; but the general opinion is that the correct number is 65. The previous comments on the cause of the disaster brought this comment in *The Times* of May 19th 1852: -

The colliery accident near Aberdare

To the editor.-

Sir – In noticing the dreadful explosion which occurred at the Duffryn Colliery on Monday last your correspondent, whose communication is dated 'Bristol, May 11th', somewhat precipitately attributes the explosion '*to carelessness on the part of someone or other of the men, as they were all properly supplied with Davy lamps.*' It has recently been too much fashion to overlook the primary causes of these accidents, and, as in this instance, to attribute them to the carelessness or foolhardiness of the men removing the wire gauze from their lights when in an explosive atmosphere, while the condition of the mine, as regards to its ventilation, is either disregarded or treated as a matter of subordinate importance.

To everyone well acquainted with the subject the occurrence of an accident of this kind is of itself a presumptive proof of insufficient

ventilation; for, had the fire-damp been diluted with an ample and constant supply of air, the atmosphere of the mine would not have been in an explosive state, and the lives of so many men would not have been risked by the want of care and prudence in the use of the Davy lamp. The too prevalent practice of relying for safety on the Davy lamp, instead of sufficient ventilation, has caused the loss of hundreds – nay, thousands of lives, and humanity demands a fearless and searching inquiry into the real causes of these oft – recurring and devastating accidents, so that the whole truth may be elicited, and preventative remedies stringently enforced.

So long as the public remain satisfied with the reasons assigned, and deems the imputed carelessness of the men a sufficient explanation of the causes of these terrible explosions, so long will the improved ventilation of our mines be retarded, and sacrifice of human life continued.

Without expressing any opinion as to the ventilation of the colliery in question, it is obviously unfair, while the inquiry is pending, to attribute the accident to the carelessness of the men, when other and more probable reasons might have been assigned, and while the very parties accused are most likely among the victims now in the silent grave. It is possible that the ventilation in this instance was sufficient, and that the explosion was really and purely accidental; that every known preventative had been resorted too by the manager, and the greatest care had been exercised by the men; yet this remains to be proved, and until the real facts of the case are fully developed by the Coroner's jury, assisted by Her Majesty's Inspector of Mines, it is inconsistent with equal-handed justice to prejudice the case by attributing the accident either to the manager of the colliery or the unfortunate men who were employed in it. **I am, Sir, yours respectfully, J. Richardson, C. E., Neath, May 15th 1852.**

The late colliery explosion in the Aberdare valley – Coroner's inquest

The '*Cardiff & Merthyr Guardian*' of May 22nd 1852 reported: - The adjourned inquest upon the view of the sufferers by the late colliery

explosion in the Aberdare valley was formerly opened on Wednesday last, May 19th, by adjournment from Tuesday week, at the Boot Hotel, Aberdare before George Overton Esq., coroner, and again adjourned until the Thursday. The jury consisted of the following people: -

Mr. John Lewis, foreman. Messrs. David Thomas, Nicholas Davies, David Davies; Jacob Giles, Daniel Davies, John Roberts, Nathaniel Mills, Thomas Thomas, Morgan Morgan, David Williams, Morgan Morgan, John Davies, Richard Jenkins, David Griffiths, Daniel Davies Nathaniel Jones, George Watts, and John Jones.

Extraordinary interest was, of course, attached to the proceedings, the minds of the public being fixed on the catastrophe since its deplored occurrence and the inquiries which scientific men, and the government of the country had based thereupon, imparted still greater importance to the event. The matter was made the subject of a question by Mr. Duncombe, in the House of Commons on Friday night last, to Mr. Secretary Walpole, who is stated to have replied that the government' had given instructions for a strict investigation. The result of those instructions were the presence and strict scrutiny of Mr. Mackworth, the government inspector, and his talented predecessor, Mr. Blackwell, the latter gentleman having called in to renew investigations, made in reference to the same vein of coal some time since, and strictly to inquire into and report upon the general ventilation and working of the colliery.

The press had also awakened a deep anxiety in the case. The metropolitan journals spoke strongly of the necessity for a most searching inquiry. The Times, in a powerful leading article, which detailed the fearful tragedy in the minutest horrors, demanded loudly a rigid scrutiny but unjustly, we thought at the time, and still think so, rather imputed the catastrophe to the willfulness of the poor collier, than to a power or subtle agency which no human forethought or scientific skill, could anticipate or avoid. The Mining Journal - a paper devoting itself for a long period to the interests of the mining community, with ability and great humanity - also wrote very strongly on the subject, in an article quoted by us in this week's Merlin and it points out the gratifying fact, that there is at this moment a body of scientific and practical men

devoting themselves, by association in London, to the discovery of means for the avoidance of such frightful catastrophes as have of late been of frequent occurrence.

On Monday morning, (17th inst.) George Overton, Esq., the coroner, and the government inspector assisted by Mr. Blackwell had held a preliminary investigation, and met again at the Boot Hotel, on Wednesday (19th Inst.) when the jury having been assembled, the Coroner said he regretted being obliged to inform them, that in consequence of the official inspection of the colliery and the workings, not having yet been completed, it would be necessary again to adjourn the inquest until the following day (20th inst.), when the facts connected with the explosion, would be given in evidence.

The gentlemen who had arranged to inspect the colliery today, namely, Mr. Mackworth. Mr. Blackwell, Mr. Llewelin, and Mr. Dobson could not complete the inspection before Thursday evening and it was found that Mr. Blackwell and Mr. Llewelin were obliged to be in Newport on Friday, so that it was deemed advisable to postpone the receiving of their evidence, which would be of a scientific character, and doubtless of great importance until the following Monday.

Thursday 20th May 1852

The Coroner's inquiry was resumed on Thursday, May 20th afternoon at the Boot Inn, Aberdare. Mr. C. H. James, Merthyr, attended to watch the proceedings on the part of Mr. Powell, proprietor of the colliery, and Mr. Owen, Pontypool, intimated that he represented the friends of Charles Thomas, one of the deceased, and also a large number of the working class of the district. The coroner addressed the jury to the following effect: -

"Gentlemen we are assembled here today, to proceed with the inquiry commenced on Tuesday, 11th instant as to the origin of the unprecedented and frightful calamity that occurred on Monday, the 10th inst., at the Middle Duffryn coal pit, in this parish. Again has this district been visited by one of the most serious fatal accidents of the kind that, I

believe, ever occurred. I question whether the annals of colliery explosions offer any parallel to the sad event which is now becoming our duty to investigate.

I am sure you must feel equally with myself the deep responsibility that attaches to that duty which we have to perform. Unfortunately the frequency of such events in this neighbourhood of late renders it doubly incumbent upon us to pursue a most strict, searching, and impartial scrutiny into the origin of the present catastrophe. I need not, I am sure, remind you of the various serious accidents that took place at the Tir-Founder colliery almost six years ago, when between 30 or 40 lives were sacrificed; or the more recent event that occurred within the last three years at the Lletty Shenkin, where 52 men were killed, both of which places are situated within a mile of the scene of the present inquiry.

But, gentlemen, I feel it is my duty to call your attention more particularly to the fact of no later than December, 1850, there was a similar occurrence to the one which we are now going to investigate. In the same Middle Duffryn pit, by which nine lives were lost. These circumstances, which we cannot overlook, render it very necessary that we should direct our more serious attention to the present inquiry, with the view of arriving at a just and true conclusion as to the cause of these repeated occurrences; and to enable you the better to do so, I must beg you will dismiss from your minds any rumours or impressions you might have received, and be guided alone by the evidence you hear brought before you, so that you may be better able to discharge the duty you have to perform, in the truth and spirit of the vow you have taken, without fear, favour, or affection on the one side, or hatred, malice, or ill-will on the other.

Unfortunately, on occasions of this kind, most vague and incorrect rumours are always afloat, and the press, too, in some cases, is apt to prejudice these matters rather hastily before judicious inquiry has been instituted. To enable you the more easily to comprehend the nature and scope of our present inquiry, I think it would be well first to give an outline of the circumstances attending this sad accident, and I will endeavour to do so in such a manner as will put you in possession of the

facts without encroaching upon your province as jurors, and leading you to any premature conclusions.

It would appear that on Monday, the 10th inst., between 9 and 10 o'clock in the morning, an explosion took place in the Middle Duffryn pit, the property of Mr. Powell, of the 'Gaer,' one of the largest masters, if not the largest, in the kingdom. At the time of the explosion 94 persons were engaged in the pit. Eight or nine were burnt by the explosion, two severely, the rest slightly. As soon as the explosion took place the men appeared to have endeavoured to make their escape to the bottom of the pumping shaft. There are two shafts – one, a winding shaft, and the other a pumping shaft. The pumping shaft is furnished with ladders and stages, by means of which the men could ascend all the way from the bottom of the pit to the surface.

Some of the men arrived at the shaft and were in the act of ascending when, from some cause that we shall hear after inquire into, ladders gave way, and half of those that were ascending were precipitated to the bottom. By this cause 12 are supposed to have suffered. All the rest of the deceased appear to have met their death from suffocation in endeavouring to reach the bottom of the shaft. Having thus given you an outline of the occurrence, as I believe it will be proved to you, I will next inform you the cause I intend to pursue. It appears that in the present instance that parties must have come to death from three separate causes, viz., first, fire-damp; second, choke-damp; third, by the breaking of their ladders. I propose, therefore, to divide the inquiry into three heads.

The first, I shall take the case of one of those men who appear to have met with their death from burning or fire-damp. Secondly, I shall inquire into the cause of the death of one of those supposed to have died from suffocation or choke-damp; and lastly, one that met his death from the breaking of the ladders. I believe it will appear from the evidence that the sufferers were all found within a distance of about 200 yards of the main shaft. Forty-six were found all huddled together in a mass in the main level, at the mouth of No. 2 heading to the dip on the east side; some of whom were burnt, but nearly the whole were suffocated.

Two more were found between that spot and the shaft in the main level. Two (Samuel Rees, fireman, and Richard Jonathan) were found in the mouth of No. 2 dip cross heading, both suffocated. One man (Evan Evans) was found, with three others (Jenkin Thomas, David Rowland, and Rees Rosser), in the main level, between the No. 3 heading to the rise and No. 3 heading to the dip. The three last were taken out alive, but Evan Evans died as he was carried out; and the remaining twelve were all found at the bottom of the pumping shaft. Two (Thomas Morgan and David Jones) died on the following day after the accident, making altogether, 65. Having thus explained the course I intend to adopt, I will briefly allude to the duties this will devolve on you. There are four points to which your attention might be directed, and upon which you will have to satisfy yourselves before you can arrive at a just conclusion.

1. Was the pit in a safe working condition, and efficiently and properly ventilated?
2. How and from what cause did the explosion occur?
3. Have the over-looker, the fireman, and the flueman, and all other persons who have duties to perform, discharged these duties properly?
4. Has there been any culpable negligence on the part of any individual connected with the pit by which the explosion was caused, and if so who are the guilty parties?

But, gentlemen, although your attention is more particularly directed towards the past, still our inquiries are for reference to the future; and we shall, I trust, be enabled to prosecute our present enquiry to elicit some information that will be useful for the future; and it is our duty to communicate all the information we can gain, so as to prevent, if possible, the occurrence of such calamities again. I am, therefore, thankful that we have, on this occasion, the assistance of scientific and experienced gentlemen, who have been sent down by the Government, who will not only assist us in the present inquiry, but also, I am sure, be happy to impart any knowledge they possess towards effecting the

object that we all must earnestly seek – the prevention of such accidents for the future.

I have already alluded to the fact that similar accidents having occurred in this pit about 18 months ago. On that occasion the Government inspector, Mr. Blackwell, made a most able report upon the colliery and the cause of the accident, with several suggestions as to the future management of the pit.

I will lay that report before you that you may judge how far those suggestions have been complied with, and be able to compare the state of the pit then with the evidence that will be adduced before you today, and as Mr. Blackwell himself, by the command of the Government, will be here on Monday next, he will, I am sure, be happy to give you any information on that or on any other subject connected with the inquiry. I will not detain you any further at present, as I shall have an opportunity again, after the evidence has been taken, of offering any observations I may have to make.”

Notes: - No's 1, 2, and 3, cross-heading to the rise on the east side, are finished out, but the pillars are not drawn back. Persons who are supposed to having fallen off the ladder: Thomas Evans, collier; John Griffiths, Haulier; David James, collier; David John, doorkeeper; John Richards, doorkeeper; Jenkin Aubrey, haulier; Thomas Morgan, collier; Daniel Matthews, Collier; John Thomas, doorboy; and three others. The persons who were going to put up the timber were: - David James, suffocated; David Williams, safe; Thomas Lewis, safe; Thomas Richards, suffocated; Jenkin Aubrey, bruised by the breaking of the ladder; Rosser Thomas, suffocated; end of notes.

Mr. Owen wished to know whether he should be permitted, in the course of the investigation to examine witnesses. The coroner never had the slightest objection to the presence of any party on these occasions, but he was opposed to having witnesses cross-examined. He would, however, willingly put any relevant questions which Mr. Owen or anyone else might suggest.

The report made by Mr. Blackwell, the Government Inspector of Mines, December 1850, on the condition of the Middle Duffryn Colliery, was read by the coroner.

Police Sergeant Parsons examined: - On Monday, the 10th inst., he went to the Middle Duffryn Colliery, and remained there all day. He now produced a list of 64 persons who lost their lives by the accident, and the 29 who escaped. Witness prevented persons rushing forward to the pit, but apprehended no one. He encouraged some colliers to go down into the pit, but prevented no one doing so. An assault was committed on a policeman by a drunken man named John Hughes, and he has been fined £5. One man who went down into the pit at the suggestion of witness was instrumental in saving lives. As many men were sent down as could conveniently go. Mr. Dobson, mineral agent to the Hon. R. H. Clive, was there the greater part of the day.

Mr. Owen wished to know whether the top of the pit had been covered, by which fresh air was prevented from going down? This led to a protracted conversation, during which Mr. Dobson explained the course that had been taken, from which we gather that the covering alluded to had been used with a view to directing a current of air into particular parts of the works. The effect of the means used had been beneficial. Mr. Owen said that the men did not say there was an insufficient supply of air in the colliery, but objected to the position of the furnace.

The coroner said that on Tuesday and Wednesday last he saw many of the colliers who had been summoned to attend; and asked them if they had any complaint to make. There seemed to be but one opinion among them - namely, that there was a plentiful supply of air in the pit, and they had no complaints to make.

Evidence of the under-ground manager

Mr. Thomas Shipley examined: - "I am under-ground manager at the Middle Duffryn Colliery, and have been so about 14 months. Mr. Thomas Powell, of the Gaer, is the proprietor. I was previously engaged at Cwmavon works, in the same capacity. I was there thirteen months. I

was at Gwendraeth, Carmarthenshire, for two years and half previously. I was before that six years at Blackfell, Durham, and eight years at Thorny, in the same county. My duty is to superintend the underground work, and to see that the ventilation is properly kept up. I have full discretion as to all that is necessary for ventilating the pit, and all the responsibility rests upon me.

I have authority to do all that is necessary for the safety of the pit – I live close by, and direct all my attention to it. I go into the pit once or twice daily. Supposing anything is the matter with the ventilation, I have full authority to rectify it. There is no one over me – no engineer or mineral surveyor. There are two shafts – one pumping shaft and the other is used as a winding shaft and occasionally as a ventilating shaft.

The pumping pit is occasionally used as a down-cast shaft – that is, when we are repairing the brattice shaft in any way. The winding shaft is 165 yards deep. It is divided into two parts by a brattice, or partition – one part being used as a down-cast, and the other as an up-cast. The up-cast is 14 feet by 7 feet, and the down-cast is 14½ feet by 11 feet. The lower part of the brattice is formed of plank, 3 inches thick, grooved, and tongued with iron tongue, and there are upwards of 6 yards of brickwork lining the planks. The brattice reaches to within 25 yards of the top of the pit in three-inch plank; and the last 25 yards are made of nine-inch plank.

Witness went on to attempt to describe the mode in which the steam-jet was made to operate as an auxiliary ventilating agent, and to describe the pumping pit. The circulation of the air is effected by a furnace at the bottom of the pit, about 25 yards from the winding shaft. There is an arch of about 8 foot – 6 inches. The furnace passes 30,000 cubic feet of air per minute, but he has never calculated what quantity of air might pass through the up-cast or down-cast pit.

Mr. Thomas Williams, principal colliery agent for Mr. Powell was next called, as it was found that Mr. Shipley's knowledge of the works, steam jet and &co., was very imperfect. This witness said he knew the dimensions of the shafts, but had not calculated their air. The coroner: -

“How do you know the quantity of air which passes through the shaft?” Thomas Williams: - “We ascertain it by finding the velocity at which it travels, and we measure a portion of the heading - about 20 yards. We then fire powder, and by ascertaining the velocity, we can form an accurate judgement of the quantity. The last time we measured it there were upwards of 29,000 cubic feet per minute, passing through a heading seven-feet wide by six-feet high.” Mr. Dobson said that since the one measurement spoken of the current of air had been increased and divided.

Thomas Williams: - “When I measured the air passed in one column it has been split and the works much extended. I have not taken a measurement of the air since the alteration. The same furnace was then in operation, and the steam-jet, also, I believe. The steam-jet has been applied more than 12 months. I put it up. There 64 steam-jets in the jet-stack; and each jet comes out of an aperture three-sixteenths of an inch in size. There are two cylindrical boilers, 40 feet long by 6 feet diameter. They were, and are, worked at a pressure of 18 pounds to the square inch. They are capable of standing a pressure of 50 lbs. I got reports from Mr. Shipley, if I enquire when I visit the place as to the ventilation.”

The coroner: - “Have you any mode to know what circulation of air is in the pit?” Thomas Williams: - “Except by getting reports by Mr. Shipley.” Mr. Mackworth: - “How long before the explosion did Mr. Shipley tell you?” Thomas Williams: - “About six weeks. I think he told me it was about 30,000 cubic feet per minute.” Mr. Mackworth: - “Do you know how many splits of air there were at that time?” Thomas Williams: - “Three, I think. The last time I visited the colliery, the air was as good as usual, as the current in the main intake was so strong to make it difficult to carry a candle.”

Mr. Mackworth: - “Are you aware that a accident occurred in the Letty Shenkin Colliery in 1849, by which 52 persons lost their lives?” Thomas Williams: - “Yes.” Mr. Mackworth: - “Are you aware that an accident occurred in the Middle Duffryn Colliery, in December 1850, by which 9 persons were killed?” Thomas Williams: - “I am.” Mr. Mackworth: - “Are you aware that in each of these three cases the accident was supposed

to have occurred from a fall of the roof?" Thomas Williams: - "It was the case in the Old Duffryn Colliery and in the Middle Duffryn Colliery; but I cannot tell you as to the Letty Shenkin Colliery." Mr. Mackworth: - "Have you endeavoured to carry out any of the regulations mentioned by Mr. Blackwell in his report?" Thomas Williams: - "I have nothing to do with the management."

Mr. Mackworth: - "Do you recollect Mr. Blackwell condemning the use of brattice?" Thomas Williams: - "I do not recollect that he did. I have not directed my attention at all to the removal of the brattice since the accident in 1850. Mr. Blackwell told Mr. Powell that he had plenty of pits." Mr. Mackworth: - "Did it come within the scope of your duties to decide whether the brattice was to be removed?" Thomas Williams: - "Mr. Powell has had the opinion of several scientific men, and they decided not to adopt that plan, but to adopt the one now in use." Mr. Mackworth: -

"Are you aware that Mr. Blackwell said that no naked light should be used in the colliery until the brattice was removed?" Thomas Williams: - "I think I heard him say so. I heard Mr. Blackwell's report read. I did not see it in print." The coroner: - "What, Mr. Williams, do you mean to tell us that in a matter in which you are so deeply interested, you never inquired for a copy of that report?" Thomas Williams: - "No, I did not. Mr. Dobson gave his opinion as a scientific man. There were various opinions taken as the course to be pursued, and those opinions differ a little. There were two opinions, and we adopted a part of both."

Coroner: - "You took their opinions and adopted your own, is that it?" Thomas Williams: - "Their counsel was not far from what we adopted." Mr. James: - "They differed a little you say; but did they agree in that one thing, that both recommended the brattice?" Thomas Williams: - "They both recommended the brattice. It is not now quite the same as it was before the last explosion. Before the first explosion it was all intended to be built of brick. It is now made of plank. The reason we did not use the pumping pit as a ventilating pit was this – it was very inconvenient for a furnace, and the men would not have been able to pass up and down. I

think that a steam jet in the pumping pit would have produced the necessary ventilation, and have removed the objections to the furnace.”

Mr. Mackworth: - “Did you ever consider the practicability of making the winding-pit the up-cast with a steam-jet, and without a brattice?”

Thomas Williams: - “It could not be well adopted, because the leakage would be too great, even if you covered the top.” Mr. Mackworth: - “Did you know of any instance of a colliery having two shafts like this one, and one divided by a brattice, as to make an up-cast and down-cast of one shaft?” Thomas Williams: - “I know of several in the neighbourhood like that.”

Mr. Mackworth: - “What, with a pit close by?” Thomas Williams: - “I do not know that. When the explosion took place in December 1850, the work of brattice was rather green, hence its fall; it might have stood if it been longer. This explosion blew down the present brattice in four places. I do not consider this a heavy explosion. The last, in 1850, was heavier than this. When the brattice is blown down, the circulation of the air is confined to the upper portion of the shaft. When an explosion occurs in a brattice pit, there may be a probability of many more lives being lost than in another pit, that may be the case.”

The coroner: - “Do you mean to say that if the brattice had remained sound, the air would not have gone into the pit, and a circulation of air would not have gone on?” Thomas Williams: - “If the doors had been broken in the colliery, the air would not have been circulated through the pit, even if the brattice had been removed.” The coroner: - “But still, there must have been a communication until you came to a door which had been blown open?” Thomas Williams replied in the affirmative; and then said – “If the brattice had not been broken, I do not see how many more lives would have been saved, because the air would have gone down one pit and up the other, without circulating through the colliery where the men were. We must have had a strong current to the first sound door, if the brattice had stood; and if that door was not as large as the current, a portion would go to the second door. I do not think the air would have reached as far as where the men were found, even if the brattice had stood.”

Mr. Mackworth: - "Is it more difficult to take the air up the pumping pit than the other?" Thomas Williams: - "Yes, because if much water was falling, it would act against the up-cast current of air." Witness was then requested to point out on the plan the first position of the broken, or open, door, so that it might be seen how far the air would have penetrated if the brattice had stood.

Thomas Williams continued: - "The explosion broke the doorway of the No. 1 cross heading." Mr. Mackworth: - "Do you not think that the current of return air, on passing along, would take back with it a portion of the after-damp?" Thomas Williams: - "I think it is very likely it would."

Mr. Mackworth: - "Have you given instructions respecting the stoppings being built of sufficient strength." Thomas Williams: - "Since Shipley has been here, he has had the control." By the coroner: - "I do not think the current of air would be sufficiently strong to have benefitted many that might have been there." Mr. Mackworth: - "Are you not aware that two bodies have been found in that heading (pointing to a particular portion of the plan of the workings, where he said the current of fresh air would have penetrated)?" Thomas Williams: - "No, I am not aware of that. Shipley received his instructions from Mr. Powell himself."

Witness described the manner in which the "stoppings" were built, to which, we inferred, Mr. Mackworth seemed to take an objection. Mr. Mackworth: - "Have you in the arrangement of this colliery, directed your attention to the prevention of loss of life by after-damp?" Thomas Williams: - "We had no other means than those ordinarily made use of. A spray-jet was in addition to what our neighbours had. I have not taken into consideration the use of Davy lamps while the brattice was in existence. I have never found any great quantity of gas in the two-foot nine-inch vein, but I have never worked it myself.

Mr. Owen wished to know what the nature of Mr. Williams's superintendence was over this colliery. Mr. Thomas Williams said: - "My duty is to see that it is carried on properly; and to consult together with Shipley as to the best mode of carrying it on. I was down it three weeks



Colliers stopping for lunch at unnamed colliery, year or level

before the explosion, but did not particularly examine the ventilation. I do not interfere with the ventilation. If there is any difficulty Shipley generally asks my opinion. I consider there is no one more capable than Shipley to carry on the colliery. Mr. Powell is sinking two pits in the district, one of which is to communicate with Middle Duffryn Colliery. The more pits we have the better chance we have.

A juror intimated that Mr. Owen's questions induced fatigue. Mr. Owen complained of the observation. He really thought it was too bad for a juror to make such a remark as that when he was asking a question which might alleviate the condition of the poor men. Mr. Owen to the juror: - "May I ask your name, Sir?" The coroner: - "Really Mr. Owen, I think you will find almost all these questions have been asked, and I have allowed considerable latitude already." Mr. Owen said he had only one object in view, namely, to investigate the matter and arrive at the truth, which he was sure was all what was required by the coroner. He was then proceeding to commence upon the Juror's conduct, when the coroner said he could not permit any altercation to take place; and requested Mr. Owen to ask any questions he might have to ask through him.

Thomas Williams said he thought it was safe before the accident to work with naked candles in the pit, but it seems now that it is not." Mr. Owens: - "A recommendation was made by Mr. Blackwell to use safety lamps; but would the men be able to do as much work with them as with naked candles?"

Thomas Williams believed not. If the roof was bad it would be more objectionable to work with lamps as a bad roof required more light, so that the men might see danger if there was any. If everyone in the works had a lamp this accident might not have happened. When the air-courses shall be fully restored he will not be afraid to take a naked candle into the colliery. Mr. James: - "Are there lamps there for anyone who chooses to ask for them?" Thomas Williams: - "There are a great more many than are used. I do not think working day and night in the colliery is any disadvantage to the air. I consider that 30,000 cubic feet of fresh air, per minute, passing through the colliery was quite sufficient to keep

the works clear by day and by night. There was a great breeze passing through the colliery." The coroner: - "But what I ask you is this – after your experience of this accident do you consider this vein safe to work in with a naked light?" Thomas Williams: - "I cannot answer that question." The coroner: - "Perhaps you would rather not answer the question." Thomas Williams: - "I cannot answer it." The coroner: - "I will not press it." The witness incidentally attributed the accident to a blower.

Mr. Shipley was recalled and described the course taken by the air. "The persons employed under me are the firemen, Evan Bevan, Joshua Evans, and Samuel Rees - whose duty is to go into the pit and examine the ventilation; two go down in different directions every morning at 4 o'clock. The duties they have to perform are expressed in the printed rules, and I take care that they are performed. The two men remain in the pit until six. There are two flue-men and a boy employed to look after the flues. The colliery was in a perfectly good state on the morning of the explosion."

Mr. David Davies, surgeon, said that Thomas Prichard and Charles Marks were severely burnt by the explosion. Thomas Rees, William Andrews, William Richards, Daniel Matthews, John Hopkins, John Richards, and David John were slightly burnt. The two former were injured by fire so severely, that they might have died from that cause. There were five, namely, John Richards, Thomas Evans, Thomas Morgan, Jenkin Aubrey, and John Griffiths, who were bruised and injured, either from falls of other violence, and died in consequence of such injuries. The others were suffocated. Some of the survivors were slightly burnt.

It was then arranged that the evidence of two or three men, who were injured by the explosion, and who could not appear before the jury, should be examined at their cottages - about two miles distant and in the neighbourhood of the pit where the explosion occurred. Mr. Llewellyn, the eminent mineral surveyor, of Pontypool, Mr. Williams, mineral surveyor, of Swansea, and other gentlemen who took an interest in the proceedings here left; and the coroner, with Mr. Mackworth, Mr. Charles H. James, solicitor for Mr. Powell, and Mr. Griffiths, Mr. Powell's agent, proceeded to the dwelling of David Davies, who, with his son, had been

engaged as fluemen on the morning of the explosion, and were injured thereby. This examination was not taken on oath. The father gave particulars of the matter, so far as he knew in Welsh which was rendered into English, and taken down.

David Davies said: - "I was engaged in the colliery at the time of the explosion, as the flue-man. My son assists me. My duty is to cut coal for the use of the flue, and to attend to the fire in the daytime. We went together to our work between 6 and 7 o'clock on the day of the accident. There was no one there except Lewis Morgan, who is the fireman during the night time. He was there when we arrived. There was no one else there. There was only one employed by night and two by day, because the day men have the coal to cut for the use of the flue.

There is a heading branching off from opposite the flue out of the flue level, from which the coal is worked for the use of the flue. There was a good fire in the flue at the time we went to our work. We went down through the winding shaft. A great many of the colliers had gone down before us. There was much draught at the flue at the time we went down to our work, as there usually is. My son and myself have been employed about seven months on this occasion. We once before held the same appointment in this pit for almost two months; never held a similar appointment anywhere else.

Lewis Morgan appeared quite sober and steady as usual. It is not usual to take beer down into the pit, and I have never seen any taken down. I did not see Shipley, or Beddoe, or Rees that morning, but Lewis, the fireman, told me that Beddoe had been there. I did not go into any of the headings that morning. I was not in the habit of going frequently from the stable to the pumping shaft, but I have gone that way, it is passable, and is used occasionally.

There is a door at the entrance near the stable. The passage is about four feet square. At the time of the accident, my son and myself were by the flue. We had been stirring the grate and had put some fresh coal upon the flue, and afterwards unloaded a tram of coal that had been put out there at night. We sat down and took a pipe of tobacco, while we

were cooling ourselves. Just at that moment we felt a puff of air, as if an explosion had taken place in some distant part of the colliery.

I said to my son, 'There has been an explosion somewhere, put on your jacket, and let us go to the winding pit to see where it is.' We went along the heading leading towards the winding shaft; and when we got to the first door, we found the door closed and perfect in its proper place. I had a candle in my hand, and my son had a safety lamp; just as we arrived near the door, but not opened it, an explosion took place, and the fire overtook us, and we were knocked down by it and very much burnt.

We did not see the fire until we were in the middle of it and it appeared to have come up the heading from the flue behind us. We got up as soon as we were able and proceeded as well as we could towards the winding shaft, our light having been blown out. When we got to the winding shaft we met Jenkins, the hitcher, and asked him if we could get up, as we were badly burnt. He requested us to come to the archway, because he feared something was wrong in the pit. We were about to do so, and were going into the arch, when there came another puff and a report, and we were knocked down again. We got up and found our way into the stable, where we remained until we received assistance.

It was about two minutes between the time we felt the first puff in the flue and the time we were knocked down at the door by the fire, and about ten minutes further to the time of the explosion we felt at the shaft. We did not perceive any fire the first or last time, only the second time. My opinion of the cause of the accident is, that there was an explosion in some different part of the works to the dip, and that the first puff proceeded from that cause and passed by the flue and went down towards the dip, and then returned to the flue, and took fire then, and that was the cause of the explosion by which we were burnt.

I have never known any gas explode at the furnace since I have been fireman. It was not my duty to attend to or examine the air-courses, and I was not in the habit of doing so. I feel convinced that there was an explosion in the distant part of the works before the first puff, but I did not see any fire. After the second explosion we went back down the

heading leading towards the flue, with a view to making our escape through a hole or drift there from the heading below the flue to the pumping pit, but when we got near the flue we found it too hot again, so we returned and went to the winding shaft in the manner we have before described."

This examination, embracing as it did a large amount of matters which are not necessary for the simple elucidation of the event, occupied about two hours, and the coroner and other gentlemen then proceeded to the cottage of **David Rowlands**, to take his deposition also. This poor fellow, however, though not burnt or suffering from "choke-damp," had been so severely injured by being blown about it is supposed, by the currents of gas and air, that he has remained insensible from the time of the accident, to the present - his injuries being some wounds in the head, supposed to effect his brain. These inquiries having been concluded, the party returned to Aberdare. The inquest was then adjourned until half-past-ten on Friday.

The same newspaper commented: - We have heard from a person of great experience in mines, and most competent to give his opinion, that if the unfortunate sufferer had had the presence of mind to have remained in their stalls, their lives would have been saved, and that the natural impulse of their flight towards fresh air was the cause of their destruction. If anything could add to the sorrow which such a calamitous catastrophe has excited, it is the circumstance that so many valuable lives might have thus been saved. The escape of the poor horse, whose want of human reason did not impel him to flight, is a strong illustration of the truth of our informant's observation.

Coroner's Inquest, Friday May 21st 1852

Evidence of colliery manager

The '*Cardiff & Merthyr Merthyr Guardian*' of May 29th 1852 reported: - In our last number we gave an account of the proceedings before the coroner, Mr. George Overton, Esq., up to the rising of the court on Thursday evening, May 20th, and we now resume our report. Today, the coroner, having briefly capitulated the finishing portion of the evidence

given the previous day, proceeded to read the rules regulating the management of the colliery, which had been put in; but, on an intimation from a juror that copies of the same had been placed in the hands of every gentleman on the jury, this was considered unnecessary, and the hearing of evidence was resumed by the calling of **Mr. Thomas Shipley**, manager of the Middle Duffryn Colliery, who said: - "The rules produced are those now in force. There were about 200 men in and about the pit. We have for the last three months been working day and night. The proportion is about 140 employed during the day, and the remainder at night. The quantity of coal worked for the last month averages about 340 tons in the 24 hours."

By Mr. Mackworth: - "That corresponds to the general average." By the coroner: - "The colliery has been worked about two years - since about August 1850. At 6 o'clock on the morning of the accident I went to the pit. I saw the fireman, Evan Beddoe, who reported that all was right, except some signs of a fall in No. 2 dip-heading. I went myself to examine the place; I took Beddoe and Samuel Rees with me." By Mr. Mackworth: - "The practice of the fireman was to go through the pit, and to give a report of the state it was in." By the coroner: - "I saw that a small fall had taken place."

By Mr. Mackworth: - "It was in No. 2 dip-heading, just between the two slants, and immediately below the first slant. From 18 inches to 2 feet deep in thickness of the roof had fallen down. I put my safety lamp to try it, and found there was no fire whatever there. I told Beddoe to put six men, who were at work at the bottom of the two slant drifts, to clear the fall and set up props. I then came back and examined both the return air-courses with the naked lamp."

By the coroner: - "I then went up to the top of the pit to see that the men had obeyed my orders about sending down the timber to prop up the roof where the fall had taken place. I gave them four (Davy) safety lamps. I saw them go down, and I remained near the top of the pit. This occupied until between 8 and 9 o'clock. My son then came to me and said he thought the pit had fired. I was within 150 yards of the spot, but did not hear or notice anything to induce me to think there had been an

explosion. I had not been more than a quarter of an hour from the pit's mouth. I went to the pit, and just as I got there an explosion took place.

I desired the engineer to try the engine, but found it would not act. I gave orders to cover over the winding-sheet with timber, to return the air down the pumping shaft and up the winding shaft. I then went down the pumping shaft. This was about five minutes after the explosion. As I went down I met four men coming up, one of whom told me that the lower ladder had fallen away. I continued to go down, and found that the second ladder from the bottom had fallen away. There was a rope at that place for changing the buckets. My son-in-law, Gideon Coxon, came after me and joined me there. We desired the men at the top to lower the rope, and Coxon went down to the bottom of the shaft. As soon as he got to the bottom I slid down the rope and followed him. We had safety-lamps with us. William Barrett and several others came down after us." By Mr. Mackworth: - "I did not see any lights below."

By the coroner: - "When we got to the bottom we found several bodies and about nine survivors near the pumping shaft. The other survivors were near the winding shaft. I desired all to come from the winding to the pumping shaft, which they did, except two or three who assisted. We extricated one person alive from the bottom of the pumping shaft. I then went towards the winding shaft. It was then I ordered the men there to go to the pumping shaft, as before mentioned. I then went on along the east level and found two bodies, one about 50 and the other about 75 yards from the winding shaft. I went on a little further, and finding the after-damp too strong I went back to No. 1 dip cross-heading and along the bottom level (or return air-course) to No. 2 dip heading, where I found at the top of that heading a great number, supposed to be 46, dead bodies. Two were Samuel Rees, fireman, and Richard Jonathan. They were lying in the main level on each side of the No. 2 dip. There was also there a boy alive; he was brought out alive, and has since recovered.

I then proceeded along the level about 20 yards further and saw several bodies, but I could not get at them in consequence of the after-damp, so I went back to No. 1 dip heading and put up a temporary door, and went

back to the place and found several dead bodies between No. 2 and No. 3 rise headings. I afterwards went with Coxon to the place and put out the fire burning at the time in the furnace. I then went to the winding pit, and found that part of the brattice of the pit were blown down, and lying upon the carriage at the bottom of the pit. I ordered another carriage to be sent down from the top. The engine was set at work and the carriages sent down. All this was in less than two hours from the time of the explosion. The men at the bottom of the pit were taken up in that carriage. There were four men found alive by Joshua Evans and William Williams outside No. 3 dip. One of them, Evan Evans, has died since. There were none of them burnt."

By Mr. Mackworth: - "Beddoes's (the fireman) report was that all was safe, and he spoke of the fall. He said the place was all clear of gas. He brought a report from Samuel Rees, the other fireman, who said that the east side of the workings was clear of gas, and with plenty of air. It was customary for Beddoe to report from Rees. When I examined the heading, I did not observe that the coal had been displaced through any crush more than the fall. I examined the fall, and just at the edge I saw it giving way."

By the coroner: - "I have been repeatedly down since and examined the pit. I saw marks of fire down the No. 2 dip heading. I consider that to be the furthest extent to the east that the fire has been. I have examined all the works on the east side of the level sufficiently to satisfy me there had been no fire further to the east than that point. The only other place where decisive marks of fire are to be found is on the west of the pit going down to the fall. I did not perceive any decided marks of fire in the intermediate pits.

I examined the No. 2 dip heading, and at the first slant I found a very large fall. There appeared to have been between 15 and 16 yards in length of the dip heading fallen in, and part of the roof of the slant. I have seen that about three yards in depth of the roof has fallen in. I could not say the whole extent, but I believe it extends to the next vein, the 2 feet 9 inch vein of coal, which is about 22 feet above. I have not noted any other particular circumstances. My opinion as to the cause is

that the accident arose from a discharge of gas from this fall, which came up along the return drift to the furnace, and took fire there and exploded. I do not think there was more than one explosion.”

By a juror: - “There were no men employed in the distance between the fall and the furnace, excepting the two firemen at the furnace. After the first explosion I did not hear a second. I do not think there was more than one explosion. I believe the first time, when my son told me he thought the pit had fired, it was merely concussion of air produced by the fall. The second report after the fall was when the explosion of gas took place. I did not hear any explosion subsequently. After an explosion there is generally a reaction of the air. The reaction would take place instantly after the fire was out. The fire would run along the whole length of the 250 yards in about a minute, and the reaction would take place directly.”

By a juror: - “If the reaction had taken place some time after, it would have taken place on my going into the pit, and I should have felt it.” David Davies’s deposition, put in the day before, and given in our last number, was now read.

Shipley, examined by Mr. Mackworth: - “When I examined the No. 2 dip previous to the accident, I observed there was a stone near the fall about to fall. I ordered props to be put under it. It has not fallen yet. The roof did not appear to be falling or working, except where the fall had taken place. I did expect a large fall there. Whenever a large fall is expected, I order it to be watched, lest gas should come down. I expect to be able to keep up that part by props. The men were last working in the stalls near the bottom of No. 2 dip up to Saturday night. The other stalls in No. 2 and 3 dips were not worked. I cannot say how many men were in the workings to the east, in No. 2 and No. 3.

The accident in 1850 happened in No. 3 and No. 4 stalls, No. 1 heading east. Mr. Thomas Williams used to talk occasionally about the accident in No. 4 stall, No. 1 heading, but gave me no particular instructions on this head. I was not informed that the roof of the works in this heading was particularly dangerous; but I thought so, and was therefore

particularly cautious. The recommendations in Mr. Blackwell's report on the previous inquest were never intimated to me. I was not officially informed of its contents. I do not know it had been recommended to work the pit with Davy of safety lamps as long as the brattice was there. I have not had an accident during the time I have been there, and I have had charge of a colliery for 30 years in fiery seams, without a single death from explosions.

I think strong stoppings between air-courses tends to secure the lives of the men. The stoppings in these works consist of single walls from 18 inches to 2 feet thickness, the lower part of which is built of dry walling, and the upper part in mortar, and backed from 8 to 10 yards of rubbish. There was only part of one stopping blown down, and one stone of another. The least distance between the intake and the return air-course is eight yards.

It is desirable to have no doors near the bottom of the pit at all, if you can do without them, so that the air can be sent in as far as possible round the workings. It would be inconvenient to do without the door near this pit in these works. If there had been no opening where that door is, the air would have gone further along the level. A brattice in a shaft is likely to cause the death of miners in case of an explosion, if there be only one pit.

In our case it made no difference, because we have the other pit so placed as to put the two pits to work immediately, making one an up-cast and one a down-cast in a few minutes. It can be done in the course of five minutes. In ordinary cases we do not use the pumping pit, unless anything happens to the other pit. To send the air down the pumping pit would depend on what damage is done. I would recommend the use of brattice pits where there are two pits close together and can be made to work together, for you have three chances instead of two. I say that where there is a brattice and only one pit it is not safe at all; but there is an additional safety in having a brattice where there are two pits close together and one of them large enough to admit of a brattice. If the brattice is blown down by an explosion, it stops the working of the pit for

a time. I have not made up my mind as to an alteration of the furnace. I don't know what state the pit is in."

By the coroner: - "I have been four times burnt. This (witness pointing to his hand) is my fifth skin. Question: - "Were you burnt five times then?" reply: - "No; of course I had a skin on me when I came into the world (laughter). I was in the great north accident when there were 105 deaths. The greater portion of people destroyed in an accident come to their deaths from after-damp. The object after an explosion is to induce as much air as possible. Mr. Powell has always given me particular directions to spare no expense to secure the safety of the men."

Evidence of a fireman

Evan Beddoe was the next witness called: - "I work at the Middle Duffryn Colliery. I was there on Monday, the day of the accident. On the morning of that day, I reported to Mr. Shipley that I had observed an appearance of a fall. He accompanied me and another fireman to the spot, and charged the place himself with a mandril, and tried the gas with one of our lamps. He ordered me to take some men and some timber to the place and promptly form up. I got five men to assist. I then ascended to the top of the pit's mouth, by the time I had completed the preparations it was about 8 o'clock to 8.30.

I then went down again. When I got to the bottom of the pit I proceeded along the level, with the other men and the timber, and when I got to the first parting I met Thomas Pritchard, and he told me there was fire in some place. I said that there could not be, as there was no gas in the pit that morning. I asked Samuel Rees whether there was any gas in his quarter, and he said there was not a lamp full in the east side. We went together as far as the second dip heading. There were five of us altogether, David Williams, Thomas Lewis, David James, and Rosser Thomas. As I got to the first door, at the top of the heading, I found it shaking, as if there was a fall. I opened the door and went on to the next or second door. It was shut. I opened it and found the place full of gas. Lewis and I had lamps. I shut the door back against it. I ran to the east level for the purpose of preventing the men who were coming out from

bringing their naked lights. They would be apt to come out in consequence of believing that something had happened.

When I warned them, I ran back again towards the pit's mouth. I ran as fast as I could to the second cross-heading, to the rise. The blow came - the explosion - and I had it too, some little of it. I was knocked down, and was insensible for a short time. I believe it was just opposite the stopping blown out. I got up, and crept back towards the winding pit. When I got to the shaft I met Jenkin Jones (hitcher), and David Lewis. I lost my light when I had my blow. I got to the winding shaft, and shortly after the pumping shaft. The ladders were then gone. I remained there about quarter of an hour, when Mr. Shipley and others came down to my relief. I do not think there was any other explosions after that one. I went into the works that morning about 4 o'clock. I am positive of that. I went towards the west side, and travelled all the works on that side. I went from the flue to the stall where the flue-man cut coal for the flue, and then I went on to the working stalls. I visited every one of those according to the rules, following the due course."

By Mr. Mackworth: - "It was Samuel Davies's duty to examine the stalls 1, 2, and 3 in the headings. I examined the three worked out headings on the Friday. The whole of the air-courses we examined once a week. I don't know where the five men who went with me were found. I parted with Samuel Rees at the top of No. 2 dip heading. I saw Thomas Pritchard going towards the pit along the level. Samuel Rees was found in the same place where we left one another."

The coroner here observed that as Mr. Owen had appeared here yesterday to represent the colliers, he did not deem it necessary not to request that colliers or other parties who wished to make any statements in the reference to the matter of this inquest to come forward and speak.

After a brief interval, during which no one responded to the call, Evan Beddoe, in continuation, said: - "The reason why I ran back was to open the lowest door at the pumping pit to mix the gas with air, but when I found I could not reach it I turned to stop the colliers coming out with their naked candles."

Jenkin Jones, on being sworn, said he was a hitcher at the bottom of the colliery. He went to work on Monday about half-past six o'clock. Was there at the time of the accident. Witness was under the pit at the time of the explosion. He heard two explosions; there was about 10 minutes between them. One or two got into a crouch or recess near the place. Mr. Shipley came down the other pit shortly after. Witness and the others were there altogether about three hours. Were there about two hours after Shipley came down. He heard a noise as if something was falling. He thought the brattice came down the first time. The tram on the ground was driven forward a little, about three yards. It was on a slight incline, but the wheels were spragged. Witness was knocked down by the first explosion. *Spragged: Stakes of wood or metal put in the wheels to stop the trams moving.

He got up and went into the air. It was in about ten minutes he heard the second explosion, and the brattice or part of it was blown down again. They sheltered in the arch until Shipley came with the light, and in about an hour-and-half after David Davies and his son came to them, soon after the last fire report. He did not think the noise of falling was caused by any falling from the pit's mouth. It might have been from a falling of the sides; there are falls of these sides sometimes. By Mr. James: - He was sure the fall took place down both pits.

Evidence of the colliers

William Jones, collier, having been sworn, said: - "I was at work when I heard the fire. I told those who were with me to put the candles out, and all at work in the heading where I was came to my stall. There were not so many at work in my heading that day as usual, about eight men. When we heard the explosion, we consulted together, and thought it best to put out our lights. The doors were blown open; we shut them, and began our way towards the bottom of the heading, where the doors were all blown to pieces. We then determined upon trying to get out through the level. We found the sulphur in the level so strong that it wrapped up our faces. I had a food bag and a can of water. I moistened the bag in the water, and gave a part of it to Daniel Harris, haulier. I put the wet bag to my mouth, and held it with my hand.



The Middle Duffryn Colliery

We started for the bottom of the shaft. When we got to No. 2 heading, we passed over several bodies; the men were groaning on the ground; there were some horses there. I then got to No. 1 double parting, where there was a considerable fall from the roof. I fell down exhausted, but after some time I recovered, and crept over the fall. While I was there, Mr. Shipley came with others, and by his aid I was led to the shaft, and taken up. I have always found an abundance of air in the stall where I work, and I believe it is the same in every other part; there is better air in this pit than any I have ever worked in, and I have worked in many in different parts of the Kingdom. I have no objection to brattice pits, and do not consider them less safe than others. Daniel Harris escaped to the bottom of the pit, and got up safely, but all the others who were there with me were killed.”

David Jenkins, collier, said he was working in No. 2 cross heading to the west at the time of the explosion. He heard a report which he thought was an explosion, but does not think so now. His light was put out. On beginning his way out, he met two men who were working in a stall in the same heading with himself. Their lights were not put out. They consulted and decided to go towards the pit. They heard a second explosion, but did not see any fire; they heard a third concussion just as they got to the heading leading to the flue.

“When we got opposite the heading, we saw some rags on fire. When we got to the final crossing to the rise in the last level, we heard a fourth concussion, which was the greatest of all. I then went back to the winding shaft, and there met Evan Beddoe, and accompanied him to the pumping pit, and we remained there until we were released.

The deceased, John Griffiths, was my brother; he was in the pit at the time of the accident, and was making his escape after the first shock, up the ladder in the pumping shaft, when the second explosion occurred, and the ladder upon which he was then climbing was blown out of its place, and he fell, and was killed. There were three persons on the ladders just above him, who escaped uninjured. I first of all thought it was after the explosion the ladders broke, but I find since I was misinformed.”

David Walter Jones, collier, who was in the pit at the time, stated that he heard the concussion. The door on the first heading was in its place. With several others he attempted to escape, and began ascending the ladders. When witness got to the second ladder, an explosion took place by which witness and the ladder were blown up, and he fell off the ladder to the bottom of the pit. After the fall, he was able to get up, and went towards the stable, where he met David Davies and others, and remained there until Shipley came. The sulphur was very strong in the archway near the pumping pit.

Francis Pearce said he was a pitman in the middle drift; the pumping pit is fitted up with stages and ladders all the way from the top to the bottom. There are about seventeen stages, and the ladders are about 10 yards each. The ladders are for repairing the pumps and allowing egress, & Co., to the men in case of accidents. On May 5th went to the bottom to do work. They were all then in very good repair, as good as ever they were when I put them up two years ago. One of them, the bottom one, had been renewed very lately. The ladders were a foot wide in the clear; the sides being about 5 inches by 2½ inches. The rounds are made of oak and some of iron, and collars of oak, the ladders being fastened by staples to the collars.

Saturday, May 22nd 1852

The *Cardiff & Merthyr Guardian* of May 22nd 1852 carried this letter that had appeared in the '*Times*' newspaper previously: -

To the editor of the Times

Sir, the account in your columns of yesterday of another most disastrous and fatal colliery accident by the explosion of firedamp induces me to trouble you with a few remarks. As accountant to one of the largest coal companies in South Wales, I have had occasion, when preparing and adjusting its books, to reside for weeks together in the immediate vicinity of the mines, and I have there had opportunity of observing the relative bearings of masters and men in reference to the question of danger. I have seen on the part of the masters and managers a persistent anxiety

to use every precaution against accident; on the part of many of the men (and I speak it with regret) a recklessness which is altogether astonishing. It would seem as if their familiarity with danger had begot a contempt for it. At the mines to which I refer every man was provided with a safety (Davy) lamp, and yet some of those upon whom their use was enjoined, have shown a marked disinclination to use them, while I have heard repeatedly of their carelessly opening them while in their cuttings, and thus endangering, not only their own lives, but those of all the hands below.

I am persuaded that seven-tenths of all the accidents which occur might be avoided with proper and reasonable precaution on the part of the men. The masters study safety; did no kindlier motive exist, self-interest would prompt them to do so, for there can scarcely be injury to person which does not produce a corresponding injury to property, it might be the stoppage of the entire works.

Any remedy for the danger must, I am persuaded, come from the men themselves. Let them form themselves into anti-danger clubs; let them pledge themselves, and pledge each other, to use all means to avoid accidents. Let them study the natural laws which regulate collieries, so as to be best aware of the course of conduct which leads to safety and, above all, let them insist on the immediate removal from the mine of every man who recklessly infracts those laws.

There should be no mistake about this - no false humanity should be allowed to interfere. If a miner was wicked enough to open his lamp in order to get more light, to strike a match for the purpose of igniting his pipe, or to do any other act which reason points out as dangerous, his name should be at once passed to the manager, and immediate, certain, and ignominious expulsion should be the penalty, nay, I am not sure, looking to the sinful daring of the act and the vastness of the consequences it might entail, whether his name, with the fact and cause of his dismissal, ought not to be sent round to every colliery in the kingdom, so that all might be on their guard against one who has shown so little care for himself, and so little sympathy for his fellows. I am, Sir, your obedient servant, Bristol, May 13. **JAMES EDWARDS, Jun.** P.S. The

cost to the proprietor, of a single accident, was, to my knowledge, upwards of £5,000, in addition to long interrupted working.

Monday, May 24th 1852 – Inquest resumed

We found the room well filled this forenoon. The inquiry seemed to have excited considerable interest, for we observed present, Mr. Clarke, mineral surveyor to the Marquis of Bute's trustees; Mr. Dobson, mineral agent to the Hon. R. H. Clive; Mr. Struvè; Mr. Richardson, C. E., Mr. Bassett C. E; Mr. Nixon, proprietor of the Wyrfa collier, and most of the mineral agents of the neighbourhood. The coroner, was, as heretofore, assisted by Mr. Mackworth, Government Inspector of Mines.

Francis Pearce, pitman (who had been under examination on Friday) gave a description of the ladders in the pumping-pit stating that they were in a good state of repair. After the accident, the second ladder from the bottom was not broken, but the stage was. He examined the pit on Saturday last, and found that what was the second ladder at the time of the explosion was not broken at all; but the stage upon which it was fixed had fallen to the bottom, and the ladder fell with it.

The lowest ladder was in its place uninjured. He could not find the stage but there were several broken pieces there in the rubbish. The stages were about 3 feet in width, and from 7 to 8 feet long. No part of the beam was found in the wall. The stages seemed to have been forced out of the wall. The timber was sound and good. Witness never saw better stages put in any pit – could not be better.

Thomas Shipley recalled

Thomas Shipley recalled stated: - "The men are in the habit generally of working with naked lights. But if there are any signs of fire we give the men lamps. We are not in the habit of using safety lamps except when the firemen consider it necessary from the presence of gas in some parts of the works; and that is very seldom the case except in the face of the heading, or air-ways, or in the stoppings. I do not believe that the men had lamps on the Saturday."

Mr. Mackworth: - "Were you at full work on Saturday?" Thomas Shipley: - "Yes, sir. The men on the Monday who were going to put the timber up to support the roof were ordered to take lamps. I do not believe that any of the men besides used lamps. I am not aware there was a fall in the barometer on the Monday. We have not a barometer attached to the works. The course I adopted after the accident secured a current of air in No. 2 heading in about quarter of an hour or twenty minutes."

The coroner: - "Is it usual to have a barometer attached to coal works?" Thomas Ripley: - "I have never seen any." The coroner: - "Not in any of the collieries in which you have been employed?" Thomas Shipley: - "No, sir. About 18 yards of the brattice in height, was blown down by the explosion." The coroner: - "Was that all in one piece?" Thomas Ripley: - "No, in five different portions. Two yards were blown out in 45 yards of the top of the pit. Nearly half-way down there were 3 yards blown out. About 7 yards from the bottom there was nearly 12 or 13 yards blown down, and a little broken.

The sectional area of the down-cast is nearly 145 feet; and of the up-cast 90 feet. We consume about 4 tons of large coal at the furnace in about 24 hours. The area of the main intake before it is split is 40 feet. There are three splits, the first is 16 feet, the others are not less than 20 feet each." Mr. James: - "Do you remember the measurement of the main intake?" Shipley: - "Yes - I measured it." Mr. James: - "The area of the main area before the first split is 50 feet. I should like to have that clearly understood." The coroner: - "But we must take the smallest area, because you cannot pass a large current through a small pipe." Mr. Dobson: - "Oh yes, you can, it would depend upon the length" Mr. Mackworth: - "I think it would be well to take the size of the regulators, and then we will be able to estimate the quantity of air passing through.

Thomas Shipley there said that the area of the main intake before the split was 50 feet; after that it was forty feet as before stated. The air-courses are not less than 20 feet. The first air-way is 14 feet, but there is a regulator, which reduced it to five feet square. The second split has a regulator of 9 square feet. It is in the heading of the dip. There is no regulator for the third split. The coroner said that Mr. Shipley gave his

evidence in a clear and straightforward way. By Mr. James: - "Regulators are to ensure a certain quantity of air goes through the certain headings."

Report of J. Kenyon Blackwell

John Kenyon Blackwell, Esq., Pontypool, examined: - "I was requested by the Secretary of State for the Home department to aid Mr. Mackworth in surveying the Middle Duffryn Colliery; and, in company with Mr. Mackworth, I inspected the colliery on the 19th instant. In December, 1850, when I held the appointment of Inspector of Collieries in this district, I attended at another inquest on the bodies of men who had lost their lives from an explosion of fire-damp in this colliery. I then reported to the jury, and also to Sir George Grey, who was Secretary of State. The following report (for this new explosion was then read: -

Having examined the Duffryn new (Middle) Colliery, in conformity to my duties as inspector, I have to state that I believe in the correctness of the evidence already given with regards to the origin and immediate cause of this explosion. With reference to this accident, I beg to offer the following remarks: -

The Middle Duffryn pit, and the adjoining collieries, in which so many fatal explosions had taken place, were working the same seam of coal, which is, said Mr. Blackwell, about six feet thick. This pit has been in work between one and two years, and was the scene of a previous explosion in December, 1850, by which eight lives were lost. By the present accident, sixty-five men and boys have lost their lives, and many of the survivors have been seriously injured. In this and the two adjoining collieries, 154 lives have been lost in this and three other explosions, which have occurred since 1845. These collieries are of considerable depth, and situate in what is technically termed a maiden country. The Middle Duffryn pit is 165 yards deep. It is the deepest of the three contiguous collieries, namely, the Old Duffryn, the Lletty Shenkin, and the Middle Duffryn, where the explosions just referred to, have taken place; and also the deepest in work in the Aberdare Valley. It is important to observe that to the deep of the colliery, and on both sides of it, there is an

unbroken tract of coal measures, of immense extent, which have never been drained by any workings upon them of any portion of the fire damp, with which those measures are highly charged.

The period at which those explosions have taken place successively, in the Old Duffryn, Lletty Shenkin, and the Middle Duffryn, is the period at which each of them, successively, was the deepest winning, or the deepest extensively worked winning, in the Aberdare Valley; and, therefore, the situation where this un-liberated elastic gas, pervading those deep, unbroken coal measures, was subjected to the greatest pressure, and found the only channel for escape.

Such circumstances demonstrated the necessity for the adoption of every known precaution against accident. The present workings in this colliery extend over a tract of about 35 acres, the whole of which has been partially, but not entirely, worked out, during the above period the pillars between the stalls not having been removed. The condition of these workings, and the state of the ventilation previously to this explosion will be better understood by the plans which I have prepared, than from verbal description.

Fire-damp exists in coal seams and apparently not in combination with the coal, but in a state of condensation in the fissures, and also in the fissures of the other measures in contiguity with it, with which it has been able to penetrate from the coal and carbonaceous strata, which are its original sources.

It is also to be remarked that it was liable to immediate and complete stoppage by falls, which were likely to take place throughout a large extent of the single and insecure air-passage to which it was confined. The great number of doors required to preserve an operation of the system of ventilation adopted in this pit ought to be observed, as they rendered it extremely insecure, and so great a number was unnecessary if the circulation had been properly arranged. I therefore conclude that if a more efficient ventilation had existed in this pit, than appears to be the case, under the system adopted, that it is probable that this accident would not have occurred.

Looking at the plan of the colliery, now before me, I am compelled to say that the works in progress are defective in their arrangement; and a better contrived or complete formation of air-channels, to ensure a larger circulation of air, ought to have been effected before the working of the coal had been commenced. Even in the works, as now carried out a better and safer ventilation would have been obtained, by dividing the air into three columns or currents; namely, one for the east level, one for the west, and one for the north cross heading.

When a coal seam is found to be in this state although by a proper arrangement of the workings, and of the air-ways, the consequence of an explosion may be diminished and controlled, that occurrence can only be absolutely prevented by excluding the current of the mine from all contact with flame by the use of Davy lamps, and in the event of a furnace being employed to rarefy the ascending air in the up-cast shaft, then by feeding that furnace with a part of the down-cast air which is not circulated in the mine.

These precautions were the more necessary in the Middle Duffryn Pit to prevent the fatal consequences of an accident, because although there are two shafts in this colliery, one of them, divided by a brattice, is used in the ventilation. Since, however, all these precautions may be frustrated by accident or neglect, it is necessary to consider how far the effects of an explosion, if it should take place may be limited, constructed and controlled in its extent and consequences.

This may be affected by arranging the workings of a colliery so as to divide those workings into different districts or panels, and so as to isolate each district and connect it with the main in-going and out-going air currents (technically the intake and returns) at two points only. The result of such an arrangement will be first to limit the extent of an explosion; and, secondly, to secure the intake currents to as great a distance as possible from the shafts, and to prevent the circulation being destroyed by the effects of the blast, so that the survivors of the explosion may be enabled to reach unvitiated in-going air.

To obtain this object the main passages of a coal mine, by which the currents of in-going air are conducted to the workings where the men are employed, must be secured against the consequence of an explosion by substantial stoppings, or barriers, throughout their extent up to the points where those currents enter the workings, wherever, in the progress of operations, openings have been formed between them and the parallel exhausted workings or the out-going air chambers.

If, in consequence of its being found necessary to divide these air-currents (technically to split them) before they reach the extreme workings, that part of the current which is not thus obstructed and must be conducted to a more distant point, may be conducted by means not liable, like doors, to immediate destruction by a shock.

If the working had been properly arranged, each district or panel which these splits (be there one or more) from the main current have to traverse will be an isolated district, divided from the rest of the mine by substantial barriers and stoppings. This being the case by the selection of one point of entrance, or exit, the size of which can be proportioned to the quantity of air intended to pass away a larger quantity than that which is assigned to each pit may be prevented from deviating from the main current, and the main current unimpaired to the volume forced onwards to the workings beyond.

In some cases, when the openings of a colliery are extensive and distant from the shafts, especially where numerous headings open from one level course, the in-going air is to be divided several times, then in order to effect a proper isolation and supply of each district, two parallel and contiguous, but securely divided level courses, ought to be driven, one of which should be isolated from all the workings which it passes until it delivers the air in-going by it to those which are the most distant, and thereby the security of these distant workings may be attained, even in the event of an explosion happening in these workings which are near the shaft.

When extensive workings are to be carried on both to the rise and dip of the level course, or level courses, they should be flanked by return air-

ways on each side; and a return air-way should always be formed to the rise or each level range. Such arrangements of those which have been described not only require, but facilitate, a large supply of air in coalmines because by the system of the division of air-currents on which they are founded, the aggregate area of air the passage can be proportional throughout their extent to the area of the shafts of the mine.

They also allow a great part of the doors which are employed in numbers so dangerous in this and many other coal mines to be dispelled with, leaving the division and circulation of the air currents dependent not on doors (except to bear up the air in each panel, or district), but use regulated gaugings which may be made sufficiently solid to resist the shock of an explosion.

In the pit where this accident occurred there are 23 doors fixed in the main east and west levels, or on each side of them, in the mouths of the various rise and dip headings which are connected with them. The headings in which these doors are placed enter the levels at intervals throughout their whole course, and the in-going air is conducted to the face of the levels, and the extreme workings of this pit, and prevent it from taking a short course to the up-cast part of this shaft through these headings, and the return airways with which they communicate by these doors alone, which were swept away by the blast of the explosion, arresting all the air-currents of the pit leaving a stagnant atmosphere of choke-damp in the levels between the shaft and the working districts.

The destruction of the ventilation of this pit by the explosion was completed by the employment of one shaft only for the ascending and descending currents of air (technically called down-cast and up-cast currents) which were divided in the shaft by a plank brattice. The other shaft in this pit, used for pumping, was not connected with the ventilation so as to afford the element of safety which it might have done. It was separated from the winding shaft by two doors only, one on each side, both of which were destroyed. It then became the down-cast shaft, and the down-cast air went round by a short course to both sides of the other shaft which became the up-cast on both sides.

In this case, the doors which were used to keep the intake air in its course were destroyed, and the circulation of air was shortened and confined to the drifts around the shafts. The deep workings and levels appear to have been filled by the explosion with an atmosphere of choke-damp, which proved fatal to all but four persons out of 52 engaged in the east workings, who were compelled to traverse them in order to make their escape.

It is always desirable the down-cast shaft should be used as a winding shaft for the descent and ascent of the men. In this case this might have been effected by using the pumping shaft as the down-cast, and fitting it with a winding apparatus for this purpose, which I believe would not have interfered with the other uses of this shaft, in which a brattice would have been unnecessary, and then having been available for winding coals, and for the up-cast. Very considerable additional security for the intake air, and the ventilation generally, would have been gained by this arrangement. I do not think that these two shafts, if employed as a down-cast and the up-cast, are larger than needed for the proper ventilation of the pit, in which a circulation, at the present time, of 60,000 cubic feet per minute appears to me desirable."

Mr. Blackwell, in reply to the coroner, said: - "The cause of the accident was a sudden discharge of fire-damp from the roof of the seam in the heading. It appears to have been a very violent discharge from the condition of the measures which fell. It was the most dangerous locality in the pit. I consider that it was an occurrence which was fully to be expected in such a seam and such a place; it was a possible and probable occurrence. The seam is a fiery one.

Similar discharges are frequently occurred in the Northumberland and Durham coalfields. They did occur in Staffordshire before the coalfield was drained by workings. I can see that they occur in all deep coalfields, until the coal is worked and the gas drained. In December 1850, in my report on the Middle Duffryn Pit, I expressed an opinion unfavourable to the use of brattice shafts. I do not conceive that such shafts can always be avoided, but when used the men should invariably use Davy lamps."

Mr. Blackwell: - "If the recommendations in my report had been followed – namely, to use no naked lights, or, to have no flames uncovered, this accident could not have occurred." Mr. Griffiths: - "But you recommended a furnace?" Mr. Blackwell: - "I still consider a furnace the mode of ventilation even in this pit, after the experience of the present accident, but I would not have the return air over the furnace. I would have a furnace with a dumb drift. The dumb drift must enter the shaft at a considerable distance – say from 10 to 20 yards – above the bottom of the pit, and consequently out of the reach of the furnace. My letter, to Mr. Powell, was to compare a furnace with other modes of ventilation, and had no particular reference to this pit. The primary objection I had to the Middle Duffryn Pit was the naked lights; the secondary objection was to the brattice.

* Dumb drift - A dumb drift was a short length of airway that by-passed the ventilating furnace near the bottom of the shaft allowing the return air to be drawn up the shaft without contacting the furnace - explosive! An alternative was to place the furnace itself in the drift drawing in intake air and expelling it into the shaft thus drawing the return air up from shaft bottom - again, isolating the furnace from direct contact with gas laden air.

I objected to the brattice in a qualified manner, that is, it is always objectionable; but my objection to naked lights were distinct and unequivocal. I can form no opinion of the quantity of air circulated in the pit at the time of the explosion; but I am told 29,000 cubic feet per minute; and I have no reason to doubt that. There are pits in which there is not so much, but I think it would be advisable to enable them to effect a proper division of the air currents to have a larger quantity.

Coroner: - "Did you think it is injudicious to work both day and night?" Mr. Blackwell: - "I think the rapid working of coal in a fiery seam, before the coal has been drained by exploring drifts and headings, is very dangerous. I think the pumping shaft in this instance was of no great service in improving the ventilation; it would not have circulated the air more than 30 yards. There have been two modifications of the Davy lamp, one by Dr. Clanny, and by Mr. Eloin, of Belgium – which give greater light, and I think they are safe, if properly used, for ordinary purposes. The Davy lamp is better adapted to test the state of the gas, and always to be used by firemen."

A long and irregular discussion – or conversation – took place respecting the furnace, naked lights, &co. A letter written by Mr. Blackwell, on the subject of colliery ventilation generally was alluded to. In one passage of which a furnace had been recommended, it was said, Mr. Blackwell desired that the letter might be put in and wholly read, but Mr. Griffiths did not feel called upon to do so. Mr. Blackwell said it had no reference to the Middle Duffryn Pit in this particular case, but had regard to ventilation generally.

Mr. James James wished to show that the precaution of a dumb-drift had never been mentioned to Mr. Powell. There was nothing in Mr. Blackwell's report respecting a dumb-drift, which he had that day recommended. Mr. Blackwell: - "If miners do not know what a dumb-drift is, and its uses, they are incompetent to conduct a colliery." Mr. James: - "We are told that by inference from Mr. Blackwell's report we ought to have known that a dumb-drift was necessary. I ask from what part of the report is such an inference to be drawn? I have read the report from end to end, to see what could raise such an inference, and I cannot find it. I have been very quiet hereto, but when I see things pressed too hard I can remain quiet no longer."

The coroner: - "Now, Mr. James, I must request that no observations are made. Mr. Blackwell said the report in December 1850, was not a report for Mr. Powell, but to the coroner and jury; and a copy had been sent to Mr. Powell at the request of R. Lewis Reece, who was Mr. Powell's solicitor at the inquest."

The coroner: - "Mr. James wants to know what portion of that report would induce Mr. Powell to arrive at the opinion that a furnace was objectionable." Mr. Blackwell read several passages, and dwelt upon that which recommended that no naked lights be used. Mr. James contested that it could not be fairly inferred that a furnace was included in that recommendation it had evidently only reference to candles and naked lights.

Mr. Blackwell said that a furnace was a naked light, and therefore was included in all his recommendations to use no naked lights. Mr. James

asked whether, in fairness, such a construction could be put upon the expression. It was said that no naked lights should be “taken down” into the colliery; now a furnace was not “taken down,” it was always kept burning at the bottom. He wished to ask Mr. Blackwell was firing at a furnace a rare accident? Mr. Blackwell said that it had frequently occurred.

Mr. James: - “Can you mention one well authenticated instance where a colliery explosion occurred from the firing of foul air at the furnace?” Mr. Blackwell alluded to reports made to Parliamentary committees, in which such explosions were mentioned; and added that experienced men ought to know a furnace was dangerous when the return air passes closely over it. Mr. James pressed for an answer to his question. Mr. Blackwell did not recollect, at that moment, any particular instance. Another long and irregular conversation ensued, during which various matters connected with ventilation were spoken of. For example, the length of air-passages in some pits in the north of England were alluded to – some being so long as 15 miles, Mr. Blackwell said; and he considered the return air after travelling such a long course to be less explosive than it would be in the Middle Duffryn Pit, after a run of only about 300 yards.

Mr. James was not satisfied with the accuracy of that opinion, and asked whether a similar discharge of gas, coming in a similar volume and near the up-cast, would be more dangerous in a short run than it would in a colliery which had air-courses 15 miles in extent? The question led to “a scene,” Mr. James conceiving that Mr. Blackwell was disinclined to answer him, and insisted on having an explicit reply; and, at the suggestion of the coroner, reduced his question to writing. It was then put, and objections were taken to it by the coroner and Mr. Blackwell, both of whom seemed to think it was not at all clearly expressed, and, therefore, could not be answered. Another “scene” ensued – comments were made by Mr. James who said he could not quietly permit his questions to be fenced with.

The coroner trusted that Mr. James would not make any observations of that nature, and would, to prevent further unpleasantness, put the

question himself. Mr. James was perfectly willing that the coroner should put it as long as it was put fairly. The coroner said Mr. James must not make such remarks. When did he put a question unfairly? Mr. James complained warmly of the manner in which his question, which arose entirely out of an observation made by Mr. Blackwell had been treated.

The coroner said that Mr. James must not make such observations, otherwise he should have the room cleared. He would put the question fairly, and no man could justly say that he had put any question unfairly. Mr. James did not complain of the way in which the question was put, but the want of an answer to it. Mr. Blackwell, in answer to the question, said a previous long run would make some difference; it would produce a more complete mixture between the gas and the atmospheric air.

Another irregular conversation then ensued, in which “swing doors” were alluded to, Mr. Blackwell expressing an opinion in favour of their adoption. In reply to Mr. James, he said he was not aware that they were used in any particular colliery; but they were inexpensive, and would be a great additional precaution.

Mr. Griffiths, Newport, said that Mr. Powell was now sinking two pits in Cefnpennar, one of which was to be in direct communication with the Middle Duffryn Colliery, and was to be a substitute for the brattice pit, which was only a temporary expedient. The pit was now within 15 or 20 yards of the coal, and utmost diligence had been used to facilitate the works – the work was carried on day and night; and it had been so carried on since the last explosion, so anxious Mr. Powell being to have the colliery efficiently ventilated.

An intimation was then given by Mr. James that no further evidence would be offered on behalf of Mr. Powell. The coroner regretted that, as he had all along been under the impression that Mr. Dobson and Mr. Llewellyn would be examined. After a few remarks, the coroner put four questions to all the scientific gentlemen in attendance. They were to this effect: -

1. Do you consider it safe, in a fiery seam like the upper-four-feet in the Aberdare Valley to use brattice shafts?
2. Do you think it right to work with naked lights?
3. Do you think the system of working the coal adopted in this district is the best; or would you recommend any and what other?
4. Can you suggest any mode of preventing or mitigating the destructive effect of the afterdamp?

These questions were thus answered in the following order: -

Mr. William Llewellyn, of Pontypool, mineral surveyor to J. Bruce Pryce, Esq., said: - "I must confess that I accept for temporary purposes, until a more effective means could be adopted, I should not approve of the brattice shaft. I hitherto thought that it was perfectly safe to work with naked lights in this pit; but after the experience I have had of these explosions, and my knowledge of the fact of those sudden discharges of gas, I should think it would not be safe for the future to work with naked lights, and my observations apply equally to the use of the common furnace.

I think the principal of working the coal in this district, with so few modifications, would be as good as could be desired; and I think the Middle Duffryn Colliery is better conducted than most others in the neighbourhood. The most effectual means I could suggest to prevent the consequences of the after-damp is to have the down-cast and up-cast shafts as far as possible apart, and that the communication between the air-courses be as effectually stopped as possible, with strong barriers, so as to prevent the air from communicating from one to the other."

Mr. William Price Struvé, of Swansea is a member of the Institute of Engineers. He had extensive experience in working collieries. Considers brattice shafts objectionable because they are liable to be destroyed by explosions; also subject to leakage, and to be injured when furnace

ventilation was adopted. Thought that fiery collieries might, with some exceptions, be worked with naked lights, provided the ventilation was sufficient. The great reliance ought to be sufficient ventilation. The system of working common to this neighbourhood was quite adapted to efficient ventilation.

The air-ways of the district at a velocity of six feet per second, would admit of 8,000 cubic feet per minute for each compartment of the works, and ten splittings were passed through an extensive mine, worked on the system of this district, 80,000 cubic feet per minute, which he considered ought to be provided for at every fiery colliery when upon an extensive scale.

To do this it would be necessary to have an effective rarefaction in the up-cast pit equal to one inch column of water; and if a furnace was employed, the temperature at the furnace drift ought to be 370 degrees Fahrenheit; which would be too hot for either men or horses to descend through.

He recommended this rarefaction to be effected by the same description of ventilating apparatus as he had erected in for four different collieries – one on the north and three near Swansea – and which may be constructed to ventilate to the extent of 80,000 or 100,000 cubic feet per minute. Such apparatus would cost about £350, and it may be erected on the surface of the mine beyond the influence of an explosion, as in that case a current of air might be made, so as to remove the after-damp.

Mr. Samuel Dobson, Treforest, mineral surveyor to the Hon. R. H. Clive M. P., said: - "I concur with Mr. Llewellyn on the three first points, and on the last I am not prepared to give an opinion.

Mr. Clarke, of Merthyr, mineral surveyor to the trustees of the Marquess of Bute, said: - "A brattice is an imperfect, and in a fiery seam, a dangerous mode of dividing the up-cast and down-cast shafts, and necessity alone will justify its use. In the deep workings of the upper-four-feet vein in the Aberdare Valley, I think that the safety lamp

exclusively should be used; and in addition thereto I consider that a dumb-drift should be adopted. The supply of air required for the furnace should be taken from the down-cast shaft and not from the return air-course.

My experience in other fiery seams in the north of England convinces me that it is the proper course to be adopted. I think the principal of working coal in this district is not the best, as far as ventilation is concerned. The most effectual mode, in a fiery seam, is to work it in districts and isolate them by barriers of coal, and ventilate each district separately. The only mode of preventing the effects of after-damp is to have substantial stoppings between the intake and return air courses. The stoppings should be formed of a mortar-wall in the centre, with a stowage of mine rubbish of about 10 yards; and in the event of the dumb-drift which I have recommended being used, I cannot see any reason why the air could not be conveyed into the works, and all communications prevented between the two air-ways for a considerable distance.”

Mr. Nixon having observed that he had known of a stopping of 7 yards being blown down by an explosion, Mr. Blackwell said that much would depend on the material of which the stopping was constituted. He thought one of 12 yards, if the materials were good, would be fully effective against any explosion. Several gentlemen, however, here appeared to dissent from Mr. Blackwell’s views. Mr. Shipley also stated that at Walls End Colliery he had seen four feet of solid masonry blown down.

The Government Inspector, Mr. Blackwell, spoke in terms of high commendation of the means which one of the witnesses had adopted for obviating the effects of after-damp – that of dipping a cloth in water, and placing it over the mouth. He passed a high eulogy on the witness for the admirable presence of mind and courage which he exhibited in one of the most perilous and trying situations in which a human being could be placed. The coroner also called attention to the use of Glauber’s salts and lime placed on a cloth, as a preventative against the effects of after-damp. The inquiry was then adjourned.

Tuesday, May 25th 1852

The coroner and jury assembled at the usual hour and place this forenoon, and proceeded with their investigation. Herbert Mackworth read out the following report: -

Report of Herbert J. Mackworth, Esq., Government Inspector of Mines and Collieries

The explosion which occurred at the Middle Duffryn Colliery demands the most searching inquiry, and I have upon several occasions examined into the state of the workings in order to arrive at the cause of the accident, and the conclusions to be deduced from it. The seam of coal worked at this colliery is 6 feet in thickness, and is remarkable for the discharge of gas which takes place from its fissures and roof, and which increases as the workings extend to greater depths.

Since the year 1845 four very serious explosions have occurred in this seam by which 159 persons have lost their lives; and in each instance the cause is assigned to the sudden discharge of gas. One of these explosions occurred at the Middle Duffryn Colliery on the 14th of December, 1850. At that time the works extended over an acre and a half, and the brattice not having been finished the winding shaft served for the down-cast, while "a lamp" in the pumping shaft converted this into the upcast. Mr. Blackwell, in his official report on that occasion gave several wise and salutary cautions which decidedly condemned the use of the brattice and all naked lights, and the necessity for which has been amply confirmed by the late catastrophe.

Notwithstanding this, during this 17 months which has intervened the furnace and candles have been uniformly used, the pumping-shaft was shut off by a door from the ventilation, and a wooden brattice in the larger shaft converted the winding-side into the downcast, and the other by the assistance of a furnace into the up-cast. At 380 yards east of the winding-shaft the main split of air took place, the one division coming back through the rise and west workings, being 5,000 yards in length, and joined in its return by a short split of air.

The other main division after airing the eastern and the stalls to the dip, united with the first near the furnace, and was 2,150 yards in length. As far as an examination of the air courses and the evidence given on this point enable me to form an opinion, the quantity of air in circulation seems to have been ordinarily sufficient to dilute the gas escaping from the face of the coal, but was inadequate to meet those sudden discharges of gas which have before occasioned fatal results, which have been most forcibly predicted, and which the increased depth of the coal beneath the surface rendered more imminent.

The arrangement of the works and the ventilation as shown upon the plan is by no means satisfactory, and by further dividing the air and conducting it in proper channels a large additional quantity ought to have been introduced. I am of the opinion that the explosion commenced by the sudden discharge of gas in a highly elastic state at that part of the No. 2 heading, which had been very carefully examined by the overman and fireman about two hours before. A fissure of about 18 inches in width had been rent down through the shale, apparently from the two-feet-nine vein, and the force developed would be amply sufficient to cause a concussion in the air much resembling a detonation of gas. The gas, then, mixing with the return air, fired at the furnace, and an explosion, by no means severe, along about 430 yards of the airway followed.

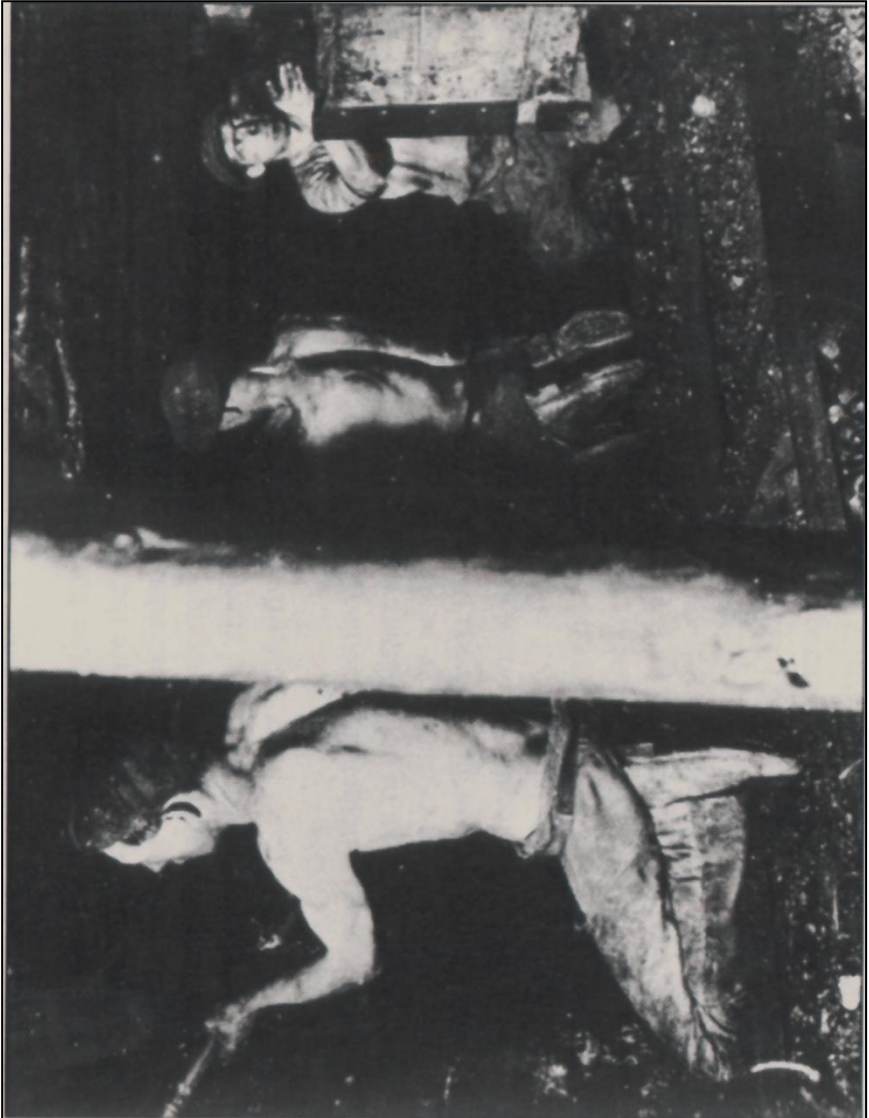
The marks of fire are scarcely perceptible, and had the return air course been efficiently separated from the intake level, the fire would have been almost confined to it. The fall of the barometer on the morning of the accident, although probably not affecting this explosion, was a warning not neglected in many mines, and it should be at least have been compensated for by increased ventilation. The printed rules and regulations of the mine appear to have been duly conformed to by the foremen; and the responsibility relies in the working with naked lights and furnace, after the experience of former accidents, and the cautions given at the later inquests it could be difficult to select, from the fearful list of explosions, one in which the effects of after-damp were more fatally exhibited, or where less obstacles were opposed to its inroads when in the present instance; and it is highly desirable that a separate verdict should be taken on those who have died from the after-damp, in

order to impress on managers of collieries the necessity of adopting those precautions which practical science has devised, not only against the danger of explosions, but the most fatal effects of after-damp.

It has long been asserted that the average mortality from inhaling the carbonic acid gas and nitrogen, resulting from an explosion, amounts to not less than 70 per-cent of the deaths; and I am persuaded that if the managers of all fiery mines will systematically arrange their works and adopt precautions against this greater danger that this mortality will gradually diminish. The same species of foresight which provides boats of a certain capacity for the escape of seamen after a ship has floundered should at all times contemplate saving the sufferers by after-damp however improbable in such mines an explosion of fire-damp might appear. The remedy consists in forming the shafts and main channels of the in-take air so strong that they shall resist the explosion; by this means even in such a contingency the fresh air will reach to within a reasonable distance of the end of the work in a sufficient quantity to support life, and by the assistance of a stream of water in the shaft, or a steam jet, or other auxiliary in the up-cast (provided for such emergencies) a current of fresh air will be established.

Doors and other weak points should be kept as far from the shaft as practical, and assisted by dam and swing doors, and the other means adopted in similar collieries. The main stoppage should be never less than ten yards in length, and consist of strong double walls closely stowed between. The great reaction which follows an explosion is accountable for the fact that the gaseous products return to the same bulk, with the exception of that due to the increase of temperature. For every volume of carborated hydrogen there results one volume of carbonic acid gas, and eight volumes of nitrogen, requiring at least 24 volumes of atmospheric air to render them at all respirable.

The necessity is therefore manifest for introducing as much air as possible by the intake channels. The remedies to which I have referred are founded on these two properties, and need not in any way interfere with the economical working of a colliery. It is unnecessary for me to enter into explanations respecting the necessity for the diversion of the



Dark & Hot – A miners life underground

work into panels or districts which Mr. Blackwell has so ably illustrated, as in his remarks and recommendations I thoroughly concur.

I am further of the opinion that amongst the printed rules of a mine there should be stated the course to be adopted by the colliers in the event of an explosion, and the points of escape defined. The uncertainty how to act under such circumstances doubtless caused the loss of many lives. The explosion of this colliery at once destroyed the doors and stoppings between the main level and the return air-course so that an influx of after-damp cut off the retreat of 48 men, and the change in the current of air produced by bringing the pumping pit into operation appears to have thrown the after-damp out of the return air-course into the in-take level.

Without alluding further to the all-important time lost in effecting any change I will point out that it sets, if possible, in a stronger light the danger under any circumstances of a brattice shaft, and the necessity for an unalterable in-take air-course.

In conclusion, I have to state that although I do consider the foremen of the colliery to have neglected the duties assigned to them, I am compelled emphatically to condemn the entire neglect of the safeguards insisted upon at the former inquest.

The loss of 159 lives in the Aberdare Valley by explosions, all of them arising from the peculiarly dangerous state of the fire-damp in the four-foot-seam and the overlying strata urgently demands the entire exclusion of naked lights and the ordinary furnace, and the adoption of strictly enforced rules and a larger ventilation.

I beg to thank Mr. Blackwell the talented assistance which he has brought to bear at the desire of the Secretary of State in this case; and the coroner and gentlemen of the jury for their patient and careful investigation they have given to the points which it has been my duty to bring before them.

Herbert J. Mackworth

The Coroner sums up

The coroner then summed up the evidence as follows; and as the inquiry has excited great general interest, and is most important we give his remarks *in extensor*: -

Gentlemen – we have now brought this important inquiry to a close, and it only remains for you to come to a conclusion upon the evidence you have heard. To enable you to be easier to do so, I will endeavour to draw your attention to such parts of the evidence as appear most important, and explain to you what I consider to be the law applicable to cases of this kind, but before I do so, gentlemen, allow me to thank you the earnest attention and diligence you have devoted to the matter, and more particularly to those of you who kindly acceded to my suggestion, and went down the pit to make a personal inspection of the colliery. In my address to you at the commencement of these proceedings, I drew your attention to four points, upon which I conceived you ought to be convinced, before you could safely arrive at a correct conclusion in the present case. I shall now proceed to inquire how far the evidence applies to those four questions, but before I do so, I will first of all explain you the law as applicable to such cases.

If you consider that the sad calamity that has occurred has arisen from gross carelessness or wilful neglect of the owner, or any person who has the management or control of the pit, then it will be your duty to decide upon whom the blame rests, and against him or them you will return a verdict of ‘manslaughter,’ but, on the other hand, if you do not consider that wilful negligence or gross carelessness, amounted to criminality, has been proved against any individual connected with the colliery, then it will be your duty to find a verdict of ‘accidental death,’ only, and you can accompany it with any observations your may think proper.

In the commencement, I propose dividing this inquiry into three heads – fire-damp, after-damp, and breaking of the ladder; but as the cause of death in this case now appears to have emanated from the same cause, my observations will apply equally to all, as they are so intimately

connected it will, perhaps, be more convenient at present to consider the three inquiries together.

The first point to which I directed your attention was the ventilation of the pit. Now, on this point, I am sorry to say, a serious discrepancy arises; and it is the only point in the investigation which involves any doubt or uncertainty. It appears from the evidence of the men engaged in the pit, that they universally admitted that amply sufficient ventilation was in the pit at all times; and I ought, in justice to the proprietor hear I repeat what I previously intimated to you, gentlemen, and communicated to the proprietors agents, that previous to our adjourned meeting on the 19th, I called a meeting of the colliers employed in this pit, and asked them, in the presence of Inspector of Mines, Mr. Mackworth, whether they had any complaints to make as to the ventilation or management of the pit.

And they all of them admitted that they had none, and that there was an abundance of air at all times. I did not, therefore, go into the evidence on that, and I think that, as far as the opinion of all the men goes, we may take it for granted, that there has been no deficiency of air, and that there has been sufficient ventilation for all *ordinary purposes*; but, gentlemen, on the other hand, I must tell you, that there have been strong and potent objections urged against the principle or system upon which that ventilation is based; and it has been deprecated, nay, even positively condemned, as a system not calculated to afford sufficient protection in a fiery seam like the one in question.

I felt it my duty, at the commencement of this inquiry, to draw your attention to the report of Mr. Blackwell, the then Inspector of Mines, at the time of the last explosion at this same colliery; and the result has shown that he must have been endowed with a prophetic spirit, when he suggested the precautions he then made.

I confess that I was not a little surprised, on the present occasion, to find that his suggestions had been disregarded; and, I must say, it certainly involves the proprietor of the colliery in serious responsibility.

On the other hand, we were told by Mr. Thomas Williams, that Mr. Powell, the proprietor, consulted other persons in whom he had confidence, and was guided by their opinions, and they advised him to continue the same system; but, gentlemen, none of them were called to confirm that statement. Mr. Griffiths, another agent of Mr. Powell, afterwards informed us, that he proposed making a communication between some of the pits, which he is making in the Cefn Pennar valley; and as soon as that could be effected, it was proposed to combine the two for the purpose of ventilation; and, consequently, the arrangements were in a stage of transition, and the present mode was only intended temporarily; and further, that no allusion whatsoever was made by Mr. Blackwell to a dumb-drift.

You have had the evidence of the professional men on this head, and as there is a particular class of evidence, I will defer the observations I have to make upon it, until I have referred to the other point. The next point, 'how and by what means did the explosion arise?' appears a question of easy solution. It appears very manifest, from the evidence as well as the facts that has since been ascertained, that a large, indeed an immense fall took place in the No. 2 dip heading, by means of which a large body of gas, called a 'blower,' became discharged from the superincumbent strata, or the seam of coal (which is generally supposed to be of a very fiery nature) above, and the gas, after becoming released, forced its way along the return air-courses to the flue, where it ignited and exploded, and then communicated back from the flue to the heading from whence it proceeded, and from there became exhausted.

This fact may appear strange to persons unaccustomed to this particular seam of coal, but it is, unfortunately, too well known to us who have had so many melancholy instances of its effect, that the seam is subject to discharges of gas, that in their effects resemble more a volcanic eruption, if I may use the term, than an ordinary fall. The absence of all indications of fire in other parts clearly showed the fire originated in that heading, and could only have been extended along the return air-course, and the part of the main level that lies quite contiguous to it; that and other circumstances clearly show the origin of this sad and appalling event, and

this leads us to the next and third point – viz., - ‘Have the different officers discharged their duties properly?’

So far as attaching the slightest possible blame to any of the immediate officers and men attached to this pit, I must say I have never met an instance in my experience where such good rules and regulations are adopted – and such sufficient discipline observed. As soon as Shipley received information of the state of the roof, he immediately adopted such steps as he considered most effectual to prevent any serious consequences. It may, possibly, be suggested, that when Shipley received intimation of the working of the roof, he ought to have taken some still stronger steps, by stopping the works, or insisting upon the use of safety lamps; but, gentlemen, we must bear in mind he was comparatively a stranger, and was not aware of the peculiar character of the coal, and, I must confess, I think he took all the precautions that could be expected from him under the circumstances.

If there is any blame to be attached to anyone, it is to his superiors, who ought to have cautioned him on the subject; and I think I ought here to make some observation upon the evidence of the next witness, Thomas Williams. His position and duties appear very vague and undefined, and, I confess, I am quite at a loss to ascertain to what extent they certainly do go. If, as he states, he has the management of the pits and collieries, it must surely indicate very culpable indifference of carelessness on his part, not to have known the contents of Mr. Blackwell’s report on the last occasion, when it appears a copy was actually sent to his master. I cannot avoid expressing my high admiration of the promptitude, decision, and courage manifested by Shipley, Coxon, and others, after the unfortunate occurrence, when, were it not for the timely aid afforded by them, still more lives would, I fear, have been sacrificed.

Fourth – The last question you will have to consider, as to ‘whether any culpable negligence attaches to anyone connected with the pit?’ I have already anticipated in a great measure; but to sum up the following conclusions, I would observe, that it appears to me that the evidence clearly shows that the origins of the present occurrence was the sudden and unexpected discharge of gas, by a fall of the roof, which ordinary

circumspection and attention could not, I apprehend, have foreseen or prevented; and the minor agents and men employed at the pit are perfectly clear from the clearest shadow of blame.

But how far an improved and different system of ventilation would tend to avert explosions of this kind, and the consequent evils, is a question of grave consideration, which, I think, it beholds us most materially to consider; and with this view I have solicited the appointment of several gentlemen, to whom I feel greatly obliged, who were kind enough to attend here yesterday; and I will now draw your attention to the opinions they have expressed.

But, gentlemen, before I proceed to commence upon their evidence, allow me to express what I conceive to be the effect of the explosion in the present case. It certainly appears, from the evidence, that the system of ventilation adopted at the Middle Duffryn is totally insufficient for working such a fiery seam as the one in question, and I think the proprietor is open to severe censure regarding the suggestions made by the Inspector of Mines, Mr. Blackwell, on the former occasion; still, I am not prepared to say, that such conduct on his part amounts to such culpable negligence as may be considered criminal.

There is a prejudice, unfortunately, too often against all new systems or theories, and many persons are liable, from that feeling, to defer adopting improvements that may be very beneficial. I fear that may be the case in the present instance, and I am sorry to say, there are two evils, which I fear exists to too great an extent amongst the coal owners in this district, which, I think is greatly to be regretted - that the omission to prepare a proper, well-digested and arranged plan, before they commence operations, and which should afterwards be adhered to strictly, and, secondly, I fear there is too often an omission in employing properly educated, scientific, and well-informed men to carry out these plans; in other words, I fear they trust too much to practical men alone, and despise entirely all theory and science.

In my address to you, I express the sincere desire that we might be able to elicit some information that would be a means of averting such

accidents for the future; and with that view I propounded four questions, which appeared to me most important, and solicited the opinion of the most experienced and talented mineral agents in this district, and feel extremely thankful to them for the kind manner in which they responded to my application; and I feel that we have elicited most important and valuable information; and it must, I am sure, have struck you, as it did me, how really they all concurred in their opinions.

They all disapproved of brattice shafts – they all considered it dangerous to use naked lights. On the system of working some valuable modifications were suggested by some of them. And upon the last and most important question of all, the investigation of the due effects of the after-damp, some most useful practical suggestions were made, which, if adopted, would, I feel persuaded, decrease the danger ten-fold. I feel that we have done a benefit by eliciting this information, whatever other advantage this inquiry may have; and we may, I trust, rest satisfied that we have done our duty. I cannot avoid alluding especially to the very able and scientific reports of Mr. Blackwell and Mr. Mackworth, which contain such valuable information. The room was then cleared. After an interval of two hours and a half we were readmitted, and the coroner read the following verdict: -

The verdict

In the case of Thomas Pritchard we find a verdict of ‘accidental death,’ and we are of the opinion that the Middle Duffryn pit was at the time in a good state of ventilation for ordinary purposes, but that a fall in No. 2 cross heading to the dip produced a large discharge of gas that passed along the return air-courses to the flue, where it ignited, and caused the explosion which resulted in such a great sacrifice of human life.

We are also of the opinion that no neglect or culpability is attached to any of the agents, or men in their employ; notwithstanding, we much regret that the recommendation of the jury, and the suggestions of Mr. Blackwell on the occasion of the last explosion had not been complied with; and we earnestly recommend that the proprietor be conjoined to adopt Mr. Blackwell’s plan of ventilation – especially the dumb-drift.”

The coroner said this verdict had reference to Thomas Prichard. What was their decision on the case of the other two men? Did the jury think it necessary to make any allusion to the mode in which they came to their death? Mr. John Lewis, grocer, (foreman): - "We have no opinion or recommendations to give in the matter, being of the opinion, that all the deaths were occasioned by the same cause - the explosion - which occasioned the bursting or breaking open of the stoppings, thereby preventing the action of the fresh air, and, consequently, the death of the parties."

The coroner: - "Would you like to consider that matter, or to make a special verdict?" Mr. John Lewis, after speaking to his fellow jurors: - "No, we do not think it necessary to give any further opinion or recommendation." The coroner: - "If you would wish to consider it, perhaps you can do it. Perhaps you'll take a few minutes to consider it." Mr. John Lewis: - "No, we have considered it. From the evidence we are of the opinion that the bursting of the stoppings prevented the action of the fresh air and caused the after-damp to be so fatefully affected."

The coroner (after speaking to Mr. Mackworth) said: - "Would you like to consider it? Perhaps you would like us to make a special verdict?" Mr. John Lewis: - "We would not." Another juror: - "It was purely an accident." Mr. John Lewis: - "Yes, I have said that more than once. We have considered that in considering the whole case." Another short consultation took place between the coroner and Mr. Mackworth; after which the coroner said to the jury: - "Do you wish to attach anything to your verdict in the case of Owen Evans?" Mr. John Lewis: - "No, sir." The coroner: - "Very well, if you do not wish to attach anything to it there is the end of the case."

The followings verdicts were at the end of the day handed to us (the press): - "In the case of Owen Evans, we find a verdict of 'accidental death,' arising from suffocation, produced by the explosion of fire-damp in the Middle Duffryn coal pit. In John Richards's case we find a verdict of 'accidental death,' from the breaking of the stage upon which one of the ladders in the pumping pit was fastened - caused by the explosion."

Reaction to the verdict

Several letters appeared in the South Wales newspapers after the above verdict, some critical, but some as below trying to be helpful. The '*Monmouthshire Merlin*' of June 11th 1852 carried this letter: -

The late Aberdare explosion

To the Editor - In the report of the inquest (published in the *Merlin* of the 29th ult.), Mr. Llewellyn, in answer to a question put by the coroner, is reported to have said, that there was not a better conducted colliery than the Middle Duffryn in the district. Mr. Llewellyn is perfectly competent to give an opinion upon this subject, but to what an inference does it lead? For if the best conducted colliery in the district explodes and sacrifices its 60 or 70 - a colliery under the control of an able pitman, a man fully alive to the responsibilities of his charge - what may we not expect from the many other collieries in that district; each of which is below the Middle Duffryn, in the scale of safety? Probably some are so low, as to oscillate (with every change of the barometer) betwixt safety and danger. By an analysis of the evidence taken at the Aberdare inquest, we can only arrive at these conclusions: -

1st. That all the pitmen working in the Aberdare district are in danger.
2nd. That that danger is part and parcel of the system there pursued, in working the collieries, and that consequently that system is bad. In 1846 I published a series of letters in the Mining Journal, - in which I stated that the mode of laying out and working the Welsh fiery collieries was so objectionable, and opposed to good ventilation, that as the pits became deeper and more complicated in their workings, explosions would naturally follow. I am sorry my forebodings should have been so soon and fatally realised.

I also published in those letters, a plan of working and ventilation, intended to combat the evils of the then and present system. My friend, Mr. Dobson, of Treforest, proposed a precisely similar plan, to the Lords' Committee, in 1849 and since then, he has shewn me a plan (superior in many respects to either mine of 1846, or his of 1849), for laying out and



Colliers relax in the nearest public house after another hard shift underground. Cwmbach C.1910

working a fiery colliery, which would, I am satisfied, go far to render the most fiery colliery safe. The plan and principles upon which the Welsh collieries are conducted are essentially bad, and, until we have a thorough sweeping reform in the first laying out, coupled with more scientific supervision in the working, we shall remain open in the widest sense of the word, to these disastrous occurrences. I don't now purpose going into the required alterations or changes - this, I am afraid, would take more of your space than you can afford (for an introductory letter), but with your permission, I will return to the subject. I may, however, state my opinion, as a practical man, that it is possible to make the explosion the exception, and not as it is, or will be, the rule that it is possible, in new collieries, to make such arrangements, as will provide a greater degree of safety for the workmen, than now exists. I am, sir, yours, &c., **Fergus Best, Machen, June 1, 1852.**

The victims and those left behind had great sympathy from those around them and soon plans were underway to help support them through these hard times. The '*Cardiff & Merthyr Guardian*' of Friday July 16th 1852 reported: -

The recent fatal colliery explosion at the Middle Duffryn Pit – Meeting at Aberdare

On Wednesday evening last, a public meeting was held at the National School-room, Aberdare for the purpose of raising a fund for assisting the widows and children of the unfortunate men who perished in the late lamentable accident at the Middle Duffryn Colliery, the circumstances of which it is unnecessary here to recapitulate, as they must still be fresh in the recollection of our readers.

The meeting was not so well attended as we could have wished; still, however, the proceedings were very unanimous and we sincerely hope a fund will speedily be raised commensurate with the amount of suffering to the bereaved, and in accordance with that spirit of liberality for which our countrymen are so famed. We cannot but allude to the exertions of Mr. Thomas Evans, chemist, and Mr. Philip John, both of Aberdare, who

CAN NEWYDD,
 YN RHODDI HANES AN
Y DDAMWAIN DRUENUS
 A GYMERODD LE
 NGWAITH MR. POWELL,

SEF

Pwll y Dyffryn, gerllaw Aberdar,

Ar ddydd Llun, Mai 10fed, 1852,

Pryd y taniodd y Damp, fel y laddwyd tri a thri-
 ugain o honynt yn feirwon yn y fan, bu farw tri er-
 aill yr un dydd, a dau eraill trannoeth.

Enwan ac oedran y rhai a laddwyd:—

Edward Davis, 34 oed, David Davis, 14, Richard
 Smith, 38, Richard Smith, 17, Richard Jonathan, 43,
 David Rees, 52, Ebenezer Morris, 32, David Morris,
 10, John Morris, 11, James Jones, 37, William
 Jones, 12, Daniel Matthews, 18, Richard Richards,
 55, Thos. Jerkin Rees, 29, Owen Jenkins, 27,
 William Lewis, 23, Rees Hopkins, 50, John Hopkins,
 15, William Marks, 15, Charles Marks, 11, Jenkin
 Rosser, 22, John Thomas, 12, Jenkin Aubrey, 28,
 David Lewis, 32, Thomas Williams, 28, John Rees,
 36, William Ashton, 22, David Jenkins, 36, Edmund
 Phillips, 16, Charles Davis, 46, Evan Evans, 47,
 Evan Evans, 21, Richard Evans, 11, Samuel Rees,
 37, Charles White, 35, Thomas Pritchard, 36, William
 Richards, 16, John Richards, 12, Thomas Rees, 23,
 William Andrews, 29, James Griffiths, 20, Thomas
 Rees, 13, John Jenkins, 12, Thomas Evans, 41,
 Charles Thomas, 46, Evan Thomas, 19, David Thomas,
 17, Charles Thomas, 11, Henry Davis, 26, Rosser
 Thomas, 32, Rowland Rowlands, 43, David Jones,
 38, Lewis Jones, 42, William Jones, 16, John Jones,
 14, Owen Evans, 56, Thomas Morgan, 23, William
 Samuel, 16, John Griffiths, 21, Daniel Deer, 26, David
 John, 11, Levi Harris, 27, Thomas Phillips, 39,
 David James, 36,

Mourning sheet produced at the time of the disaster

have been unsparing in their efforts to bring about this desirable end. The particulars of Mr. Powell's handsome proposal and generous conduct since the catastrophe will be found below; and we hope the proposal will be taken in the same liberal spirit in which it is offered.

Amongst those present we noted: - H. A. Bruce, Esq., David Davis Esq., Blaengwawr; D. Davies Esq., surgeon; Bryngolwg; Lewis Lewis, Esq., Aberdare; Rhys Rhys, Esq; Llwnycoed; Rev. Thomas Price, Aberdare; Messrs. John Jones, Bethuel Williams, Morgan Williams, and Sherborne.

Henry Austin Bruce, Esq; who services can always be commanded when the welfare of the poorer classes is concerned, consented to preside, and having taken the chair, introduced the objects of the meeting as follows: - He said he felt that, on that occasion, he was called upon, not so much, on behalf of the inhabitants of Aberdare then assembled, but to give an explanation of the objects of the meeting, and to give an explanation why that meeting was not held before.

It seems unnatural that a meeting should not have been held at the time when the accident occurred which carried off the support of so many wives and children; and he considered it was incumbent upon him, as their representative, at the meeting, to state the feelings of the inhabitants of Aberdare; to ask why they did not sooner come forward to the relief of the unfortunate sufferers.

The simplest way to do this would be to give an account of what had taken place since the catastrophe. A day or two after the deplorable event, Mr. Oakley, one of the principal agents of Mr. Powell, came to him (Mr. Bruce), and said he was extremely anxious that an attempt should be made to raise a subscription on behalf of the widows and orphans, at the same time expressing his opinion that a considerable sum might be obtained.

He (the chairman) told Mr. Oakley that he would do everything to assist him, but thought it would be better to await the verdict of the coroner's jury; as, if the evidence satisfactorily proved that the lives of those men had not been sacrificed through neglect or an endeavour to economise

on the part of Mr. Powell, and which no expense could have prevented, then there would be a very good view to call upon the public to come forward to the assistance of the widows and children.

On the other hand, if the verdict did attribute any neglect on the part of Mr. Powell as to the cause of the calamity, the public would say, the maintenance of the widows and children should fall on him and him alone. Mr. Oakley acquiesced in this. Soon after, Mr. Griffith spoke to him (Mr. Bruce) on the subject, when he told Mr. Griffith that he would subscribe too, and do his best to assist in raising, a fund; but, perhaps, they could not raise sufficient to present the distressed parties with a sum equal to that which was then being given them by Mr. Powell, any provisions which they could make being only temporary.

After the laps of two months, during which Mr. Powell was making the poor widows weekly allowances, it appeared that many of them were very far from being in the comfortable circumstances in which they had previously been, although they managed to live; and it was suggested that a sum might be raised to provide them with a few little comforts, but not to interfere with the sum given by Mr. Powell. He (the chairman) was requested to communicate with Mr. Powell, and obtain from him the assurance that any assistance they might give to the unfortunate beings should not interfere with the allowance he was making them. In consequence, he wrote to Mr. Powell, requesting that assurance, who, in reply, said he would prefer speaking, rather than writing to him upon the subject. He had met Mr. Powell since, and spoken to him concerning the matter. That gentleman then stated that although he wished to assist those unfortunate people as far as lay in his power, he considered he was not bound always to support them; but he should be happy to take part in any effort made for them by the contribution of a very large sum – that sum he named as £500. (Applause).

Now it appeared to him that Mr. Powell was correct in his views. He (the chairman) had been down on the pit, and from what he then saw, he could state that Mr. Powell had done all that lay in his powers for securing the safety of the colliers. He had been told, too, by Mr. Shipley, the manager, that Mr. Powell never saw him, but he told him to do

whatever he could for the safety of the men; and it was his (Mr. Bruce's) opinion, and also that of Mr. Shipley, that Mr. Powell had done what he had considered to be best and safest without regard to expense.

He (the chairman) did not think that Mr. Powell ought to have cast upon him the burden of supporting those unfortunate people, but that he had considerable claims to the sympathy of his neighbours. His belief was that a considerable sum may still be collected, besides the sum Mr. Powell had set down. No doubt, had they applied when the public were in a state of excitement with regard to the melancholy circumstances, they would have met with greater success than at present; still he thought there were many benevolent individuals who are ready now to subscribe very liberally in order to establish the widows in some decent position in life.

That was the object that they were met that evening, he had lately been so much engaged that he had not been able to pay that attention to the matter which he hoped to be able to do hereafter. But there was no doubt that if a committee were formed, that many humane parties could be found in Aberdare to assist them, and that means would be devised for alleviating the present position of those unfortunate women. Mr. Powell was ready to pay down £500 immediately, out of which some temporary relief may be afforded until some scheme was settled. The number of widows made by the accident at the Duffryn Colliery amounted to 28, and the number of fatherless children to 63.

And he (the chairman) thought a sum which would enable the committee to put the mothers of these unfortunate children in some position in life might be collected by the generosity and liberality of the people of this country. The circumstances of the case appeals strongly to the inhabitants of Aberdare. They were met in the midst of a flourishing town, which had been raised to its present position by the hard work and industry of that class to which the unfortunate men whose case they were then met to consider belonged.

A larger share of sympathy should be shown towards that class than those who depart the life under ordinary circumstances. They could all

understand what were the feelings uppermost in the mind of the unfortunate workman when he heard the rumbling of the explosion, and believed that there was no chance of escape from the threatened destruction. The cry was – “Oh, god! What will become of my wife and children? Will my wife be compelled to accept that support from the parish that will be hardly enough to sustain her life. And my children - are they to become the inmates of a workhouse, and, perchance, the companions of children habituated to crime?”

That was the natural feeling which passed through the mind of every person at such a moment; and it would be some comfort to those people to know that their families would not come to such a situation, but that if they perished during their labour, there were those that would endeavour to support their widows, and bring up their children in a respectable manner. It was for those objects they were met, and he was sure the committee which would be proposed would do their utmost to carry out the principle they had most warmly at heart.

In conclusion, the chairman read letters which had been received by Mr. David Williams, and the Rev. John Griffith, Vicar of Aberdare. The former gentleman enclosed a cheque for £10, at the same time regretting his inability to attend the meeting. Mr. Griffith stated that he should be most happy to render any assistance that lay in his power when he returned from the country, and begged the acceptance of a handsome donation. The chairman mentioned several other sums which had been received (amongst which we notice Herbert Mackworth, Esq., Inspector of Mines, £2-6s. and £5 from G. L. Coyngnam, Esq.) and stated that he had received many promises of support, and hoped soon to be able to prepare a list which would stimulate the generosity of the public.

The Rev. Thomas Price begged to submit the following resolution. He did not think it necessary to say more after the late statement just been made by the worthy chairman: - “At this meeting, while deeply lamenting the sad accident which lately occurred at the Middle Duffryn Colliery, by which 29 poor women lost their husbands, and 63 young children became fatherless, feels grateful to Mr. Thomas Powell Esq., for the very liberal manner in which he has, upon this, as upon all former occasions,

discharged his duties to the sufferers; and pledges itself by all means to seconding Mr. Powell's efforts to raise a fund, for the relief of widows and children."

The resolution expressed gratitude to Mr. Powell, which was fairly due to him, but not only on that, but on former occasions. He (the Rev. Price) need only say that Mr. Powell had supported eight widows, for seven years past, paying them about eight-shillings per week each, and allowing them to live in his houses. In the present instance that gentlemen had supported the widows and fatherless children since the explosion occurred. They could hardly expect him to do more. It was their duty to do all that they could to make the fatherless children and widows as comfortable as possible. He thought the subject should be taken up by the workmen themselves, as it would be a good precedent.

He did not know whether it would be too much to ask each collier throughout the valley of Aberdare to contribute one day's wage towards the object; but he was sure, that if they did do so, it would operate most beneficially on the richer classes in inducing them to subscribe. He thought they ought to form a committee to second Mr. Powell's exertions. Mr. John Jones seconded, the resolution, in suggesting a formation of a fund for insuring the lives of the colliers. Mr. David Davies moved: - "That this meeting having heard that Mr. Powell was prepared to grant a further sum of £500, and place the same interest for the benefit of the sufferers, considers that a subscription should be opened at once, and a committee appointed to receive the donations of all who may be disposed to contribute. He should be very happy to do all that he could to assist the sufferers. He had no doubt that a sum would be raised which would add something to the comfort of the poor widows, although it could take nothing from their loss. He would ascertain the feeling of his workmen on the subject of contributing a day's pay towards the fund."

Mr. Rhys Rhys, in seconding the resolution, said he would do his best towards promoting the efforts of the meeting. Mr. D. Davis, of Bryngolwg, moved, and Mr. Philip John, seconded: - "That the following gentlemen with a power to add to their number, be requested to form a

committee to carry out the intentions of the meeting: - Henry Austin Bruce Esq., Rev. John Griffith M. A., Vicar of Aberdare; Thomas Wayne, Esq; David Williams, Esq., Ynyscynon; David Davies, surgeon, Bryngolwg; David Davies, Blaengwawr; Samuel John; Mr. Thomas Evans; Mr. S. Shipley, agent; Mr. John Jones; and Morgan Williams. And that Mr. Bruce be requested to act as treasurer, and Mr. Thomas Evans, chemist and stationer, of Aberdare, as Honorary Secretary.

The chairman in putting the resolution to the meeting, observed that, as treasurer, he would do his utmost; and hoped Mr. Evans would see his best endeavours in the more arduous office of secretary. Mr. Evans said he should be but too happy to devote as much time and attention to the subject as he possibly could. It was true he was not conversant with those matters, but he would do all that lay in his power to meet the approbation of this committee, to further the object they had to view.

It was then proposed by Mr. Philip John, and seconded by Mr. Thomas Evans: - "That the above notice be advertised in the *Times*, *Cardiff & Merthyr Guardian*, *Bristol Mercury*, *Cambrian*, and *Monmouthshire Merlin*." On the suggestion of the chairman, however, it was resolved that the advertisement should not be inserted until the succeeding week, when the subscriptions received up to that period would be acknowledged. Mr. Morgan Williams begged to propose the thanks of the meeting to the worthy and humane chairman for his kindness in presiding. Mr. Bethuel Williams seconded the proposition which was likewise the previous resolution, carried unanimously. The chairman, in responding to the compliment, observed that he was at all times happy to co-operate with them in any matter affecting the welfare of the inhabitants of Aberdare, but never more so upon such a distressing occasion. He exhorted every one present to do his best in his own sphere, and no doubt the result would be very satisfactory. The meeting then separated.

The late colliery explosion at Aberdare

The '*Cardiff & Merthyr Guardian*,' of Saturday, August 14th 1852 wrote: - The following is a list of the subscriptions already received for the benefit

of the 29 widows and 69 children, who were rendered destitute by the above said calamity: -

Mr. Thomas Powell Esq., the Gaer	£500
J. Bruce Pryce Esq.,	£40
Sir J. J. Guest, Bart; M. P.	£20
Mr. Crawshay Bailey Esq., M. P.	£20
Workmen in the employ of Thomas Powell (1st contribution)	£20
The Lord Bishop of Llandaff	£10
The Lord Bishop of St. David's	£10
Henry Austin Bruce, Esq.	£10
J. R. Morgan Esq., Gladys	£10
Aberdare Iron Co.	£10
Werfa Coal Co.	£10
David Williams, Esq., Ynyscynon	£10
D. L. Davies, Esq.	£10
Workmen employed at Blaengwawr	£5
George Lenox Conyngham Esq.	£5
Nash Edwards Vaughan, Esq.,	£5
Measures Drew, Halewood and Baron, London	£5
Messrs H. A. Prichard & Co., Bristol	£5
Etc.	
Etc.	

Leaving a final total of £775 – 9s.

Further subscriptions will be thankfully received.

Henry Austin Bruce, Treasurer

Mr. Thomas Evans, Hon. Secretary

Messrs Wilkins & Co, bankers, Merthyr.

An so another sad event had taken place and slowly faded from the memory of those who had no connections with the victims, but the families left behind would suffer and the small amount raised would not sustain them for long. For many widows the only escape was to remarry, but for mothers with children new husbands were hard to find and the workhouse beckoned for some.

List of those that died

1. Edward Davis , aged 34, collier, wife and five children.	2. David Davis , son of previous, 14, collier.
3. Richard Smith , 38, collier, wife and two children.	4. Richard Smith , son of previous, 17, collier, single.
5. Richard Jonathan , 43, collier, wife.	6. David Rees , 52, collier, widower, two children.
7. Ebenezer Morris , 32, collier, wife and four children.	8. David Morris son of previous, 10, collier.
9. John Morris , son of above, 11, collier.	10. James Jones , 37, collier, wife and four children.
11. William Jones , son of previous., 12, collier.	12. Daniel Matthews , 18, collier, single.
13. Richard Richards , 55, collier, widower, two children.	14. Thomas Jenkin Rees , 29, collier, wife.
15. Owen Jenkins , 27, collier, single.	16. William Lewis , 23, collier, single.
17. Rees Hopkins , 50, collier, wife and one child.	18. John Hopkins , son of previous, 15, collier.
19. William Marks , 15, door boy.	20. Charles Marks , 11, door boy.
21. Jenkin Rosser , 22, collier, single.	22. John Thomas , 12, door boy.
23. Jenkin Aubrey , 28, haulier, wife and two children.	24. David Lewis , 32, collier, wife and two children.
25. Thomas Williams , 28, collier, wife and four children.	26. John Rees , 30, collier, wife and one child.
27. William Ashton , 22, collier, single.	28. David Jenkins , 36, collier, wife and five children.
29. Edmund Phillips , 16, collier, single.	30. Charles Davis , 46, collier, wife.
31. Evan Evans , 17, collier, wife.	32. Evan Evans , son, 21, collier, wife and child.
33. Richard Evans , son of previous, 11, collier.	34. Samuel Rees , 37, fireman, wife and child.
35. Charles White , 35, collier. wife and three children.	36. Thomas Pritchard , 36, collier, wife and four children.
37. William Richards , 16, collier.	38. John Richards , 12, door boy
39. Thomas Rees , 23, collier, wife.	40. William Andrews , 29 collier, wife and family.
41. James Griffiths , 20, collier, single.	42. Thomas Rees , 13, door boy.
43. John Jenkins , 12, door boy.	44. Thomas Evans , 41, collier, wife.

45. Charles Thomas , 46, collier, wife and four children.	46. Evan Thomas , son of previous, 19, collier, single
47. David Thomas , son of above, 17, collier.	48. Charles Thomas , brother of previous, 11, collier.
49. Henry Davis , 26, collier, single.	50. Rosser Thomas , 32, collier, widower and one child.
51. Rowland Rowlands , 50, collier, single.	52. David Jones , 38, collier, wife and two children.
53. Lewis Jones , 42. collier, wife and four children.	54. William Jones , son of previous, 16, collier.
55. John Jones , son of above, 14, collier.	56. Owen Evans , 56, collier, wife and three children.
57. Thomas Morgan , 23, collier, single.	58. William Samuel , 16, collier.
59. John Griffiths , 21 haulier, single.	60. Daniel Deer , 26, collier, wife and two children.
61. David John , 11, door boy.	62. Levi Harris , 27, roadman, single.
63. Thomas Phillips , 30, collier, wife and four children.	64. David James , 36, collier, wife and three children.

Cwmneol pit, Wednesday, 28th November 1855
Melancholy accident at a coal pit near Aberdare - Eight lives lost.

One of those melancholy catastrophes which happen now and then in the mining and manufacturing districts, plunging whole families into the deepest gloom and distress, occurred, we are sorry to say, on Wednesday evening last, at the Cwmneol Coal Pit, Cwmaman, belonging to Messrs. Morrison and Carr, and by which the lives of eight individuals have been sacrificed. It appears from information that at a little after six o'clock on the evening in question, the day workpeople were about to be relieved by the night men, and eight individuals ascended in a carriage; but, unfortunately, from some cause or other the engineer failed to stop it at its appointed place at the pit's mouth, and it was carried up to the sheave, when the men were dashed precipitately out of it into the pit, a depth, we understand, of about 250 yards. The cable that connects the carriage and the rope broke, and the former fell on the bank after the unfortunate sufferers had been thrown into the pit. A local newspaper reported: -

Frightful colliery accident

One of the worst accidents which has happened in the neighbourhood of Aberdare, South Wales, for some time past, has just occurred, and by which eight men have lost their lives. From inquiries made on the spot we have obtained the following facts, which may be relied on: - The scene of the accident is at a somewhat extensive colliery called Cymnwl, belonging to Messrs. Carr and Morrison, and distant about three miles from Aberdare. One of the pits is worked by means of the ordinary engine, which lifts and lets down the same shaft men, horses, minerals, &c. This engine is in charge of a man, whose sole duty it is to attend to a signal bell, which gives timely warning of the approach of the carriages towards the top. On the evening of the Wednesday, 28th ultimo the man in charge of the engine left his post about 5 o'clock, and his place was taken by another engine driver, named Solomon Lloyd. The man going off duty saw Lloyd lift one carriage laden with men to the pit-head before he left, and Lloyd soon after brought safely to the top two other carriages also laden with colliers, and, those having alighted, the last batch of men, eight in number, got into the carriage and commenced the ascent. Lloyd himself states that the bell on this occasion did not give the usual signal, - certainly there was no one present to contradict the assertion - and a fearful result followed. The engine continued its speed and the carriage laden with human freight, instead of stopping at the appointed place, was hurled into the air and dashing against the

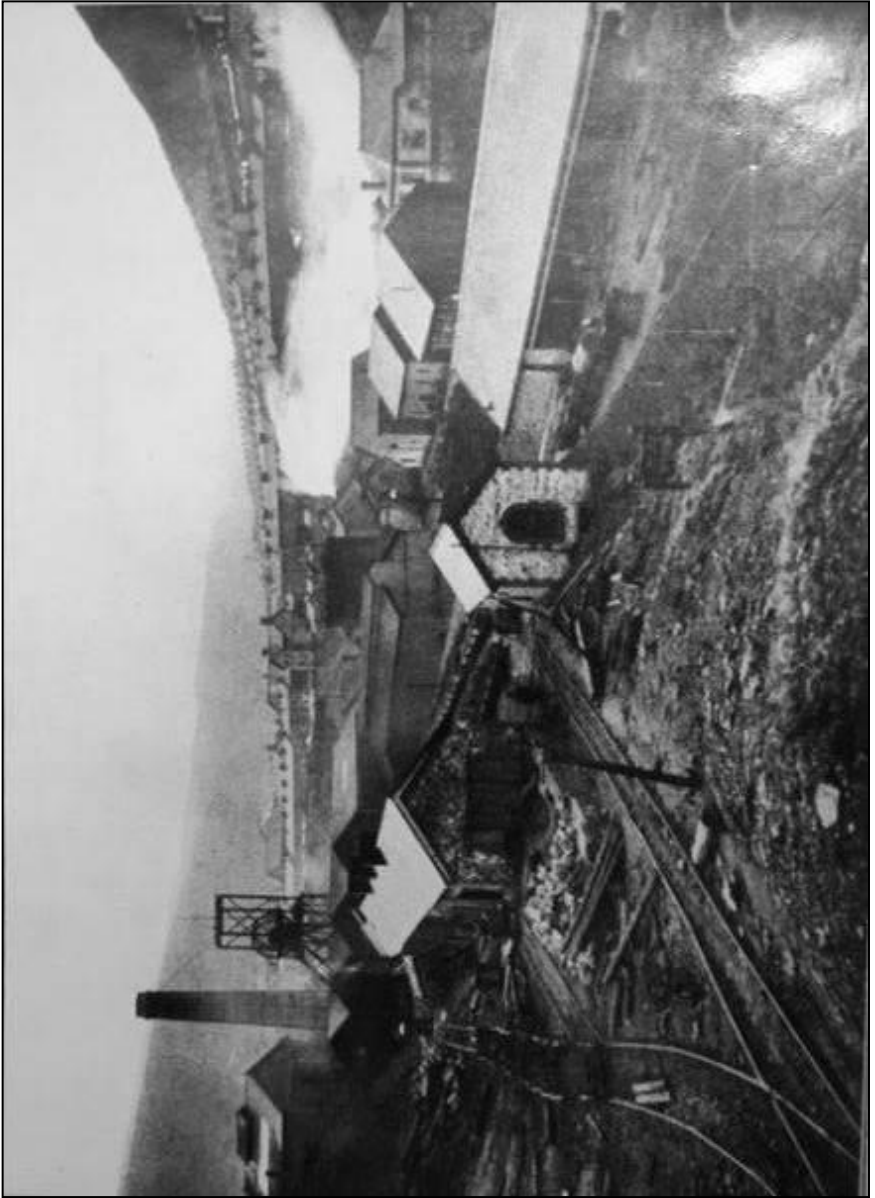
pulley wheel at the top, the chain was instantly broke, and the carriage flung on one side of the pit's mouth.

And here occurred perhaps the strangest as well as the most melancholy part of the catastrophe. The poor fellows, when turned out of the carriage, one and all fell headlong into the pit, while three of their caps were thrown on the ground near the carriage. The depth of the pit is nearly 250 yards, and it is needless to say that the men were immediately dashed to pieces. There were at this time but two men in the pit, one of whom had intended ascending by the fatal carriage, but arrived at the bottom of the shaft just after it had commenced its ascent. He was thus saved from certain destruction.

Two men at the top of the pit also escaped in the same hair-breadth manner. They were about to descend for the night in the carriage which went down as the other came up, when moved by a strange presentiment, they stepped aside as the carriage moved down. At the bottom of the shaft is a deep tank of water, which is covered by a frame of wood. Against this the poor fellows were dashed, as they went headlong down the shaft, breaking in their fall the wood work to pieces, five of them going through into the water below. The three other bodies were lying by the side dreadfully mutilated, one having the head completely severed from the body.

The man who had been left below was quite a few yards from the bottom of the shaft when his unfortunate fellow workmen came tumbling down after the accident, and he plainly saw more than one of them falling head- foremost down the pit. It was of course impossible for him to render them any assistance. Lloyd, the man who was in charge of the engine at the time, was brought before Mr. J. C. Fowler stipendiary magistrate, today, on a charge of manslaughter and was remanded. He seemed much affected at having been the cause of so great a sacrifice of human life, and so much misery to surviving friends. This sad affair has cast a gloom over the whole neighbourhood. Mr. George Overton, coroner, held an inquest on some of the bodies on the 30th, which, after the jury had viewed the place, was adjourned for a few days in order to afford time for the Government inspector to come down. Three of the deceased men were married and had families.

Another newspaper commented: - There have been accidents in this locality when more lives have been sacrificed, but none in which their effects were more severe on the sufferers. The bodies were so frightfully mangled that only one was found to which all its limbs were connected, — heads, trunks, arms, and legs, were dragged out of the sump at the bottom, which is 16 feet deep; and



Cwmneol Colliery also known as Morris's Pit.

stench arising there-from at present is insufferable. On Thursday the scene of the calamity was visited by a great number of people; amongst who were mothers looking for absent sons — wives for missing husbands, and their lamentations were heartrending in the extreme. A corpse was taken to one dwelling when it was discovered to be the wrong one, and the greatest difficulty was experienced in properly identifying the bodies and their members. At four o'clock, on the day last mentioned, one body was still missing, and one had been discovered about half an hour before that time. The names of the unfortunate sufferers, as far as we could ascertain, were Daniel Thomas, of Neath; Richard Weeks; Phillip Kelly, Thomas Jones; Samuel and William Thomas, brothers; and the name of the other we could not learn. We have refrained from saying anything as to the charge of carelessness on the part of the engineer, whose name is Solomon Wild, as he is at present in custody. His conduct will be fully enquired into at the inquest.

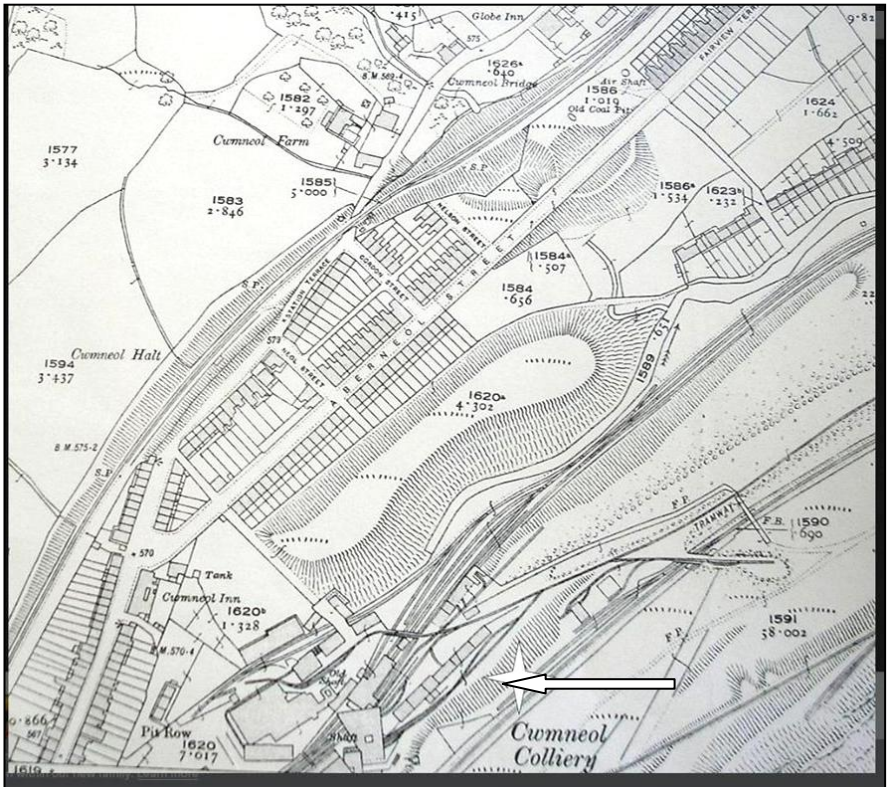
December 5th 1855
Inquest on the bodies

A coroner's inquest, in connection with this fatal accident, was held by adjournment from Friday to Wednesday last - Dec. 5th, at the Boot Hotel, Aberdare, before George Overton. Esq., and a respectable jury, composed of the following gentlemen, to inquire into the death of Thomas Jones and others:—

George Watts, foreman, Daniel Thomas. Thomas Price. D. R. Evans. Abraham Mason. Benjamin Davies. James Gawn, William Bucknell, John John, Evan

Thomas, George Thomas, Evan Thomas, Llewellyn Price, Llewellyn Price, William Parsons, Thos. S. Phillips, Isaac Bellus.

The first witness called was **Humphrey Jones**, who, on being sworn stated: - "I am a fireman at the Cwmneol Colliery. My duty is to attend to the fires under the boilers of the engine; was so engaged on Wednesday, the 28th ult. Went to my work at six o'clock in the evening: Solomon Lloyd was the engineer at the time: I believe he relieved the other engineer, Rees Jones, at six o'clock. It was my duty to open the fans, to allow the cage to descend in the night time. I was so engaged about half-past six o'clock on the night in question, and was standing at the edge of the pit. I heard one knock of the hammer, and then, in about five minutes, heard two knocks: called out to the engineer (Solomon Lloyd) that



Cwmneol Colliery also known as Morris's Pit. O.S. map 1915

there were only two knocks, Solomon said, 'wait until they give the proper knocks.'

In about ten minutes there were three, knocks again; three knocks is the signal that men were coming up. There were three men; John Gould, Henry Morris, and Richard Harry, waiting on the top to go down to the pit, I told them to get into the cage that was about to descend, when they said they had plenty of time to wait, and would stop until the next journey, so the cage descended empty. Gave the engineer directions to pull up, so as to enable me to open the fans and the cage descended. The engine started at the usual rate from the bottom, but when the ascending cage had got up part of the way, I cannot say how far, I perceived that the engine was going much faster than usual. When I saw it going at that rate, and thought it was getting near the top, I shrieked out for fear, in consequence of the speed the engine was going, and drew back two or three yards out of the way; this was before the carriage came to the top. Just at the same instant I saw the ascending cage smash against the pit framing, and then upon the landing at the top of the pit. I was so frightened at the time that I did not perceive whether there were any persons in the cage or not. I have been informed that there were eight men in the cage at the time but I cannot say that I saw them. I was informed that they fell out of the cage into the pit, and were found dead at the bottom.

There is a bell that rings as a signal when the cage is about forty yards from the top; cannot say whether it rung or not on this occasion, as I was too frightened by the speed of the engine, and the noise made by the ascending cage was so much. The noise was more than usual in consequence of the speed of the engine; the engine was going faster than it was when we are raising coal. There is a rule that in rising men up, the cage should come quietly from the bottom to the top, and not so fast as in winding coal. It is my duty, when men are going down or coming up to wait at the fans until the cage had arrived at the bottom. Did not perceive the speed of the engine slackened after it had passed the landing. The sides and top of the cage are shut, but the two ends are open. If there had been men in the cage at the time it struck the top they might have fallen out of the ends.

There were two journeys after I went to the pit before the accident. Just as I went there John Williams opened the fans for one and I opened it for the other. After the first of these journeys Solomon Lloyd called me into the engine-house, and spoke to me in Welsh, and said, 'Humphrey, there is something the matter with that old bell, go up and see.' I took my lamp and went up the ladder to examine it. When I got up to the loft above the bell I found the slide-block had

caught, and was resting suspended in the slide, and the rope slack. I touched the block, and immediately it fell down the slide into the proper place; looked to see if there was any cause for it, but could not perceive any. I never knew anything of the kind happen during the year and a half I have been there. When I got down Solomon asked me why I let it down so quick, and why I did not let it down quietly. I told him I only just touched it and it came down of itself. The block had stopped above the bell. Solomon asked me what was the matter. Told him I had only just touched it and it got loose. The next journey, when I opened the fans, I am positive the bell rang. The time the bell did not ring the engineer stopped the cage before it got to the top landing of the pit."

John Gould sworn: - "I work at the Cwmneol Colliery. On Wednesday, the 28th ult., I went to the pit about half-past six o'clock in the evening, with the intent of going down to work, but finding some companions I expected had not come, I waited for them at the top of the pit. I got into the cage to go down, but as my partners did not arrive, I got out again. Just after I got out, the cage descended. I was within about three yards of the pit at the time. I saw the ascending cage pass up very swiftly and strike against the sheave at the top, and then glanced off at the outside of the pit landing. The deceased, Thomas Jones, and seven other persons were in the cage, and as it struck against the top, they were capsized over the end of the cage against the stage on the engine side which supports the knocker, and then glanced off from the side of the stage, and all fell into the pit.

I went down the pit shortly afterwards with other persons, and we found the bodies of the deceased Thomas Jones, and some others lying dead, and very much mangled at the bottom of the pit. The names of the other men were Phillip Kelly Daniel and Samuel Thomas; Jenkin Davies; William Thomas; William Hooper; and Richard Weeks. I did not notice whether the bell rang or not. I did not consider that the engine went faster than usual before it came to the slacking post, where it did not slacken its pace as usual, and continued at the same speed all the way until it struck the top. I don't think it was checked at all until it struck. I have never known the bell out of order except on one occasion, when the cage struck against the sheave, during the whole twelve months I have been working in the pit. Immediately after the accident, Solomon Lloyd came out of the engine house, and cried 'Oh Lord! the bell did not ring,' and then he began to cry. The cage is planked at the top with deal planks, of one inch thick. The planks at the top of the cage, and at the bottom of the pit were broken by something going through them, but the rest of the cage was uninjured. There was a lighted lamp in the engine-house, and a fire in the grate, at the time of the accident."

Rees Jones, engineer, examined: - "I am one of the engineers at the Cwmneol Colliery. I was at work on the 28th ult., from seven o'clock in the morning, until six o'clock in the evening, when Solomon Lloyd relieved me. The engine was at work all day as usual, and there was nothing at all out of order; the bell ringing every time correctly. I have known several instances during the twelve months I have been there, of the bell being out of order; in consequence of the block striking in the side, I should say about twelve times. It arises from the tar falling from the wire rope upon the block. I told the manager of it. The block most frequently stopped above the bell; only once or twice below it. The block has to pass down the slide first of all each time, and then return before it rings the bell. The block can be seen as it passes down, and we can tell if the block does not pass down; that there is some impediment, and we always stop the engine in time, to prevent any accident. That is the way I have done each time. If the block does not run down, I know there is something wrong, and stop the engine. The only other check we have is to count the strokes of the engine.

It requires 18¼ strokes to bring up the cage, when we suspect anything to be out of order we count the strokes, and almost always do when there are men coming up. The stroke of the engine rises 14 yards. We cannot stop the engine under one stroke; there is a break to our engine and it was in proper working condition on that day. We look to one block as an indicator in the same way as the bell; it shows us the situation of the board in the pit; and I consider it my duty to attend to it. Mr. Ellis, the mechanic, gave me direction to attend to it. When the accident occurred I was sent for, and arrived there in about a quarter of an hour; Mr. Ellis, Mr. Cole, and several other persons were there at the time. Mr. Ellis went to examine the bell, and I accompanied him. We examined the block, the rope, and the bell; the bell was all right, but the rope attached to the block had been broken in two places, and the block was stuck fast in the side, six inches from the top,—higher than it usually works. Do not think the block could have got to that place if the drum had not taken one turn more than it should have done. The engine was put to work again in about half an hour after I got there; the bell rings when the load is about three turns from the top, and when it rings we begin to slacken the speed. I once drew the carriage up very near to the sheave myself in consequence of the bell not ringing but the engine was going slow at the time, and when I saw the top of the cage make its appearance, I stopped the engine in time to prevent an accident."

John Ellis, engine-wright, examined: - I am the engine-wright at the Cwmneol Colliery. Hearing of the accident I went there immediately, and arrived there at about eleven minutes after. The first thing I saw was the cage lying about three yards off the side of it; I then proceeded to the engine house to see the rope,

and find how the rope had given beyond the complement. I found the rope had broken inside the socket, and the drum had made two revolutions more than it ought to have done. I then examined the rope to the block that rings the bell, and found that broke between the sheave and the drum shaft; about two feet from the drum there was about three yards of the rope attached to the block, and was stuck fast in the slide at the first floor above the engine floor. I did not take any notice of how it had stuck. I am aware of the block having stuck twice before in the slide, but only twice, in consequence of the tar falling upon it from the pit rope, and we then washed it and got it cleaned.

The prisoner, Solomon Lloyd, came into our work on the 8th of August last; when he went to work. I went with him to see him start, and found he knew how to manage it rightly. I cannot say that I drew his attention particularly to the block and bell, as I considered he must have known it as he was accustomed to engineering; told me he had been accustomed to winding engine. On the 5th of November I was informed that the prisoner had been fighting, and had broken, his arm, so I suspended him for sixteen days, and he commenced working again on the 24th. I then put him to draw water at night, because I thought his arm was weak, and it would not be so hard. I saw him when he started again, and thought him quite competent to do the work. The majority of the colliers come out every evening before 6 o'clock. I watched him minutely to see if he did his work properly. I examined the block and slide after the accident, and found that it worked correctly. I did perceive not any reason for its not working. I examined the machinery and engines myself, three times a day. I particularly cautioned Lloyd to bring men up slowly. The printed rules are hung up in the weighing machine close to the pit.

Joseph Morgan, haulier, of the same place, was also examined, but his testimony was only corroborative of the foregoing. The learned coroner having summed up the evidence in his usual lucid manner, the jury returned the following verdict: — "That the death of Thomas Jones and others occurred in consequence of Solomon Lloyd not exercising sufficient care in stopping the engine and he was therefore committed on the charge of manslaughter at the next assize."

At the Cardiff Assizes towards the end of December 1855, Solomon Lloyd was acquitted of manslaughter. The evidence in this case was merely a repetition of that given at the time of the inquest.

Those that died		
Jenkin Davies, age 24	William Hopper, aged 17	Thomas Jones, aged 30
Phillip Kelly, age 25	Samuel Thomas, age 25	Daniel Thomas, age 24
William Thomas, aged 17	Richard Weeks, age 23	

Cwmneol Colliery – A short history

Cwmneol (Welsh: Cymnwl) Colliery, also known as Morris’s Pit or Lanky Pit, had two shafts. The South (No. 1) Pit was sunk to the 7 ft. seam in 1848, the Lanky Pit (the upcast) in 1850, also sunk to the 7 ft. seam. At the time of the below accident it was owned by Morrison and Carr. Throughout the years they worked the 2 ft.-9 in; 4 ft.- 6 in; Red Vein, 9 ft; Bute, and 5 ft. veins of coal. They were digging steam coal which in 1859 was sold as ‘Carr’s Merthyr Coal’ and was exported from the Cardiff Docks. Cwmneol was stopped in 1893 and re-opened in 1898, working the lower seams. The name of Morris’s was derived from Martin Morrison, an initial proprietor. The ‘Lanky’ Pit was so called as its winding system was designed for small ‘Lancashire’ trams. 56,368 tons were produced in 1863. The Cwmneol Colliery closed in 1948. Literal meaning of Cwmneol: - The valley of the Neol brook. (Information: - “Cynon Coal - the history of a mining valley” by the Cynon Valley History Society.) The pit should really have been named locally as Morrison’s pit, as it was actually sunk by Morrison & Carr.

LOWER DUFFRYN COLLIERY, THURSDAY, FEBRUARY 25th 1858

Frightful explosion at Aberdare – Nineteen lives lost!

Thomas Powell, of the Gaer, near Newport, opened the Lower Duffryn or Cwmpennar Colliery at Mountain Ash in the early 1850s. In the Aberdare district he started several other collieries, including the Cwmdare, Upper and Middle Duffryn pits, and also owned mines in the Ebbw valley in Monmouthshire. The Lower Duffryn Colliery consisted of two shafts, known as the upper (376 yards deep) and lower pit (345 yards deep), and they were separated by about 350 yards.

Initially ventilation was by furnace, with water balance winding. It was the usual practice on the night shift to allow the furnace to burn low in order to remove the ash from its grate. Following this cleaning on being re-lighted the furnace would take two hours to reach the required heat to effect adequate ventilation. It was during this period that the blast occurred. The *'Cardiff & Merthyr Guardian,'* of Saturday, March 1st, 1858 reported: -

Fearful explosion at Mountain Ash

On Thursday morning, February 25th 1858, the greatest consternation was spread over the district, by the report that another of those terrible fatalities; terrible to the men and their masters – had occurred in the Aberdare valley. The alarm thus occasioned was increased when it became known before noon, that the intelligence was but too true, and that a fearful explosion had indeed occurred at Mountain Ash. On making further inquiries, we ascertained that one of those unfortunate explosions cause by fire-damp had taken place at the Cwmpennar Colliery, commonly known as the Duffryn Pit, from which the widely circulated "Powell's Duffryn Coal" is obtained, and sent out in large quantities from Cardiff to all parts of the world.

At 3 o'clock, an explosion of fire-damp took place in the **upper** part of one of the (lower) Duffryn Pits, which alarmed all those in the immediate neighbourhood, many of whom were told, by an instinctive feeling, that they would never again behold "some near and dear one."

Mr. Powell happened to be in Cardiff at the time the intelligence arrived, and he hastened up to the spot by the first train. He soon found, as we have said above, that the news was too true, and he wrote and telegraphed to W. Williams, Esq., of Caecoed, as well as his manager, Mr. Downing, to that effect.

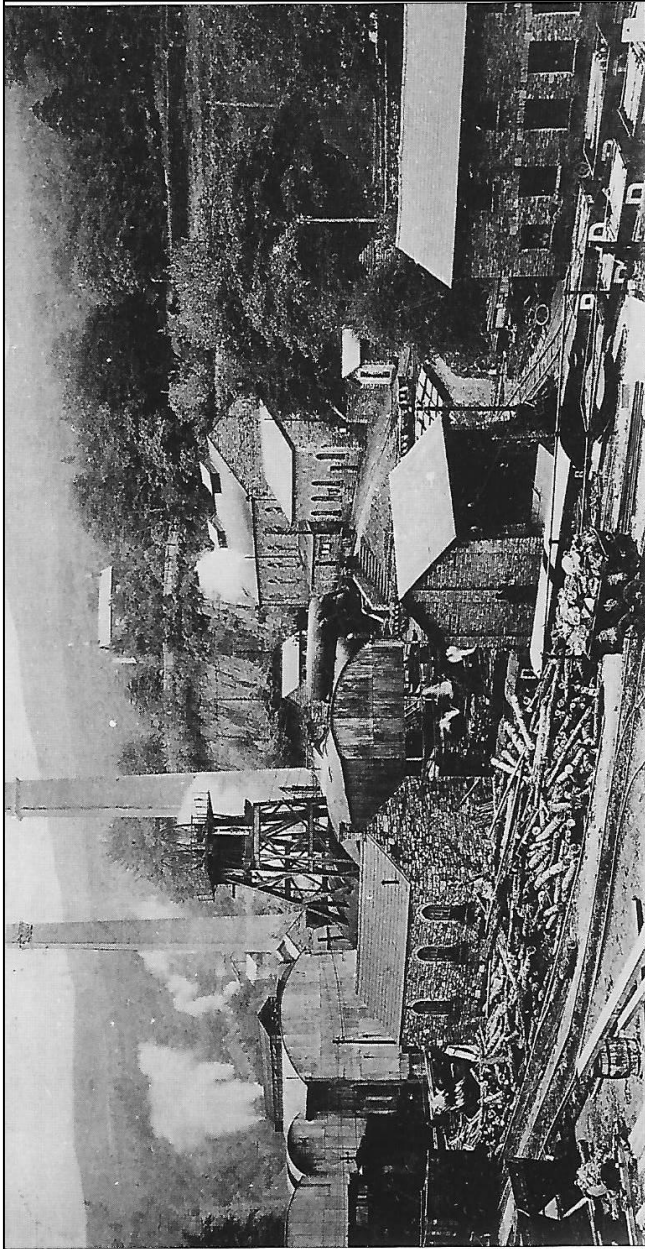
We cannot do better than read the letter of a detailed eye-witness which shows the state of things at the colliery on Thursday, a copy of which has been handed into us: - "I sent you a telegraph with all the particulars I can ascertain about the explosion. I think no blame can be attributed to anyone, as the ventilating in the pit was very good. No damage has been done to the workings than several doors have been blown down. Three horses have been killed.

I believe that only two or three of the men were burned, but as far as I can see, all the others were killed by carbonic acid gas which is still very strong as the ventilation has been made dead, owing to the doors being blown down. We have had great difficulty in getting the bodies out, the chokedamp being so strong that the men are unable to work for more than a few minutes in each place. We shall be in work in all the upper pits tomorrow (Friday) I hope."

The statement received in Cardiff as to the cause of the accident was that one of the men was working in the upper part of the pit, when a fall of coal took place, broke his lamp, and as a natural consequence, was followed by an immediate explosion of the gas which had accumulated in spite of the good ventilation of the pit. The "night-men" who were in the pit, were believed to be all killed or injured, and 25 was thought to be the number of fatalities, but on Thursday afternoon, information was received that 19 only had been killed. Further examination may show a greater number of deaths. The bodies of the men will be buried, in all probability, on Saturday.

An official connected with the Aberdare mining district informs us, after visiting the Cwmpennar Colliery, that 17 bodies have been recovered from the pit up to Friday morning. There were then either two or three miners missing, and there could be no doubt they had met with their deaths in the explosion; but the gas was too strong for the men to remain in the mine long enough to prosecute the search, which will, however, be renewed this day (Friday), when no doubt some fresh discovery as to loss will be made.

It appears that 30 lamps were taken into the pit the previous (Wednesday) night, the number of the men working in the upper part of the pit were uninjured, and one of the boys at the bottom was left unscathed, while his horse was killed on the spot. It is very probable that the remains of the other men, when found, will be so charred as to be scarcely recognisable. Many of the men who have attempted to recover the bodies from the pit have suffered from the effects of the carbonic acid gas inhaled, and we are informed that Dr. Davies, of Pontypridd, rendered every assistance to them which lay in his power.



Lower Duffryn Colliery - date unknown

The Rev. J. Griffiths, of Aberdare has visited several of the bereaved families, and kindly offered support to only those connected with which the Christian religion can give in such a trial. On Wednesday morning, the workmen said they would not return to work. Another suggestion, as to the cause of the accident, is that an immense quantity of gas accumulated during the recent strike, but as there is always a large amount of foul air in steam coal pits, and the ventilation of the pit was good, we are not inclined to place much credence on the statement.

Mr. Thomas Evans, Government Inspector of Mines, of this district, has, we have been informed, proceeded to Mountain Ash by special train; and this (Friday) morning a preliminary inquiry will be held before a jury and Mr. Overton, the coroner for the district, in order to make the necessary application to one of Her Majesty's Secretaries of State for the burial of the bodies, after which, a minute investigation of the circumstances will take place.

The late fatal explosion of fire-damp at the Lower Duffryn Colliery

The Bristol Mercury of March 6th 1858 reported: - We gave in our last such brief such particulars as then had transpired of an explosion of fire-damp in one of the steam-coal colliers belonging to Messrs Thomas Powell and son, in the Aberdare valley, by which as many as 19 men and boys, out of 34 who descended the pit, had been hurried into eternity. At the time when our correspondence's parcel left only a portion of the bodies had been brought out. The exertion of the managers and workmen at the colliery was afterwards continued, in the most praiseworthy, and, indeed, heroic manner, to recover the corpses of their dead companions.

The quantity of choke or after-damp left in the mine was so great as to render the operations exceedingly dangerous, and more than one brave fellow had to be brought out in a state of insensibility. Dr. Davies, the surgeon of the works, remained on the spot, and rendered prompt and effectual assistance to those affected, but for which the list of dead would possibly have been extended. As it was, the following lost their lives by the explosion: -

George Cox, collier, married, age 35; **Joseph Cox**, his son, age 15; **Henry Morris**, haulier, age 17; **David Davies**, collier, aged 20; **William Aubrey**, collier, married, aged 36; **William Aubrey Jnr**; his son, aged 12; **John Morgan**, collier, aged 24; **Richard Jones**, ditto, married, aged 28; **Thomas Shawcross**, ditto, widower, aged 32; **Daniel Jones**, ditto, married, aged 25; **Edwin Strong**, door-boy, aged 10; **Levi Davies**, collier, married, aged 45; **Thomas Richards**, ditto, aged 14; **Peter Norman**, ditto, married, aged 44; **James Rumley**, ditto, married, aged 40; **Henry**

Salmon, ditto, aged 10; **John Rosser**, ditto, aged 22; **Owen Jones**, Haulier, aged 18; and **George Gale**, door-boy, aged 15. Most of the married men have left families to mourn their unhappy fate.

During the time that the workmen were exerting themselves below to discover and bring out the bodies, the relatives and friends of the deceased clustered around the mouth of the pit, anxiously awaiting the result of the operation. Many painfully affecting scenes naturally occurred, but one of them was of so extraordinary and touching a character as to be worthy of narration. Amongst the expectant group that gathered near the shaft was an old man named Gale, whose son, a fine youth of 15, was believed to be amongst the dead. Poor Gale was passionately fond of his boy, and despite many efforts by the bystanders to induce him to return to his cottage, he remained riveted, as it were, to the spot, preserving at times a moody silence, and at other times giving way to the most heart-rending outbursts of grief. Body after body was recovered and brought to the surface, but they were all those of full-grown men, and the old man was destined still to “watch and pray.”

At length a corpse of a youth was brought up. It was so mutilated and blackened that no trace or feature was discernible, but the finders thought it was that of young Gale, and so thought the father – who threw himself upon it, and clasping it lightly in his arms, embraced it with passionate earnestness. The persons around induced him to relinquish his grasp, and assisted him to carry the body to the cottage, where the unhappy mother, whose sorrow was quite as intense as that of her husband, hung despairingly over it, and bathed in a flood of tears.

Some considerable time had elapsed when the mother, upon again gazing on what had been believed to be her child, discovered by some portion of the apparel that the corpse was not that of her darling boy, but a youth of similar size and age, named Joseph Cox, who, with his father, had been killed by the explosion. The grief of the aged pair it would be difficult to describe; they caused the named and charred body to be borne to Cox’s home, where it was laid alongside his parent, which had been recovered and brought home some hours previously.

The old man returned to the pit, which he watched with little intermission until the morning of Saturday, up to which time young Gale’s body (the last that was recovered) lay buried beneath the debris, from a fall in the east-side heading, in which he was working, and which the explosion took place. As early as possible after catastrophe information was forwarded to the district coroner, George Overton, Esq; who lost no time in issuing his warrant for an inquest on the

bodies. The inquiry was commenced on Friday afternoon at the Boot Inn, Aberdare, when the proceedings were confined to viewing such of the bodies as had then been recovered. On Saturday the jurors and coroner again assembled and viewed the remains of young Gale and Owen Johns, brought out that morning, after which the coroner, having issued his certificates for the burials, adjourned the inquest to give time for the proper notice to the Secretary of State and to enable the Government Inspector of Collieries for the district, Mr. T. Evans, to make an examination of the colliery.

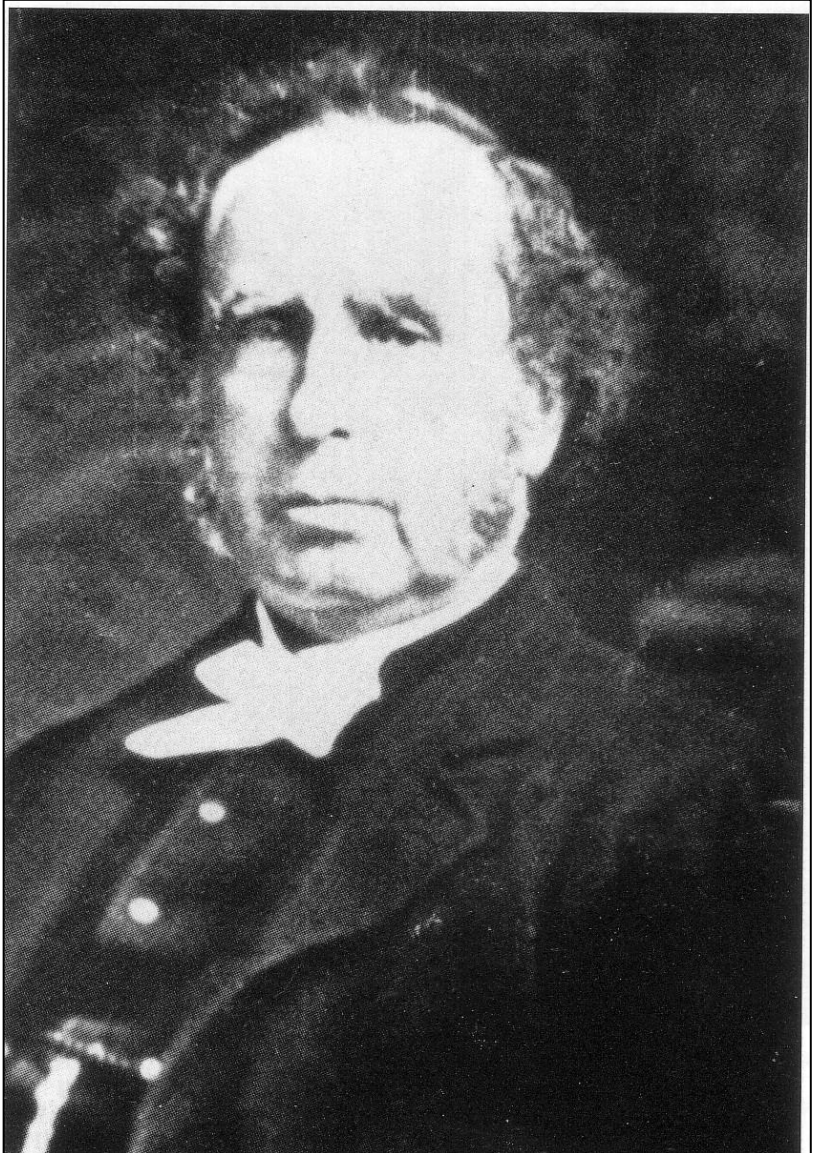
The funeral service by the Vicar of Aberdare

The '*Cardiff & Merthyr Guardian*,' of Saturday, March 6th 1858 reported: - It was our melancholy duty last week to announce that a fearful colliery explosion had taken place in the Lower Duffryn Coal Pit, in the parish of Aberdare, the property of Messrs. Thomas Powell & Son, Gaer. Since then the last sad offices of humanity have been performed, their remains have been interred; a very appropriate and most impressive funeral sermon has been preached by the Rev. John Griffiths, Vicar of Aberdare; and the inquiry by the coroner into the causes of this most melancholy occurrence has commenced.

St. Elvan's Church was unusually crowded on Sunday evening. It was known in the morning that the vicar would preach the funeral sermon over the poor men who had been killed at the Cwmpennar Pit. The text was taken from St. Luke Xiii 4, in the fall of the Tower that fell at Siloam, and slew eighteen men.

Having got rid of the necessary explanations of the text, the vicar said, that after making those remarks, by way of caution, there was no further need of saying why he selected the Fall of the Tower at Siloam as appropriate to make a few observations on another of those terrible explosions which had so often shaken one part of that parish.

During the last twelve years they had had in that parish seven great accidents, five from the fire-damp, and two by machinery. If these were taken together 202 lives of living souls had been hurried to meet their maker without note, and without warning. With the exception of the first, when 28 men and boys were killed, it had been his melancholy duty to assist at nearly all their funerals. And a terrible duty it was – one such as few ministers, perhaps none living, had ever shared with him. He had seen the coffins in the aisle piled one upon another, simply because the church would not otherwise hold them; and because the day, though the longest the summer gave them; would not have been long enough to apportion to each corpse the last sad offices of the dead.



The Rev. John Griffiths, who oversaw many of the disasters and who was a staunch defender of the working classes.

He had heard the wild shrieks of the widows, and the frantic wail of the mother, and deep moaning groan of the father, as they committed their bodies, for the last time to the ground! He had heard enough of those lamentations to crack the heart-strings of the stoutest man that ever stood over a grave. And yet here was another when the same scenes had to be encountered over again.

According to some it might perhaps be wiser if he did not call special attention to these accidents. According to some it might perhaps be better to bury them in silence – to weep and mourn over them if you will, but to do it hurriedly, and in corners. He confessed that these occurrences were so frequent, that it would not be a wonder that the human heart reached the degree of callousness – men in the long run got used to everything, short of death – he had seen something of this callousness, even connected with these terrible scenes – but then, how were they to stifle the cry of the widow? How were they to satisfy the demand of the fatherless children? Or, how were they to meet the reproaches of the childless mother? No, No! He had a duty to perform, he felt he must perform that duty.

He must declare publically, from that place, standing there between God and man, he must proclaim fearlessly, that a certain part of this parish was visited with these accidents too frequently. It was his duty, as a minister, to ask on behalf of humanity, that all the caution that could be used, should be used, where so many lives were concerned. He did not presume to say where the blame lay, it might be the negligence of the workmen; he could say nothing on one side more than the other.

But on behalf of the survivors, he entreated; on behalf of those who had become victims of the same slaughter again, he implored, as the workman should be more careful, so that there be no science, no expense, no labour, no strife spared on the side of the master. This was he felt his duty, as the minister of that great parish, and declared he could not close his eyes without taking the first opportunity to discharge its solemnity.

It was a very remarkable fact – and most of them would remember it – that while preaching that day fortnight on the great mortality in the parish, and the terrible uncertainty of men's lives in districts like theirs, that he made use of the following words: - "Death has often been here at the point of the miner's mandrill; one stroke more struck, and the fell fiend would rush in, and blow up the mine, and bring destruction unto every living being in it."

But when he uttered those words, he little dreamt that they should so soon have to record another of these catastrophes. Was there not cause therefore to take warning by such events? As the tower fell in Siloam, while they lamented over the dead, let them not forget the lesson it was to be delivered. They were all subject to the same uncertainty, but you, underground men, were so more than others. As when the soldiers storm the breach, or, when the mariner rides the hurricane, death is ever at your elbows, you have, therefore, the greater need than men generally to be well prepared, and always ready. Some were so; but a very great many were not."

He recollected one case of peculiar readiness, when a young man, five and twenty years of age, had been buried five fathoms below the surface, by the falling in of a shaft at which he was working. The first person that came to the spot was the only fellow-workman that happened to be near, and when he asked if any living being was under, the buried man answered: - "I feel the cold hand of death on me; if there is any hope of my being taken up from this untimely grave, tell me, if not, still tell me."

His comrade replied that there was not a shadow of a hope left, as at least five or six tons of rubbish had fallen around and upon him, and that suffocation must inevitably take place before he could bring any human aid to rescue him. On hearing this, the poor fellow said: - "It is the Lord's doing; let him do what seemeth him good. Tell my father and my mother not to be sorry as those without hope for me; for it is now only that I am really happy; now I feel the advantages of a religious life; now I feel that God is my stronghold, and that I am going up to heaven!"

Eking out his words his voice failed, and he never spoke no more. Ah, yes brethren, he did feel happy. He felt as though the man who was asked during his last illness, whether he thought himself dying, and answered, "Really friend, I care not whether I am or not; for if I die, I shall be with God; if I live, he will be with me." Or like that noble captain who fell the other day so gloriously in China; and of whom a brother officer recorded: - "My pluck is very different from that of Bates, I go ahead, because I never think of danger; Bates is always ready for a desperate service, *because he is always prepared for death.*"

Oh, blessed are they, brethren, whose lives are in such a case. What of the riches and the powers, and the grandeur of this world compared with a state like this? The poorest miner buried alive five fathoms down is, in such a case, an object of greater envy than his wealthy master, who may be revelling in every luxury, and yet '*without God ever resting on his pillow.*'

With regard to the survivors of these ill-fated men – the widows, the orphans, the mothers, and the aged fathers of these victims – oh – I shall long remember the tongue-tied sorrow of one of them – a man somewhat stricken in years – as each pale, and mutilated, and scorched victim came up from the deep, guarded by those brave and daring fellows, who defy death even to rescue an un-living comrade.

As the features of each corpse were unrolled at the pit's mouth, and as their companions and friends recognised them, his "lost one" never came. Oh, who can describe that bitter look of anguish - that tone of hopeless despair, as I heard him remark: - "They cannot find my boy; oh – why, why would they not allow me to go down to seek him myself?"

I thought as every father would, of my own boy; and I declare standing by that stricken man, witnessing his grief, which was too deep for utterance, I encountered moments of the most painful I have ever yet endured. Indeed, little do we know, brethren, all that these poor people suffer. Their case is one of true commiseration. Sorrow has come upon them in its rudest, most cruel, and most cutting form; that which was but a few days ago a bright happy, and cheerful home is now turned into a scene of misery and wretchedness, and maybe want, a dismal penury! - Nay, nay; let not say penury, let us hope that he, in whose services their fathers, and their husbands, and their sons perished, will spare this great abundance to administer to their great wants.

He has done so in some of the previous catastrophes, alone, and without any extreme aid. We will pray that he will do the same again. We are confident he will do so. It would be far nobler, better, more generous, and more Christian than to appeal unto the country, as we did in the last great catastrophe. For, why should you, and I, and others, whose charitable objects are already perhaps more than enough, be burdened with the responsibilities of those whose plain duty it is to discharge them.

These are the cases that do not come pecuniary within the pale of the public sympathy, seeing they have so imperative a demand on private sympathy. This is the lesson we would teach. At the same time, let us never forget the tear we owe to the mother, and the pity we must extend to the widow and the orphan. For although silver and gold when lavished freely, and expended charitably can do much, and bring about many blessings; yet they can never bring back the father unto the orphan, or the husband unto the widow, or the son unto the mother, or the soul into the body. We will therefore act the part of the Christian; and we will weep with those who weep, and mourn with those that

mourn – and whenever opportunity offers, we will act the part of the good Samaritan nevertheless, too, healing wounds whenever we see them, and giving bread, wherever we find that bread is needed.”

It would be impossible to describe the effect produced by this sermon. We can truly say, there was not a dry eye in the whole church, at some portions of it, the people were sobbing loudly. Old and young, gentle and simple, master and workmen, felt the strong emotion, which the fervid delivery, and the earnestness of the preacher infused into them.

The Inquest

The inquest was held at the Boot Inn, Aberdare, on Wednesday, 3rd March 1858 before Mr. George Overton, Esq., Coroner. The bodies of the deceased colliers had been previously viewed. Their names are James Romley, Henry Salmon, Levy Davies (fracture), Edwin Strong (fractures), Daniel Jones, Richard Jones (fractures), David Davies, William Aubrey (fractures) and Aubrey Junior (fracture); John Morgan, Joseph Cox (3 fractures), George Cox, Henry Morris (3 fractures), Peter Mormon (2 fractures), Thomas Richards, Thomas Shawcross, Owen Jones (fracture), George Gale, John Rosser (injury to skull). The inquest was attended by Mr. Powell Jnr., his agent, and Mr. James, his solicitor, of Merthyr.

Previous to calling any witnesses, the coroner addressed the jurors as follows: - “We are all assembled here today to proceed with the very important inquiry which we commenced on Friday last, but before we proceed with the investigation I think it is my duty to offer you a few observations. In the first place, allow me to entreat you to devote your most earnest attention to the enquiry. The subject is in itself sufficient to express you with a deep sense of responsibility which your duty imposes upon you, and I am sure you most of all will fear the obligation. The circumstances attending the present inquiry are briefly these: -

It occurred on Wednesday night, the 24th of February, when 34 men went to work in the Cefnpennar Colliery, the property of Mr. Powell – but during the time they were at work, about half-past 2 o'clock the following morning an explosion took place in the pit, and caused the death of no less than 19 of them; the rest escaped uninjured. Now the duty that devolves upon you is to ascertain how these unfortunate persons came to their deaths, or, in other words, what was the cause of the explosion? Unfortunately, gentlemen, you have been accustomed in this neighbourhood to many misfortunes of this kind and during

the few years I have had the honour of holding the office I do now, it has been my duty to investigate several cases of still greater magnitude in this parish. I must say there is one significant fact, which I cannot pass over, and that is that they all happened in one particular spot, within a very small area adjoining each other, and two of them in the collieries of the same proprietors as the present.

You will no doubt remember that in August, 1849, a serious explosion took place in the Lletty Shenkin Colliery, by which 52 lives were lost. Another explosion took place in the Middle Duffryn pit, which adjoins the present one in December 1850, when 13 persons were killed in May 1852 another explosion took place in the same colliery by which 65 more lives were sacrificed. While these serious events have been occurring in that particular spot, I am happy to say that the remainder of my district, which includes an immense mineral district, in which from 3 to 4 million tons were worked last year has been comparatively free from any visitation of the kind.

With the exception of that frightful explosion that took place at Cymmer in July, 1856, where 112 persons were killed, although there have been several trifling ones, the comparative absence of any very serious explosions in this valley for the last six years, leads me almost to believe that the very beneficial and prudent legislative measures that have been recently passed, and the improved management that has everywhere resulted from them, when they have been strictly carried out, has had the effect of preventing a repetition of those disastrous evils, but unfortunately it has not proved so altogether, and we are now again called upon to enter into a very serious investigation; and the question you will have today to solve is this: -

What was the cause of the present explosion? Now it is clear that the explosion could only be produced by the ignition of carbonated hydrogen or fire-damp in the pit, and the points, therefore, for you to consider are – how the gas came there – how it became ignited? It is very desirable that you should, if possible, arrive at a sound conclusion upon these two points, and you will then be easily able to complete your inquiry.

Presuming you have satisfied yourselves on these two points, and it is desirable you should state in your verdict the conclusion you have come to on these heads, it will be your duty to decide whether either of those occurrences were the result of negligence or wilful neglect, and here I may observe, that the Court of Queen's Bench has very recently decided in a case received by the judge in a trial that took place in this very county, that an Act of omission in discharge of duty, was equally as damning as an Act of commission.

You will therefore as stated before, have to consider whether there is any culpability attached to anyone, or whether it is only another of those unfortunate catastrophes which in ordinary case, care, diligence and attention, could not avoid or prevent. In investigating cases of this nature, it is too common, to draw the attention to the secondary cause, or how the gas became ignited, without inquiring into the primary causes of how the gas got there, and we frequently hear the collier condemned for recklessness and indiscretion, when it is quite clear there is equal, if not more blame attached to other parties for allowing gas to exist.

It will, therefore, be your duty to inquire minutely into the system of ventilation adopted, and the rules and discipline of the colliery. The legislature has very properly enacted a very useful Act in reference to the management of all collieries, by which they are compelled to adopt certain regulations, and it will be your duty to ascertain whether they have been strictly adhered to. I cannot conclude without one further observation. I am sorry to find that some of the public newspapers, in giving an account of the awful occurrence, have thought proper to state in a very positively manner the cause of the same. Such a course is to say the least highly improper, and calculated to mislead.

It is quite clear that at the time it was written, there could be no possible foundation for it, even if it does not turn out to be totally false. It would certainly be more decorous on the part of a public journal to refrain expressing such a positive assertion until the official investigation has taken place, and I trust you will not permit such unfounded assertions to influence your decision in any way.

Mr. Samuel Dobson, principal viewer at the Lower Duffryn Colliery, was the first witness called. He produced a working plan of the upper part of the Lower Duffryn Colliery. The gas from the lower could not possibly escape to the upper pit. There was no connection between the two. They were entirely independent. There were separate workings and separate ventilation. He produced the rules and by-laws.

The by-laws had not been passed by the Secretary of State. They were those used by the colliery. These rules were observed by the whole of the collieries. The responsible officers of the pit were, himself, and the underground manager, Mr. George Wilkinson. The overmen are Thomas Beddoe Jnr; Thomas Hopkins, Evan Evans, James Nasmyth. The upper and lower pit had separate officers; the last mentioned were engaged principally to look after this pit.

Mr. Dobson explained, with the working plan, the manner in which the pit was ventilated. The depth of the pit was 279 yards. The diameter of the pit was 11 feet by 17 feet. The ventilation was carried on by means of a furnace at the bottom of the pit. The size of the furnace was 8 feet x 8 feet. We pass about 70,000 feet of air per minute, half of which is fresh air, and the remainder is return air. There is no intimation of the presence of any gas – they all stated that the headings were in a very good order. He saw it examined three or four times during the month of February. There were altogether upwards of 2,000 workmen in and about the collieries. There had been two or three burnt since he had been there. The Lower Duffryn pits were worked with entirely locked lamps, and no blasting had been allowed when working the coal. The foreman of each pit locks the lamps of every workman when they went down the pit, in the lamp-room at the top of the pit, in the morning. The persons going down at night got their lamps locked by the lamp-man.

Mr. Davies Senior, surgeon to the Lower Duffryn Colliery, said that in 10 cases burns and fractures were the cause of death; in three burning alone, in five burn and choke-damp and injury to the limb. In a great many cases the injuries were of a very serious character.

William Hopkins, fireman at the Cefnpennar works, said: - “My duty is to go around the works in the morning, and see there is no gas. On the morning of the accident, I was not on duty. The morning before the accident, I went my usual round. I left the pit at 5 o’clock. I was in heading No. 2 from 12 to 2 o’clock. I found gas in the stall next to James Rumley’s. I put a board up to mark the heading. I remained there about half-an-hour to clear the goit.” The gas proceeded from the goit (north of England term for a drainage ditch) 2 or 3 days before. The gas was not there 2 or 3 days. After removing the gas I lifted up the door. I told the overman of it. I found the air that day (of the accident) very good, but there having been a fall on the goit that prevented the gas from being carried away. I look over the whole works twice a week regularly.”

William Evans, fireman, said that he had been a collier 12 years, and his duty was to go round in the morning to look for gas, beginning at 4 o’clock in the morning, before the men got to work. The morning before the explosion there was gas in Levy Davies’s stall, but he cleared it. There was no fall in Thomas Davies’s stall until after the explosion. There was plenty of good air.

Thomas Beddoe, Jnr., overman, was the next witness called, and the facts to which he deposed were: - His duty was to look to the ventilation of the pit, and he had full power to do anything connected there with. The lampman came to

him and said that the explosion took place about quarter to three. He immediately sent for Mr. Williamson. On going down into the pit, he was met with sulphur coming very strong against him. He found it strong in several other places. He went along the headings No. 2 and No. 3, and when opposite to Rumley's stall he met Charles Edwards with the bodies of Rumley and his stepson, one 8 and the other 3 yards from the heading. The door was a wooden one and it had been blown in. The timbers were marked, where the bodies were found. The lamps were broken but not injured.

The bodies of Peter Mormon and Richard Jones, were found halfway between No. 1 and No. 2. They were timber-men. Both their lamps were found near them. They were much injured and both were locked. After waiting for fresh air they then started up the air-course, until they came to Jeffery's level where other bodies were found, so disfigured that they could not be identified.

The Cardiff & Merthyr Guardian of Saturday, March 13th 1858 carried the following interesting letter:

Correspondence – To the editor

Vicarage, Aberdare, March 7th.

Sir – I shall be greatly obliged if you will insert in your columns the following letter. I received it this morning from a lady well-known in this county for her charitable exertions on behalf of the poor. In accordance with the suggestion made in it, I beg to say, I shall be very happy to be the medium of communication between any charitably - disposed purposes and the poor sufferers. Some of these are cases of the greatest misery. For example, Mrs. Cox, whose husband and son were killed, is left a widow with five children, the eldest surviving, a girl of twelve, and the youngest an infant in arms. The house has only just been freed of the smallpox. The curate of the district took her a half-sovereign this morning, sent to me by a lady whose personal exertions on behalf of those at the bottom of the parish have never been too highly praised. They were at breakfast when I got there – the mother and the five children.

The poor woman declared, with the tears rolling down her cheeks, that all the food in the house was then before her, and when that breakfast would be over, she knew not where to look for more. It was surely, therefore, God's mercy that had sent that half-sovereign; and sure she was that he would bless the lady a thousand times who sent it to her. Again there is Mrs. Rumley, who has been left a widow and four children, the eldest a boy only twelve, and the youngest

an infant in arms. She is herself in bed, and one of her children in the smallpox. There are other widows and orphans equally poor. Whatever, therefore, the proprietors may do, there is room enough to carry out the suggestion in the following letter: -

To the Reverent John Griffith

“Reverent sir - I have read with much melancholy, but with deep interest your funeral sermon on the late sad accident at Aberdare and cannot refrain asking you to send me a few statements as regards the families who have suffered – as to whether there are several children; I should have much pleasure in forwarding you the box of clothes as soon as I could get them ready; and I cannot but think you will be readily assisted if parties were asked. At any rate, let a shilling subscription be proposed. I beg to remain, Reverent sir, your obedient servant – March 6th 1857. P.S. If you think this letter would be any service to the causes in the Cardiff & Merthyr Guardian, you are welcome to send it, if you do not give my name or address. I am your obedient servant John Griffiths, Vicar of Aberdare.

Correspondence – To the editor

The Cardiff and Merthyr Guardian two weeks later carried the following reply: -

Sir, - In reply to the letter of the Rev. John Griffith, of Aberdare, dated March 7th 1858 I believe that statements within are calculated to mislead the public, I hasten to communicate the fact of the case as related to the widows referred to in Mr. Griffith's letter. The explosion at the Duffryn Colliery took place on Thursday, the 25th of February; on the following Saturday each of the widows of the unfortunate men killed received a donation of 20 shillings each, with the exception of Mrs Rumley, who received 30 shillings; and Mrs Cox, who was also paid on that day £1-4s wages due to her late husband, - therefore these two families ought to not have been found in so short a period in the extreme state of distress Mr. Griffith describes – when having received £2-4s; and the other £1-10s; in the nine days intervening between the accident and the date of the curate's visit, I will observe that all funeral expenses were defrayed by us, and the widows were informed that they would received an allowance at our usual fortnightly pays - and also that if they required relief in the interval, it would be supplied to them.

As we pay an enormous amount of poor-rates in the Aberdare parish, we thought it just and fair that the parish should afford some relief to the distressed

families, as was the case in the Cymmer Colliery explosion, in addition to the amount allowed them by us; we therefore requested Mrs. Cox to apply to the guardians for assistance, which, I find, was refused by Mr. Griffith. I leave the public to determine from these facts whether such distress could have existed as Mr. Griffith represents, and whether it would not have been more just, and more becoming the character of a Christian minister if he had at first ascertained the true position of these unfortunate families, and if necessary had applied either to myself, or our resident manager, for required assistance, which would have been gladly afforded, instead of indulging in his propensity of rushing into print. Yours **obediently Thomas Powell Jnr. Cardiff, 20th March 1858.**

The following week another letter to the editor appeared: - Sir – In reference to the letter of Mr. T. Powell, Jnr; on the case of Mrs Cox, I beg to say that the facts stated by the vicar were as I found them, and as the woman herself related to me. **D. J. Richards, Curate of the district.**

Adjourned Inquest - Thursday 4th March

The inquiry was resumed on Thursday morning before the same jury, and Mr. George Overton, Esq. coroner. Thomas Evans, Her Majesty's Inspector of Coal Mines, attended, and put several questions of an important bearing, to the witnesses who were summoned. Thomas Powell Jnr., Mr. Dobson, mining engineer, and principal owner, and Mr. Wilkinson, underground viewer and manager, were also present, with Mr. James of Merthyr, who watched the case on behalf of the proprietors of the mine.

Powell Duffryn's coal is in high repute, not only in this district, but throughout the world, for steam purposes; but independent of this, the case excited great interest in the neighbourhood, from the awful loss of life entailed by the calamity. Many colliers were present at the inquest, in the Boot Inn, and it seemed to us, from the number who were smoking, and lounging about, that they regarded the occasion as a kind of holiday.

Thomas Beddoe, Jnr; described the position in which the bodies had been found. The men who were killed who were regular colliers: Levy Davies had been working in the pit one week; Thomas Shawcross, two months; David Davies, three weeks; John Morgan, three weeks; Daniel Jones, fourteen days; Thomas Richards, twelve months; William Aubrey & son, nine days; George Cox & his son Joseph, eight days; James Romley and son, fourteen days; Daniel & his son, Richard Jones, three years; Peter Mormon, eighteen months; Henry Morris,

eight days; Edward Strong, four or five months; Owen Jones, seven days; George Gale, nine or ten weeks.

By a juryman: - "I don't know if Rosser had been a collier before. He appeared to me as a collier. It was I who engaged him." He did not receive any characters from these men.

By Mr. Evans: - "There were two other men working in the pit, making a total of 36 instead of 34. Fifteen had escaped from the pit. I have been in the pit several times since the accident, and the intake air-course appeared all right. There was a door down in the No. 1 heading, but nothing further up." He found the gauge in Jeffrey's level blown westwards.

By the coroner: - The gauge is placed there to prevent the air from getting into the return heading. There were some falls and timber knocked up in Jeffrey's level."

By a juror: - "The timbers were blown to the west. I found the brattice blown down in a heading off Jeffrey's level, leading south. In Thomas Davies's stall there was a great fall. The toppings were blown westwards. There were no falls at the three other stalls up to the top of the heading. There was a fall of 8 or 9 yards just above Jeffrey's level, and there were several other heavy falls from Joseph Cox's stall up to 'the main door.' Nine men had been working that day, and they had not been able to remove half of it."

The coroner said that it was usual when there had been an explosion of this kind, to find that there were some indications of fire, such as charred coal, or singed clothes. Beddoe said the stalls had only just been turned and worked about six yards. A singed waistcoat was found in one place only. In the upper level there were some heavy falls, some timber blown eastward and a door being blown down. There was a heavy fall in Rumley's stall.

Coroner: - "What's your opinion as to the cause of the accident": - Witness: - "My opinion is that gas came up from the fall in Thomas Davies's stall. The wind carried the gas up to No. 1 heading, and passed the stall where Levy Davies was working."

By Mr. James: - "I was not in the stall all day. I suppose it took fire between Jeffrey's level and the lower level. There must have been a naked light there. I do not believe it took fire from the lamp."

By the jury: - "Levy Davies's lamp has not been found. We have not taken the fall away yet. I found no appearance of naked lights in the pit. Every lamp is numbered and registered. I cannot say whether an account is kept of them. Thomas Hopkins told me that there was gas in John Bowen's stall the day

before. I told the fireman to take a canvas door and clear out the gas. It was done. John Bowen was prevented from working until his stall was cleared, by me.”

After a short adjournment, Thomas Beddoe was again called. The coroner asked if there was to be any scientific evidence produced by Mr. James, as it would be useless to have witnesses called by both parties. Mr. James said no such evidence would be produced, at least, he did not think it necessary in calling any ‘outsiders.’

Mr. Overton: - “Do you not intend to account for the accident?” Mr. Dobson: - “We will call no more witnesses.”

Thomas Beddoe again examined by Mr. James: - “I have nothing to do with the scheming of the ventilation, but if I see anything wrong in the absence of the viewer I do what I can. It was my duty to go to him if he was in the pit. I see Mr. Wilkinson every day. Mr. Wilkinson is there constantly about his business.” He has been there more than three years. During that period he had been there every day. “Before I was engaged in the pit I was a collier in the Upper Duffryn, Aberaman, Nanttyros and Llancadr.

First of all I was a door-boy, secondly haulier, labourer, then collier, and now overman. I am 25 years of age. I have been a collier 15 years. If I had seen anything wrong with the air, such as deficiency, I should have reported it to Mr. Wilkinson, the viewer, but during the period I have been overman I have never had any occasion to do so. I never saw a man bring in a good character with him, but I have known masters refuse discharges.

No man going out on strike had a discharge. During the strike at Aberdare discharges were not given. It is the practice not to give discharges in Aberdare on such occasions. The new men have not had discharges since the strike. About 20 or 30 left after the strike – ran away and did not return. Some men were not allowed to return. New men were taken to fill up the deficiency. That is the reason why we had men employed for so short a period. In consequence of the strike, many parts of the works were out of repair. The men I took on appeared to be colliers by their clothes. When a man comes from a fiery colliery or district he seems more capable than the others.”

By Mr. Overton: - “There were 13 men cutting coal at the time of the explosion. There were special reasons for cutting coal on the night in question; it would contribute to the safety of the pit.” By the Coroner: - “It is entirely a matter of opinion other people do the work by night.” Beddoe: - “There was no regular

stall working by night in the colliery. When the lamps go out they re-light them, either in the shaft or at the furnace. The flue-man trims the lamps.”

By Mr. Evans: - “The hitcher and the flue-man both have keys to lock the lamps. Only the firemen and overman have keys. I have not found any lamps open within the last month or two. The master-haulier also has a key. There is an engine and boiler underground. From 15 to 20 trams of coal were brought up from the pit on the night of the explosion.” In answer to Mr. Evans, witness said, he was not aware that six other colliers had applied to examine the pit as they were empowered by the 91st special rule to do to, since the Aberdare strike.

James Nasmyth, the night fireman in the Lower Duffryn Pit, Cwmpennar, described his duties and said: - “I have been there six months. On the night of the explosion, I went into the pit a little after six o’clock. About half-past two, I was then at the bottom of the pit. There was a gust of wind, and I felt a blast of coal dust. We tried, as many of us as were able, to get in the carriage, and up to the top, and sent for Mr. Wilkinson. I went up with David Davies, and another collier.”

We went down with the overman to the pit bottom. I saw all the men in No. 1 heading before the accident. Saw Thomas Davies and Thomas Morris. I went to Shawcross’s stall first. There was no fall there then. I went to the face of Davies’s stall. The hauliers had just left their dinner. They have their dinner about 1 o’clock, and those who work by contract, can return when the like. I consider it a well ventilated pit. It is not part of my duty to ascertain the quantity of air in the pit. I don’t think any of the men are in the habit of taking naked lights.”

Mr. Evans: - “Have you noticed any of the men coming from the Merthyr side smoking in the pit?” Witness: - “No. There is one place where they are allowed to smoke. I should imagine that the gas came from Thomas Davies’s stall.” Mr. Evans said he had been six yards into the stall, but the fall of coal was so great that the top of it could not be seen. Mr. Dobson said the Government Inspector must be very venturesome.

William Evans, lamp-keeper, Lower Duffryn, said: - “It is my duty to repair the lamps, and see that they are in proper condition. There is a lamp for each man, but there are so many strangers I cannot tell them now. I do not keep all of them, because I am no scholar. I put all the night lamps on the bench, and a lamp-man locks them, and every man calls for his number. The fireman then

gives them out. I lock all the day lamps, up to 6 o'clock every night. There are two lamp-men at each pit. I don't know how many I gave out on the night of the explosion. I was in the pit this morning, and we got 15 lamps out. I think there were four lost that night. Number 160 (David Davies), has not been found, it is still missing." The witness now produced a number of lamps, which had been used in the pit, and were found after the explosion. Four of them were broken, and they were all locked.

The next witness called was **Thomas Davies**, who said: - "I am a collier, and work at Cefnpennar. I having been working at Mountain Ash for about four years, and was at work the day before the accident – having worked there since the strike. My brother worked with me in the same pit. There was no gas, nor has there been any since the strike. The stall was 75 yards long, and 5 yards wide. William Brown, my partner, worked there with me. He was there before I commenced. We had no falls in the stall, except the scales from the top. It was 'goited' to within a few yards of the face. I have been at the heading as far as Jeffrey's stall, but not further up the heading. I have never seen a lamp open in the pit. I always work with a safety lamp. Williams Evans locks the lamp I use, and I relight it at the flue.

John Bowen said: - "I have been working in a stall at the No. 2 heading headway. The week before Rumley worked cross turns our pillars fell and Rumley went to work the next stall. Rumley's son worked with us up to Saturday, the 7th of February, when the pillar fell. On Friday I went out. We let the pillar settle. The air-way was closed. I remained out until Saturday morning. I did not see the fireman or overman on Friday. Beddoe was in the stall after me, and Rumley went with me into it. We found a fall on the road, and gas on the face. I went out to see Beddoe, who told us to go and see to the fall. He said he would be with us as soon as possible. We went and did as we were directed, and cleared the fall, the gas still remaining. The fall was near the stall parting. The fireman returned with us, but he did not stay. We cleared the fall, and made the goit tight. The fireman came back with us. We told the overman (Beddoe) what we had done. We found him in the incline. He told us to wait and give the gas time to come away. We went out. On Monday morning we went in again, and there was gas there. There was a mark on Monday, the usual danger signal.

We went out and told Beddoe there was fire there, and he told us not to go to work, but to come back that night to work out some other place. I went to the lamp-room, but did not go down the pit, because I could not get my own place. He told me I could go and work anywhere else I liked. I stayed at home until Tuesday night; then I went to work. Beddoe said I could go into any shaft or

pillar and work a turn. I went from John Williams's pillar to my own stall, to see if it was clear before commencing. I worked there until 12 o'clock that night. The mark was there since Monday. I left with a view of coming back the next day. On Monday night Rumley went back to work in the next pillar. On Tuesday night, Thomas Leyshon and I went to work, and we filled two trams of coal. On Wednesday the pillar was filled with fire. We went and told Beddoe about it. Beddoe told a fireman to put a door on the heading outside the pillar – to turn the air into the pillar.

Thomas Hopkins, the fireman came and put a canvas door to the heading. After that we went back into the pillar, and the air was drawing the gas back over the fall. We sat down a short time, and then went back again. After which, the gas went off. The fireman told us we could fill a tram or two, and he went to dinner then. The fireman, Evan Evans, was sent up to No. 2 heading, to watch the gas, when Hopkins was putting up the door."

By the Government Inspector: - "We did not work. The fireman came back to us, and he went out. I told the fireman, Thomas Hopkins, the gas had returned. I did not see Beddoe. There was a large quantity of gas there. I have been in the top of No. 1 heading. Thomas Leyshon was working in this stall before the strike. The fireman leaves a mark on the face, but he did not do so on Saturday or put up the danger signal, in accordance with the special rules."

Dennis O'Connor said: - "I am a flueman at the Duffryn Colliery. I go to work about 6 o'clock, and work at nights. I went to work the night of the explosion, and found the fire in as good order as usual. I clean the grates every night. It takes from about 9 to 12 o'clock. After the explosion, the foul air and gale of dust enveloped me in a cloud."

Evan Jenkins said: - "I work at the Duffryn Colliery. I was driving a winding in No. 2 heading, on the night of the explosion. At 2 o'clock I heard a noise like a clap of thunder, which has made me quite deaf; the dust was blown about. My lamp, however, was not blown out. John Parry, who worked in the same heading, came to me and we went in search of bodies knowing that an explosion had taken place. We removed to the doors, and I found several bodies. I never saw gas in the colliery. I don't know where the gas exploded, but it must have been somewhere in No. 2 level, because the timberman had been so much injured. Another reason is, that all the doors in No. 1 had been broken; where as those in No. 2, were with one exception, remained uninjured. The air had had been a little slack for some time before."

Jeffrey Morgan, collier, said: - "The air was very good in the Lower Duffryn Pit. There never was any fire in the pits." The coroner: - "Never any gas?" Witness: - "No, except sometimes. There have been plenty of strange hauliers in the pit; and some strange boys since the strike. There was a mark on his (Morgan's) stall every day. There was plenty of air always if the doors were kept open."

David Davies, collier, said he was working in No. 2 heading, on the night of the explosion. He did not see any gas. At this point the inquest was adjourned until Friday.

David Morgan, lamp-man at the Lower Duffryn, said: - "My duty is to fasten the lamps and give them to the men. They are always properly locked. The inquiry was now adjourned to Friday morning.

Resumed inquest Friday 5th March 1858

Testimony of the underground manager

The coroner, Government Inspector, colliery viewers, and jury, were again assisted in their deliberations by plans of the colliery workings; exhibited with minute accuracy, the various workings of the pit, mode of ventilation, and the position of the dead bodies after the explosion. The first witness called today was **Mr. Wilkinson**, the underground manager, who said: - "I am the resident viewer of the Lower, Upper and Middle Duffryn Collieries, as well as the Abernant-y-Groes coal mine. I was called up at 3 o'clock on the 25th ult., the morning of the accident.

I first descended the lower pit, and found the ventilation good, and from thence to the upper pit. The timbermen said they did know how the accident occurred, and I don't know of a lamp full of gas was in the whole pit. The furnace looked as if it had been recently cleaned, and it was in what may be called 'a middling state.' I found the ventilation everywhere just the same as usual, but the sulphur was very strong, so strong that I could not pass some parts. The after-damp was very strong in No. 1 and No. 2, but No. 3 heading was all right. I did not proceed further down the heading some 30 yards, as I did not think it necessary, but I went to the shaft, and when opposite Rumley's stall I met some of the men bringing out the body of Rumley, and some others with the corpse of Peter Mormon. I left four bodies on the upper level, and accompanied Beddoe to the shaft, where I heard a man shouting. He said he had been burnt, but there was another worse hurt than he was, further up. I then took some men, and tried to go up that heading, and we succeeded in penetrating as far as the fall,

above the man door. Beddoe turned ill, and I was knocked down, and had to be carried out by two men. The man door was blown down.”

By Mr. Evans: - “The man door was 30 inches square. It is a very important door, and I don’t know any reason it should not be built up. The destruction of this door would at any time effect the ventilation.”

The coroner to Mr. Dobson: - “What is your opinion as to the door?” – Mr. Dobson: - “It is certainly an important door and might well be built up.”

Witness continued: - The whole of the air passing that way was not admitted by the man door, as it was so small. He had been through all the workings except Thomas Davies’s stall, which was blocked up. He endeavoured to measure the height of the open cavity, which he found was about twenty feet from the floor. There was a vein of coal nine yards from the floor. He believed they were working near that vein, but he could not say whether they had touched it. He had examined the wind-ways from Rumley’s stall, and found that the air did not fall from that stall into the No. 1 heading. When John Bowen said there was such a communication, he did not speak with truth. There was a fall before the explosion in that wind-way which stopped the air, which was obliged to pass.

His observations and opinion as to the effect and cause of the explosion were as follows: - “The effects of the explosion has been confined to No. 1 and No. 2 east headings, and the workings between those headings as well as the stalls on the west side of No. 1 heading on the top thereof. In the No. 2 main heading, no doors and no stoppings are in any way injured. In the back headings, running parallel with No. 2 headings on the west side, the three canvas doors between the two levels were blown out. Two of them were blown up the heading. We have been unable to ascertain which way the third was blown. The door between the main and back headings (No. 2) at the upper level, has been blown out to the east.

There is no trace of fire on the coal or on the timber in either No. 2 main or the back headings, and the workings between No. 2 man or back headings, or on the workings between No. 2 and No. 1 heading. In No. 1 heading there is a man-hole door (in the mouth of the 7th stall) below Jeffrey’s level. That door was blown out to the west. Between it and the shaft there was no damage done. In the first stall below Jeffrey’s level there was a stopping not completed – that stopping was blown out to the west. None of the other stoppings between the man-hole and Jeffrey’s level were injured, but there was a very heavy fall in the heading commencing a short distance above the man-hole door.

The door at the mouth of Jeffery's level was blown westwards. The brattice in the deep heading going out of Jeffrey's level, and the canvas door which was at the mouth of that heading were blown down the heading. The brattice and door near the wind-way were blown up towards the stall above. None of the stalls between Jeffrey's level and the top of No. 7 heading were injured, but the three doors were blown out towards the east. There is no trace of fire on the coal or the timber in the No. 1 heading, nor at the top of the stall.

There was a heavy fall in the third stall above Jeffrey's level. There had been a considerable quantity of timber knocked out, and the roof had fallen a good deal in No. 1 and No. 2 headings, as well as the workings between the headings.

From above described effects, my impression as to the cause of the accident is as follows: - I think, that the explosion took place in the No. 1 east heading, at or near to the point where Jeffrey's level goes out of that heading. I think there are only two places from which the gas which was exploded could have come – that is, Rumley's pillar and Thomas Davies's stall. If I am correct in assuming that the explosion took place near Jeffrey's level, the gas could not have come from Rumley's pillar because the return air from that pillar comes into No. 1 heading at a point about 100 yards below Jeffrey's level, and could not have gone up against the air which was coming down the heading.

I therefore think that the gas that exploded must have come from the fall on Thomas Davies's stall. When the fall took place, judging from past experience of such falls, probably a large quantity of gas was suddenly liberated. That gas would be carried up the wind-way of No. 1 heading to the top of that heading, and then down the heading itself to the point where I suppose it to have exploded. All the lamps have been found, and all of them were locked. I am unable to form an opinion as to how the gas was exploded."

Assuming his hypothesis to be correct, the witness accounted for the three doors blown east at the top of the level, by a second explosion. There had been four more lamps found since the last inquest. This completed the number of missing lamps. One of them was found in Jeffrey's level in No. 1 heading. It was his duty to superintend the ventilation of the pit and keep an account of the quantity of air passing through the works, and he made a weekly return to Mr. Dobson.

The way which he arrived at his conclusion was by Biram's anemometer. Although he made his returns weekly, he only took a standard from every two or three months. He went down some of the mines daily, but not all of them.

There were about 200 persons employed in the upper pit on the day turn. The average work per day was 200 tons of coal. On the 29th of January he made an examination of the pit and found that 104,160 cubic feet of air was passing through the pit a minute. In the upper pit there were 16,500 feet at the furnace per minute, at the east level 29,100, making a total of 45,600 feet passing per minute.

In the lower pit 33,000 at the furnace, and 28,560 at the east level, making altogether 61,560, and a grand total of 107,160 cubic feet of air passing per minute. On the west side the quantity of air passing up No. 2 heading was 21,500, after leakage from furnace, about 16,000. He had no idea of the quantity of air each man required in a pit. That must depend upon the circumstances.

They employed several strangers in the lower pit during the strike. About twenty for twelve days, but after the strike only four or five remained. In the upper pit there were 130 new hands employed for five weeks. Beddoe told him the day before the explosion that there was gas in Bowen's stall, but that was removed. Three of the new men were killed in the explosion. It was objectionable to bring coal up the return air-course.

By Mr. James: - "It was not at all unsafe to bring coal that way. It was, however, not desirable."

Examination continued: - "An incline was in course of formation to obviate the use of the return air-course."

By Mr. Jones (foreman): - "There was some matches in the pockets of one of the men killed by the explosion (Levi Davies).

By Mr. Wilkinson: - "I sometimes measure the in-take air course. The last time I took it, it was three or four months before the explosion. The quantity then passing up the whole of No. 1 heading up-cast was 21,000 feet, but a portion of this (4 or 5,000 feet) was split off to supply the furnace, leaving only 16 or 17,000 feet to pass up that heading." By Mr. Evans: - "I was engaged at the Monkwearmouth Colliery near Sunderland, and at Haswell, and among many others in the north of England, all first-class collieries, and I consider this a better ventilated mine than any of them."

Mr. Samuel Dobson, principal viewer, deposed that he had heard the evidence of the last witness, and he fully concurred in his statements as to the cause of the accident. He also agreed with what had been said as to the three doors in the No. 1 heading. He had not seen any marks of burning, but he might have seen a single jacket burnt. There was no doubt that fire had been there

however. He regulated the ventilation of the pit without reference to the number of cubic feet of air to pass per minute for each man.

He formed an opinion, derived from personal experience of the quantity of air required for the particular seams of coal. The amount of ventilation required for a pit depended upon the issue of gas from the seam to be worked, and the rate of working, without reference to the number of men employed. He could not say what quantity of air would be required in the pit in which 200 miners were working, as there was more gas in some seams than others. He first must know the thickness of the seam, and then the quantity of gas given off. Opinions might have been expressed in scientific quarters as to the amount of air so required, but he knew these opinions were very contradictory, and perhaps unsatisfactory.

Thomas Evans Esq., Inspector of the South Wales Coalmines was now called. He said: - "I have, with a view of ascertaining the cause of this explosion, which has resulted in so large a sacrifice of life, made on four separate occasions an examination of the whole of the upper pit of the Lower Duffryn Colliery. I find the explosion and its effects are confined to the No. 1 and No. 2 headings on the east side of the shaft. The other districts of the mine have not been interfered with. There are two shafts at this colliery – one used as the down-cast, and the other as the upcast, at which the air after ventilating the whole of the mine passes up.

The shafts are of large dimensions, and are walled, I may say, from the top to bottom. At the bottom of the up-cast is placed a furnace, which ought to be regularly worked, and for this purpose a double-furnace would be more preferable, as when one is being cleaned, the other can be driven a little under, and an equal temperature maintained in the shaft. The direction of the air-current has already been described by Mr. Wilkinson, and they will be seen by reference to the plan. The coal worked here is known as the upper-four-feet, and is very much subject to explosions of gas, called 'blowers.' There are falls of timber in the stalls and workings. I am of the opinion that the explosion took place in No. 1 cross heading, and probably where it is marked 'D' in the plan. I arrive at this opinion first, from the great violence exhibited in this heading; and, secondly, from the position in which the timbers, doors and brattices are blown. Very few traces of fire itself are observable, and only in one place any – on a piece of timber in Rumley's stall.

A very large fall has taken place in Thomas Davies's stall, from which gas would certainly be exuded in large quantities; it would then be taken in the in-take, and

pass out by the up-cast. I have no doubt that the gas which caused the explosion came from Thomas Davies's stall, in as much as it was the first fall which had taken place in the solid part of the mine. Now, in Rumley's stall the pressure had been relieved, and that gas had been drained off, as the top had in several places fallen. The falls in No. 1 cross heading would take place after the explosion. The concussion of the air, and the violence of the explosion, would blow away the timbers, and a fall must take place.

The rules of the colliery directed that it shall be worked exclusively with safety lamps, and that the fireman should lock them. If the lamps were locked, and I have every reason to believe they were, the gas must have been fired at a defective lamp or by a naked light, and the explosion had taken place from that light. I think it most advisable not to make a main travelling way of the return air-way. All gases must pass along that way, and though it might not cause the explosion, still, it cannot be healthy for men to breath.

The in-take air-ways are in some places much damaged, and there are falls, probably owing to the long stoppage at the works during the strikes. The system of dividing the colliery into districts has proved in this instance good, for had the system at Cymmer been practiced, everybody in the colliery must have been killed. I don't think it possible for the explosion to have taken place in Rumley's stall. Gas was found in Rumley's stall the Saturday before the explosion; and from the evidence of John Bowen it would appear that the fireman had not made the customary examination of the works, although the man privately assures me that he did.

Coroner: - "That is not evidence." Mr. Evans said that he saw it reported in the 'Guardian' that the fireman had not left the usual mark on Saturday. He made the remark because it was such an important point. Mr. Dobson said he should be very sorry to keep a man who did not properly examine the works every morning. Mr. Evans said he did not think the explosion originated in defective ventilation, for if there had been four times the amount of ventilation as long as colliers would work with naked lights, accidents of this kind must occur.

By the coroner: - "I thought the system of ventilation adopted in this mine was good. There was a sufficient quantity of air in the split, but Mr. Wilkinson's figures did not show the quantity of air in any part of the pit, except where he had taken his calculations, and for instance, he did not show how much air there was in Levi Davies's stall. As a general rule, working the colliery by night was bad, but for carrying on the ventilation of the mine, they might work day and

night. He did not see any objection to the men being employed on that particular night.”

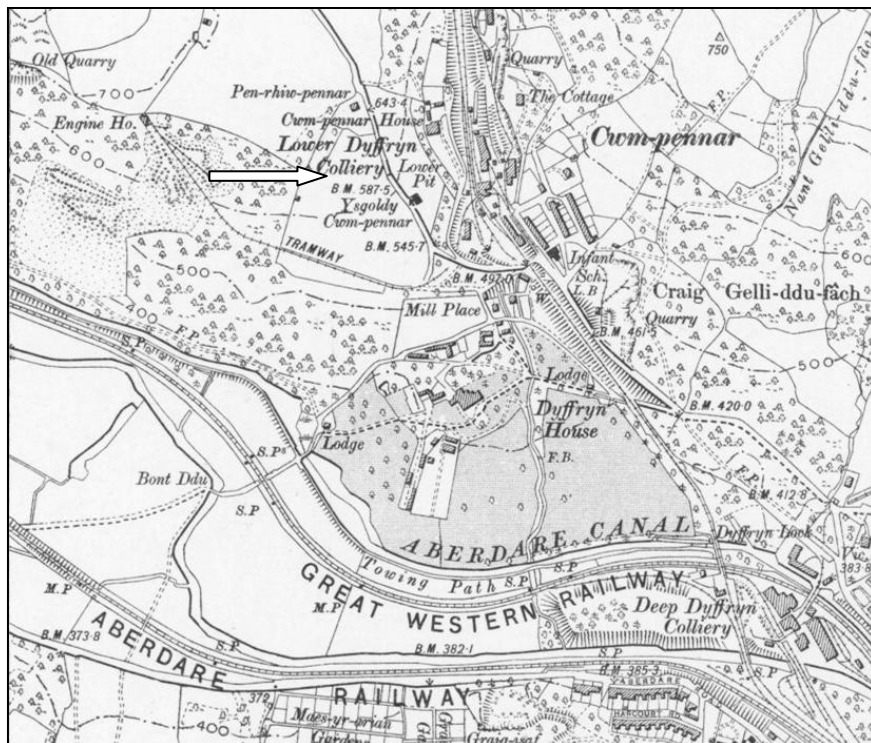
By a juror: - “When I examined this pit last, it was for a specific object, and I did not make a lengthy examination. It will take me three years and a half to go round all the pits in Glamorganshire, Carmarthenshire, and Pembrokeshire. By Mr. James: - “There is a large quantity of coal produced in England by ‘double shifts’ – day and night, both for ironworks, where they are obliged to have the coal, and also where it is only exported.

The verdict

This being all the evidence to be taken, the jury were locked up. After deliberating for forty minutes, they returned the following verdict, viz., **“accidental death, caused by an explosion of gas, but how it ignited there is not sufficient evidence to know. The jury strongly recommend that a large furnace or two furnaces, be employed in these works, and that the return air-course should not be used as a travelling road, and also the rules prohibiting pipes or matches to be taken into the pit be rigidly enforced, so as to deter the men from doing so.”**

Victims of the Lower Duffryn accident 25th February 1858		
Name	Age	Occupation
George Cox	35	collier
Joseph Cox	15	“
Henry Morris	15	Haulier
David Davies	20	Collier
William Aubrey	36	“
“ “ Jnr.	12	“
John Morgan	24	“
Richard Jones	28	“
Thomas Shawcross (or similar)	32	“
Daniel Jones	25	“
Edwin Strong	10	Doorboy
Levi Davies	745	collier
Thomas Richards	14	“
Peter Norman	44	“
James Rumley	40	“

Henry Salmon	10	“
John Rosser	22	“
Owen Jones	18	Haulier
George Gale	15	Doorboy



Drawing showing the Lower Duffryn Colliery on the 1874 O. S. Map

LOWER DUFFRYN (OR CWMPENNAR) COLLIERY, NOVEMBER 6th 1860

Twelve lives lost

Two and a half years after the last major accident another would take place and again it was the Lower Duffryn Colliery that was struck. The '*Cardiff & Merthyr Guardian*' of Saturday, November 10th 1860 reported: -

Fearful colliery explosion at Mountain Ash

It is our painful province to have to record this week a most frightful colliery explosion which took place on Tuesday afternoon, November 6th, 1860, at the Lower Duffryn or Cwmpennar Pit, about one mile from Mountain Ash, by which nine men have lost their lives, and 12 others are more or less injured.

In Cardiff the greatest excitement was created on Tuesday evening and throughout Wednesday and various were the reports as to the extent of the calamity; in fact one statement went so far as to say that upwards of 50 men had been killed. Mr. Dobson, mineral surveyor, as soon as he heard of the fearful accident proceeded at once to Mountain Ash, and was on the spot of the direful catastrophe within two hours after it occurred. Mr. Evans, Inspector of Mines, and Mr. Thomas Powell, also proceeded up by the 9.30 a. m. train on Wednesday morning, and these gentlemen made a most careful examination of the works. We might also here mention that as soon as the extent of the loss of human life was known at Messrs. Powell's offices at Cardiff, a quantity of elm timber was dispatched for the purpose of making the requisite number of coffins.

On proceeding to the spot our reporter found that the explosion took place between 12 and 1 o'clock in the nine-foot vein at the lower pit of the Lower Duffryn Colliery, and there is not the least doubt that it occurred in consequence of the careless and reprehensible conduct of a collier named John Box, who was killed, and who, contrary to the Act of Parliament and to the rules laid down, lifted off the wire gauze from his safety lamp. No sooner was the sad and frightful news conveyed to Mountain Ash than hundreds of people made their way up the incline and along the road towards the pit.

On arriving there the scene was most heart-rending, the shrieks and moaning of the women was sufficient to melt the most stone-hearted, and when the bodies of the dead and the injured were brought to the mouth of the pit the people were with difficulty kept back. However, by the tact and judgement of those who had the painful office of keeping order, those of the sufferers who were

injured were immediately placed under the skilful treatment of Edward Davies, Esq., surgeon to the works, and conveyed to their respective homes as expeditiously as possible. The Rev. W. Williams, the community man of the district was also in attendance ministering words of peace and comfort to the afflicted, and many a widow's and orphan's grief was lessened by his sympathising and soothing conversation.

The cause of the accident seems to have occurred in the following way: - The deceased man named Box was working in a stall in the face of one of the headings in the nine-foot vein, with a man named Nathan Lovell, who miraculously escaped with his life. They both had just finished their dinner at the mouth of the stall, when Lovell left to go into an adjoining stall, from which he was driving an air-way to the stall which he had just vacated, and in which Box was working.

Immediately Lovell reached the face of the air-way which had just been bored into the upper stall an explosion took place, by the force of which Lovell was driven back out of the air-way into the stall. After great difficulty he reached the mouth of the pit. He immediately gave an alarm, and the manager, agents &co., went at once to the assistance of those in the pit. When the gas had been sufficiently cleared off, they entered the headings and stalls. Box was found dead in the heading in front of his stall, and his lamp was found with the wire gauze off, lying at the face of the stall, and the supposition was that he had taken it off and thereby ignited some gas which must have accumulated in the stall by the door being carelessly left open in the heading.

In support of the supposition we might state that the top of the lamp was found some distance from where the bottom was picked up. The other bodies were found in the several stalls and headings, and conveyed to the mouth of the pit. It would appear that when the unfortunate men heard the report of the explosion they rushed out to the face of the headings, where the fire-damp overcame them and they fell – some senseless from the effects of the gas, and the rest dead from its overpowering influence and burning nature.

The whole of the bodies were taken out of the pit before 5 o'clock. Such was the confidence of the colliers in the proper ventilation of the Messrs. Powell's pits that they volunteered to go into the upper pit the following morning. We hope that this accident will be a warning to colliers against removing the tops of their lamps and smoking. Many men in this pit have been had up by Messrs. Powell for the infringement of a wise and wholesome rule enacted by Parliament, but as the presiding magistrates have hitherto only inflicted nominal

finer upon the delinquents the crime has gone on in the same way – we say crime, because such a practice sooner or later deprives fellow men of their lives, as in the present case. It is the opinion of all who possess the management of coal works that nothing less than imprisonment will tend to stop the highly dangerous practises we have alluded to.

In the evening a meeting of the inhabitants of Mountain Ash held was at the Jeffrey's Arms, at which the Rev. W. Williams presided. Several of the leading tradesmen of the place were present and it was resolved that the neighbourhood should be divided into districts to collect subscriptions towards a fund for rendering assistance to the widows and orphans and to the afflicted. It should be mentioned that Messrs. Powell will, as usual, attend to the temporal comforts of the widows and orphans, and each widow has been provided with money by them to meet present wants. The 'Cardiff Times' reported: -

Fatal colliery explosion at Mountain Ash

On Tuesday evening information reached Cardiff that a fatal explosion of fire damp had taken place in one of Messrs. Powell's collieries, near Mountain Ash, and, as is usual in such cases the most exaggerated reports as to the number of persons killed were circulated. We lost no time in reaching the scene of the catastrophe, which turned out to be of a truly awful character, although the number of lives sacrificed was by no means so great as was at first reported. On reaching the mouth of the pit a large concourse of people had collected, and a scene of the most distressing character presented itself.

As soon as the explosion became known above ground, a number of men were immediately lowered to afford whatever assistance was in their power. On going up the heading they met numerous parties of colliers carrying the dead and injured to the bottom of the shaft, and amongst those most busily engaged was the agent, Mr. Wilkinson, who was two or three times compelled to rush to the bottom of the shaft to preserve himself from suffocation.

On going up the heading the exploring party found a quantity of hay on fire on the top of John Jenkins's stall, and also in No. 2 heading, but beyond this no fire was observed. They then commenced a careful search in each stall, whilst others were busily engaged sending those that were injured up the shaft to the open air. As each successive load was brought to the surface the utmost excitement prevailed until the identity of the victims was ascertained, which was by no means an easy task from the fearfully disfigured countenances of many of the unfortunate men. The women and children were crying in the most frantic

manner, believing that the next arrival would prove to be their husband, father, or brother, as the case might be. About four o'clock the whole of the stalls having been carefully searched, it was thought that the extent of the catastrophe had been ascertained, eight dead bodies having by that time been found, besides a very large number who were severely burnt or otherwise injured. It was, however, found that a boy was still missing, and another gallant band descended to renew the search. After hours of arduous toil the little fellow was discovered quite dead in one of the stalls under a large piece of coal. By seven o'clock he was brought to the surface, when the large crowd gradually dispersed, many of them with mourning hearts at the loss of their dearest friends.

On Wednesday morning, on approaching the colliery, the first sight we beheld was that of a body of men busily engaged making coffins for the deceased, and a large number of colliers looking on at the sad work in solemn silence. Mr. Powell and Mr. Evans, the government inspector of mines, arrived by the first train, and at once proceeded to investigate the nature and extent of the explosion. Mr. Evans descended the pit, and made a minute examination, but of course the result of his observations will not be given until the evidence is taken before the coroner.

Mr. Dobson, the engineer to the colliery, who arrived soon after the accident occurred, descended the pit early on Wednesday morning, and examined the whole of the workings. In order to make it as intelligible as possible to the general reader, we may state that the explosion took place between twelve and one o'clock on Tuesday afternoon, in what is called the nine feet vein in the lower pit of the Lower Duffryn Colliery, which is situated about half a mile from Mountain Ash.

This colliery is worked by an engine placed near to the bottom of the pit in the four feet vein, which hauls coal up a large slope drift which is driven from the four feet to the nine feet vein. In this slope drift there are numerous workings, both on the east and west sides, and it is at present conjectured that the fire originated in what is called No. 1 heading, at the extreme end of the west side. In this No. 1 heading was found a lamp belonging to John Box, one of the killed, with the gauze top removed, which seems to indicate that the lamp must have been open.

The fire seems to have been confined to two or three of the adjoining stalls where the deadly effect of the afterdamp which was carried along the west side by and where most of the dead bodies were found. Some idea may be formed

of the terrific nature of an explosion of fire damp from the fact that all the doors of the workings were blown down, and the "air-crossing," situate about half-way up the workings, and formed of half-inch iron plates, was shrivelled up as if it had been a piece of parchment, and two horses were killed by the same cause.

It would be premature to give an opinion as to the cause of the explosion, for even supposing that it had been fired by the opening of Box's lamp, the question still remains as to how the gas had accumulated in so large a quantity as to produce such fearful results. This may have taken place either from defective ventilation, or from a "fall" emitting a large quantity of gas, but as no fall has taken place, the gas could not have accumulated from the latter cause. No doubt when the official inquiry takes place some light will be thrown upon this subject by those who witnessed the explosion.

It is proper to remark that this colliery is worked exclusively by locked safety lamps, no man being allowed to use a naked light for any purpose whatever. At the time of the explosion there were about 150 men and boys employed in this vein, and it seems miraculous that a greater number of lives were not sacrificed.

During the whole of Wednesday the colliers belonging to the pit, amounting to about 500, were to be seen collected in groups in the streets of Mountain Ash, and near the scene of the accident, it being a rule amongst them not to work until their unfortunate fellow-workmen are conveyed to their last resting place, which ceremony could not take place until the coroner had arrived. There were also a large number of colliers from Merthyr, Aberdare, Pontypridd, and all the adjoining works, who had hastened to the scene of the accident. The following is a list of the victims:

Killed

Thomas Evans, 31, wife and four children. **John Box**, 35, wife and one child. **John Regan**, 62, wife and three children. **Evan Thomas**, 34, wife and no children. **David Richards**, 25, single. **John Rendell**, 25, single. **John Davies**, 23, single. **Richard Williams**, 15. **George Morgan**, 11.

The deceased Evan Thomas is said to have left this pit some ten months ago, under the belief that it was not safe, and had only returned to it a few weeks, when he met with his untimely end. There were a large number of persons less or more severely injured by fire or bruises, and of whom are the following who may be said to be dangerously injured

Howell Arthur, John Isley, Isaac Leek, John Jones, badly burnt, Robert Lewis, badly burnt, and two others named Jenkins, also very badly burnt. Mr. E. Davies, surgeon to the works, and Messrs. Hughes and Brown, were most assiduous in their efforts to save the lives of the injured. Mr. Powell instructed them to procure everything necessary for the unfortunate families. The lady of H. A. Bruce, Esq., M.P., exerted herself in a very laudable manner in ministering to the wants of the bereaved families.

The inquest – 8th November 1860

The inquest was opened, at the Jeffery's Arms Hotel, on Thursday, November 8th, by Mr. J. Morgan, Esq., Deputy-coroner. The following gentlemen were called upon and the jury answered to their names: - William James, Steven Coslett, John Jones, David Lewis, John Harris, John Gray, John Thomas, William Anthony, John Roberts, Thomas Edmunds, David Davies, David Coleman, John Evans, Edward Evans, James Brown, and Richard Edmunds. Before the jury was sworn, Mr. George Overton, Esq., arrived. He said that as Mr. Evans, the Government Inspector, was not present, he thought the best way would be have the jury view the bodies, after which the investigation be adjourned for a week. The jury was then sworn, Mr. John Gray being chosen as foreman. The bodies having been identified, the inquiry was adjourned until the following Thursday. The *Cardiff & Merthyr Guardian* of Saturday, November 17th 1860 reported: -

Fatal explosion at Mountain Ash – Three more sufferers dead

Mountain Ash, Thursday – The adjourned inquest upon the bodies of the nine men who were killed by the explosion at Messrs. Powell & Sons', Cwmpennar Pit, was resumed today, at the Jeffery's Arms Hotel, Mountain Ash. Since our last publication, in which we gave full particulars of the catastrophe, two more of the unfortunate sufferers have died, namely, **Robert Lewis**, 20, single, and **John Lewis**, a boy, both of whom were dreadfully burnt. From enquiries made this morning we find the other men who were injured were recovering; with the exception of three, **John Isley** and **Howell Arthur**, who are in a very dangerous state, while another, named **Edward Jenkins**, is just reported dead – half past-twelve o'clock.

The Rev. Williams has, as we said last week, been most assiduous in attending to the wounded, and to the widows and orphans deprived of their chief and principal friends. He has also taken upon himself, in conjunction with a committee, to pay a house to house visit in order to raise funds to alleviate their temporal wants. As soon as J. Bruce Price, Esq., heard of the catastrophe, he

forwarded to the Hon. Secretary, a cheque for £10, to be applied in relieving immediate wants.

In connection with the spiritual consolation afforded to the sufferers and the afflicted we are bound to say that the Rev. W. Williams stands out in door to door relief. We are informed that the dissenting ministers of the place have not paid the poor people a visit, although it is well known that the work people and their families attend their places of worship. Mr. T. Evans, Esq., Government Inspector of Mines for the South Wales district, and Mr. L. Brough, Esq., inspector for the Western district came down this morning and inspected the pit. There were also present at the investigation : - Mr. S. Dobson, Esq., Mr. E. W. Davies, Esq., surgeon to the works; Mr. J. Strick, C. E., Mr. G. Brown, manager of Mr. Nixon's colliery; Mr. C. James; Mr. James Nasmyth, senior, Manager of the Aberaman works; and the Rev. W. Williams, &co.

The adjourned inquest – 15th November 1860

George Overton, Esq., Coroner, took his seat at 1 o'clock, when the names of the jury were called by the police, and they all answered; but it was a long time before the proceedings commenced, the Coroner and Mr. Strick being occupied in looking over a plan showing the ventilation of the nine-foot vein in the Lower Duffryn, or Cwmpennar Pit. At length after a great delay, the Coroner proceeded to call out the names of the jury formed last week. The learned gentleman then proceeded to say: -

"Gentlemen, we now are met together to proceed with the inquiry commenced on the 8th inst., into the cause of the melancholy accident that occurred at the Lower Duffryn Pit, on the 6th inst. I am sure I need not impress upon you the importance of the investigation. Any inquiry involving the fate of 11 of our fellow creatures, must necessarily be of sufficient importance to ensure your deepest interest and most serious attention.

Unfortunately occurrences of the kind have been very common in South Wales of late, and more particularly in this district; and we have in this immediate locality to lament some of the most serious accidents on record. Fatality must attend more or less all mining transactions, but it is a well-known fact that the extent and nature of these calamities may be very much influenced and prevented by prudence, caution, and skill. I regret to find that the mortality in this district far exceeds almost all other parts of the kingdom, whether considered in respect in the number of population, or in respect to the quantity of coal raised. I find that it was publically asserted, and no doubt it is the fact,

that during the year 1859, which is I believe a fair average with other years, the number of deaths resulting from colliery accidents in the whole of Great Britain did not average more than 1 in 64,000, and in England it was only 1 in 114,000; and Scotland 1 in 95,000, while in South Wales it amounted to 1 in 47,000.

According to the reports of the Government Inspectors for last year, I recollect that there was only one district in the whole kingdom which approached anything like the mortality in South Wales, and while the average number of deaths for each million ton of coal raised amounted to for the whole kingdom 15½; for the Durham district 8¾; in South Wales it was more than 18. These facts are anything but creditable to this district, and must show the necessity of a thorough and searching investigation.

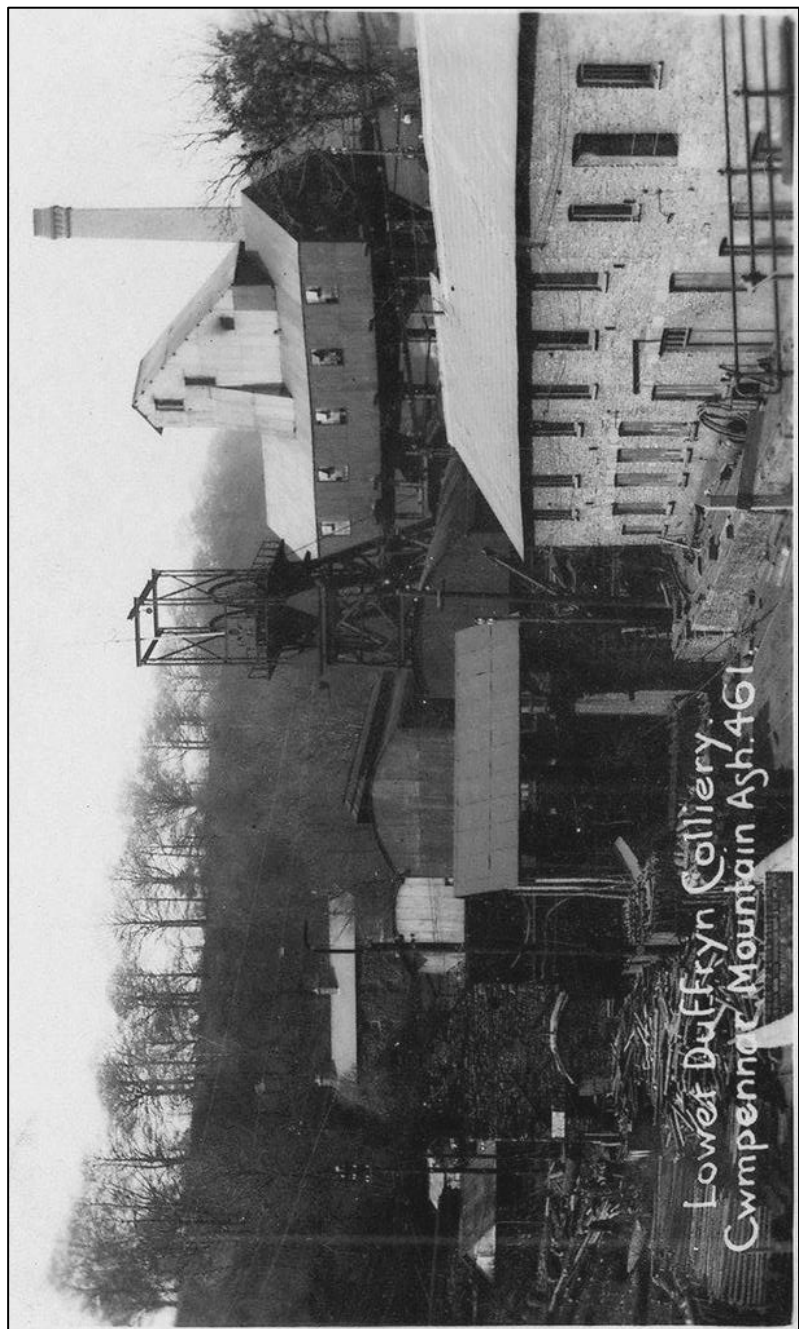
I am not aware that there is any good reason why this district should present such an unfavourable aspect. Durham was for many years I believe considered as dangerous a coalfield as any in the kingdom, but that at present presents a more favourable contrast to our own. I have digressed this far, with a view of impressing on you the importance of the present inquiry, and urging you to devote it to your most diligent attention – and first of all let me caution you not to allow yourselves to be influenced by any of the rumours you have heard, but be guided solely by the evidence that will be adduced before you here.

I am sorry to find that several of the newspapers have been pleased to enter into what they call ‘full particulars of the facts,’ and express very strong opinions; this is to say the least, very premature and unfair, and their statements probably will turn out as unfounded as they are contradictory.

Having made these general observations, I will direct your attention to what I consider to be your duty upon the present occasion, and the course I propose to adopt. Your duty will be to endeavour to ascertain from the evidence what was the cause of the deaths of the several persons, on whom we are holding this investigation, and how it originated.

That it arose from an explosion in the pit, is a fact that cannot be doubted, but how the explosion was caused, remains for you to discover, and on investigating that fact, there are two essential points to be considered.

To constitute an explosion, there are two things necessary - first, there must be some gas or carbonated hydrogen existing in a dangerous state in some parts of the workings; and secondly, there must be some naked light brought in contact with it.



Lower Duffryn Colliery.
Cwmpennac Mountain Ash. 461.

Now, considering these questions, people are too prone to take a one-sided view of the question, and consider only how the gas became ignited, and blame alone the poor ignorant man who has been only, perhaps the unfortunate means of being the mischief, without considering the equally important question of how the gas happened to accumulate in such a dangerous condition.

There are, therefore, as I stated before, two points to be considered, first, how the gas accumulated there, and then, secondly, how it became ignited. You will have to investigate those two points; and when you have done so and collected all the evidence on the subject, I shall have an opportunity of explaining to you any question of law that may arise upon those facts. It is, you will see, necessary for you to investigate not only how the gas got ignited, but also how it got accumulated in such quantities as to become dangerous.

There is one peculiarity in this case, and I am sorry it is not the first I have had, and that is that safety lamps are alone used in the pits, and the implication therefore necessarily arises that there must have been some neglect on the part of the men in removing the top of their lamp, and this of course will be one part of your inquiry; but you must also recollect that the fact of safety lamps being adopted does not at all relieve the owners and overmen of the pit from their obligation to attend to the proper ventilation of the pit, and it is their imperative duty to attend to the ventilation and health of the pit equally the same whether lamps are used or not, and they are deeply responsible if they neglect that duty.

It has been, I fear, with too great truth, urged that the use of safety lamps would lead to inattention to the proper ventilation of the pit, and the proprietors may be induced to place too much confidence in the lamps, and neglect the still more important subject of ventilation. If this is done, I can only say that it is a most dangerous and improper course. The adoption of safety lamps does not relieve the owners from one iota of their liabilities.

They are equally guilty, legally and morally, to take care that their pits are well ventilated, whether lamps are used or not, and if they neglect that duty, they are very culpable. It will, therefore, as stated before be your duty to consider whether the pit at the time was sufficiently and properly ventilated. As I find that the case of John Box appears to be of the clearest, I propose directing your attention first of all to his case. The following witness were then examined: -

Mr. George Wilkinson, resident viewer of the Lower Duffryn Colliery, produced a plan of the Lower Duffryn Pit, and also a copy of the rules of the colliery printed in Welsh and English, with bye laws attached. He said there was a staff

of officers for the lower pit, and also for the upper pit. There was a four-foot and a nine-foot vein in the lower pit, and the explosion took place on the west side of the nine-foot vein, in No. 1 cross-heading, in the uppermost stall, No. 11; there were two furnaces in the pit, one 6 ft. 10 ins. by 10 ft; the other 7 ft. 6 ins. by 10 ft. Witness described the mode of ventilation, and said he measured the air passing about ten weeks before the accident, and found with one furnace it was 131,000 cubic feet per minute; he measured it again on Saturday last and it was 147,000 cubic feet per minute; with two furnaces; the pit was then idle; if it had been working, it would have been 152,000; of that quantity 42,000 went down to the nine-foot vein, and of that 22,000 went to the West works.

The pits were exclusively worked with locked safety lamps, and it was the duty of the fireman to lock them at the top of the pit before the men took them down. On the morning of the accident David Thomas locked the whole of the lamps for the nine-foot; blasting was allowed in the nine-foot vein, but the men were prohibited from firing the shots. The two firemen and John Morgan were the only persons authorised to do so. The depth of the lower pit was about 280 yards. There were 600 men and boys in the pit on the day of the accident. The air-bridge was blown up at both ends.

He set to work to restore the ventilation which was stopped; the separation doors being numbers 1 and 2 cross-heading were blown open; the doors of the other stalls, except two, were shattered. The witness then described the way in which the men were got out, and where some of the dead bodies and the injured men were found. He next gave reasons why he thought the explosion took place in Box's stall. He believed the gas had accumulated there from the door being left open. The gauze of Box's lamp had been taken off; the gauze and the bottom opened by a proper key; supposed Box removed the gauze in order to light his lamp as a pipe was found in his pocket. A shot was fired by John Harvey about two hours previous to the explosion, when there was no gas. If the door was left open half-an-hour, there would be a sufficiency of gas accumulated as to be dangerous. The coal might be cut without powder, but it would be attended with difficulty. Never had complaints about the air in the nine-foot vein. Had been compelled at times to contract the air. Nineteen lives were lost in the same colliery, but not in the same pit, in an explosion in February 1958. Mr. Dobson viewed the colliery once a week. At the top of the wind-way the air-way was 6 ft. by 1 ft., and they throttled the gas in the air-way.

John Harvey, fireman, deposed to having examined the pit on the morning of the accident, and finding all the workings perfectly safe; there was no gas whatsoever; he fired a hole in the wind-way, between 9 and 10 o'clock, at the

request of Lovell. **Griffith Llewellyn**, foreman in the lower pit; deposed to find the gauze of a lamp in Box's stall. He believed that the cause of the explosion was the leaving open of the door. The inquest was adjourned at half-past-six o'clock, until half-past 10 o'clock, Friday, November 9th 1860. The same newspaper, the '*Cardiff & Merthyr Guardian*', of Saturday, November 10th, also carried this report: -

The Mountain Ash catastrophe

The '*Cardiff & Merthyr Guardian*', of Saturday, November 24th 1860 reported: - In last week's impression we gave an account of the inquest on the Lower Duffryn Colliery explosion held on Thursday week, and which was adjourned until the following day (Friday) when the investigation recommenced at 11 o'clock.

David Williams, a boy aged 13, deposed: - "I am a lampman, and my duty is to clean the lamps for both pits. There are three others similarly engaged, one man and two boys. I have been employed at this work for seven weeks, one of the men having been off through sickness. I gave out the lamps on the morning of the explosion to all the men engaged in the lower pit. The lamps are all kept on shelves in the lamp room. Some I locked and gave to the colliers and others I gave to David Thomas, the fireman, who gave them to the colliers. The key is left on the table in the lamp room. Could not name all the men to whom I gave lamps, but recollected giving one to Box, I had given out at least 100. When the men come for their lamps they ask for their numbers. Box's number was 232 and Lovell's 31. I do not know the numbers of all the men, but recollects them two. I locked John Box's lamps, I am quite certain. I gave John Jones his lamp, No. 42."

A Juryman: - "How do you know John Box so particularly?" Witness: - "Because he had whiskers round his chin." By the Coroner: - "The fireman was gone when I gave the lamp to Box. It was a little past seven o'clock. The fireman had been in the lamp room till about seven o'clock." The Coroner remarked that he never recollected of any man having been convicted for smoking in a pit. Mr. Dobson: - "I can prove that we have fined men to the extent of £50 during the past two years for breach of safety rules." The cases he had taken before the magistrates had generally been fined, which was of no use, because the men subscribed to pay the expenses. Mr. Evans: - "That is a fact. There are very few convictions, and the fines are of no use. There is no doubt that the men do smoke when in the pits." The Coroner hoped that the press would take notice of the fact, because if the magistrates were aware that their infliction of a fine was of no

avail, they might be induced to commit them to prison. Mr. Dobson: - "I am sure the colliery proprietors will be much obliged to the press if they can effect such a change."

Mr. Brough, in answer to a question, said it was possible for a man to light his pipe through the gauze without the necessity of taking the top off.

John Morgan deposed: - "I have been a fireman in the Lower *Duffryn* pit for the last twenty months. My duty is to go round in the morning, to see that all the workings are safe. I can read print, but I cannot write. I go all round every working place on the west side. If anything be wrong, I place cross props. I generally go through the windways. I was not on duty, as fireman, the week of the explosion. Examined all around the Saturday before, and found all safe. On the day of the accident I was working at the intake, repairing the windway between Nos. 4 and 5 stalls. I had been clearing a fall that had taken place in that part. At the moment the explosion occurred, I was at the bottom of No. 1 heading, on the level. I heard the explosion. I passed through the separation doors that morning, soon after ten o'clock. I was for half an hour in No. 2, and again returned through the separation doors, about eleven o'clock. The outside door was then shut. The first separation door is from four to five yards from the heading, and the second door is thirteen yards from the first.

There is room for two trams and a horse between them, and only one door is opened at a time. The boy opens the first door, and then proceeds to the next one, but does not open it till the haulier has closed the first door. The explosion put out my light, and I went along to get a light. I met a fireman with a naked light, and got my lamp lit. The gas was so bad that I could not go far, but soon afterwards accompanied Mr. Wilkinson. I carry a key, and when a man's light goes out they go to the fireman for a light. There is no particular spot for lighting, but I never give a light except in a positively safe place. Sometimes I have given a light in a stall. All the firemen keep keys, and one haulier, named David Richards. Phillip Jones, a hitcher, also keeps a key at the bottom of the pit. I have seen it hung up on the pillar, but cannot say that it is always there. A man might open his lamp on going down the pit."

The Coroner said he had been very anxious to hear the evidence of some of the injured men, but as those whom he wished to examine were not able to attend, he proposed going to see **Jacob Jenkins**. On reassembling, the Coroner said he would read the following evidence which he had taken down - "The deceased was my brother. We were working together in a stall in No. 2 colliery, in the Lower Duffryn Colliery at the time of the explosion. My brother generally works

with us, but he was not in on that occasion. We heard some noise like an explosion, which knocked me both down and put out the lights, and I saw the fire coming on to the stall. I fell down on my hands. I knew when I was down. I felt my hair all on fire. I rose up my hands to put out the fires, and got my hands badly burnt. After I had put out the fire on my hair, I tried to make my escape to the heading, and down the No. 2 heading. The timber was all on fire in the stall. I went down the heading, and after I got some distance down, I saw my poor brother also running all in flames. I proceeded as well as I could, passing over several bodies on my way, and stumbled down frequently on the way until at last I met one of the colliers who carried me out on his back; my hands and arms are very much burnt. About an hour previous to the explosion I heard some strange noise in the pit that appeared something like an explosion, but that was a long time before the explosion took place. I cannot give any cause for the explosion. I have always found plenty of air in my stall.”

Nathan Lovell deposed: -“I worked in the Lower Duffryn Colliery at the time of the explosion. The deceased John Box and I worked together in the top stall in No. 1 heading. We had worked it for 14 or 15 yards forwards, and had been lately driving a windway to the next stall, on both sides. We had driven it 14 yards on one side and seven on the other. On the day before the explosion we made an opening of about 12 in. by 4 in. Had been working in the windway up till dinner-time.

At ten o'clock the fire- man fired a shot with a naked light. At twelve o'clock we went to the parting leading into one stall to take dinner. After dinner I left Box, who had not quite finished dinner. I went into the next stall, and thence to my work, but before I commenced the explosion took place. It could not have been more than five minutes after I had left Box that the fire came into the stall where I was, and passed down the windway into the next stall where William Jenkins was at work.

The canvass door at the entrance to our stall was shut, both when we went and returned from dinner. Am quite positive the door was shut on both occasions. The effect of the explosion put out my light. I was not at all burned. I got up as soon as I could, held up my shirt to my mouth, and endeavoured to get out. I got out of the stall into the heading, and groped my way along the best way I could in the direction of the pit. I passed several bodies on my way. I was nearly overcome by the sulphur, but I made great efforts to go on. At last I saw a light and called out, and fell down completely overcome. Some persons came to my assistance, carried me along for some distance, until I became insensible. When I

recovered I found myself in the lodge at the top of the pit. When I left Box the top was on his lamp.”

By Mr. Dobson: - “Have seen the gas in the stall, about a lampful. The fireman has sometimes said there is a little gas in the stall. I never complained of the gas, because I did not think it dangerous. I smoke and had a pipe with me, but did not smoke in the pit. Was not aware that my pipe was found on me with a piece of coal in it. Did not smoke after dinner. Harvey, the fireman, was in Box's stall before he fired the shot, but could not say whether he tried for gas before the shot was fired. We are allowed to smoke at the bottom of the incline.

Evan Jenkins deposed: -“I am a collier and work in No. 1 stall, No. 1 heading. I was not in the pit on the day of the explosion, as I was waiting for timber. My partner, Samuel Morgan, was at work, and was burned a little. If we had both been at work, we should not have had enough of timber. The timber is kept at the top of the pit. We have plenty of air. Never saw a man open a lamp, except the fireman. When my light goes out I go in search of the firemen who gives me a light anywhere where he thinks it safe. Kendall asked a loan of my lamp about a fortnight ago, to have fire. I don't know how he was to get fire from my lamp. Never said he had seen Kendall with a key, but thought he had one from asking for my lamp to have fire.”

John Jones deposed: - “I am a collier in No. 2 heading. When the explosion took place I saw the fire coming from the top of the heading through the waste into my stall. I was not burned, as the fire passed about three yards from me into the windway. I made my escape into the heading, but fell two or three times from the effect of the air. The boy Richard Williams was with me, but I lost him before I became insensible. The boy was afterwards found dead. There is plenty of air where I work, as good as ever I saw in my life.”

Thomas Evans, of Cardiff, Esq., F.G.S., deposed: - “I am her Majesty's Inspector of Mines for South Wales. The Lower *Duffryn* Colliery, belonging to Messrs. Powell and Sons, is in my district. I have made three inspections of the colliery since the explosion, on the 7th, 12th, and 16th inst, the last time in company with my colleague, Mr. Brough, with a view of ascertaining the cause of this terrible calamity, which took place on the 6th inst., and has been attended with great sacrifice to life. The explosion was confined to the workings of the nine feet vein of coal, and its effects to No. 1 and 2 cross headings on the western side of the incline. In forming my opinion as to the cause of the catastrophe, it was necessary first to observe the positions of the "doors," the brattice, and the traces of fire along the headings. I have no doubt the ignition of the gas took

place in the No. 11 stall, and then it passed through the windings in No. 1 heading and also along the upper level between No. 1 and 2 headings and then down No. 2 heading. One burnt door in this heading may be especially considered as proof thereof. There was doubtless an accumulation of gas in No. 11 stall. It may be the canvas door was opened as alleged by previous witnesses, but there is no reliable evidence as to the fact. I found the stall No. 11 six yards in advance of the brattice. This length multiplied by the width, 8 yards, and again by the height, 9 feet, gives 3888 cubical feet of space without any supply of air, except that which passed through the small hole described by Mr. Wilkinson (between No. 11 and 10 stalls) about 6 inches by 4 inches. I do not state that all this space was filled from floor to roof with inflammable gas, but it is clear a considerable portion must have been there at the moment of explosion. The extensive and fatal range of its operation is full evidence thereof. That the deceased Box had the gauze of his lamp off, it is reasonable to believe, and it was in my opinion his naked flame that was the immediate cause of the explosion, but the primary one arose from an undue accumulation of fire-damp.

The intake airways are in many places of small dimensions sometimes exposing a sectional area of not more than 16 superficial feet. Now, there can be no doubt that these mines are exceedingly "fiery," giving off very large quantities of gas under great pressure, perhaps more so than most mines in England. The coal is eight to ten feet thick and requires ample ventilation. The airways therefore should have not less than thirty feet area, to secure at all times an adequate amount of ventilation, and in the panel of work stated by Mr. Wilkinson to receive 9600 feet per minute, I only could make out 6900 by my measurement; and I may state my opinion that at least 12,000 feet per minute should be dedicated to that pair of headings and their corresponding stalls.

Blasting the coal is attended with danger in fiery mines. Where locked safety lamps are used it ought not to be allowed; many serious accidents have arisen from the practice, and I hope, in future, it may be discontinued; only this year a life was lost from this very cause in Messrs. Powell's collieries.

I do most earnestly and strongly recommend that some steps should be taken in addition to the special rules now in force, whereby some more severe punishment than mere fine, shall be inflicted upon those persons who are guilty of so dangerous a practice as removing the gauze from their lamps, or tampering with them for the purpose of smoking, obtaining more light, or under any other pretence whatever, and in future it is the determination of the authorities to enforce the law; and let this be a caution to all employed in mines not to risk their own lives and those of others.

The fireman, or other competent person, ought to examine all the lamps each morning before the men have them delivered to them, and the duty, certainly, ought not to devolve on a boy. Rule 29 directs it shall be done by the fireman. The overman and fireman, the chief officers who watch the changes, and carry out safety regulations, can scarcely read or write."

Mr. Dobson: - "Does Mr. Evans think that practical knowledge on the part of overmen is not of more importance than being able to read and write? Mr. Evans: -"Certainly not; but I think it of the utmost importance that they should be educated." The Coroner said he thought it was a great disgrace to colliery proprietors that they did not take means to educate their men. Mr. Evans said it was a highly objectionable mode of fining men for smoking in the pit. They ought to be proceeded against before the magistrates, which was according to the Act of Parliament. If this was found insufficient, the colliery proprietors had sufficient power to get the law altered. Mr Dobson: - "The great difficulty was to get a conviction. Unless the magistrates committed the offenders it would never be put a stop to."

Mr. Brough deposed: I am surveyor of the western district, and accompanied Mr. Evans in his survey yesterday. I corroborate his statement with one exception. Mr. Evans thinks 12,000 cubic feet was sufficient for that part of the nine feet vein. I think it would require more. If I had it to work I would give it 15,000, and never let it get under. It is a very fiery seam, and a very lofty seam. I believe there was an accumulation in No. 11 stall, and even if the windway may have been pretty close to the fire, still there was sufficient unventilated space to accumulate the quantity of gas which caused the explosion. My opinion is that the rule 11, which says that the brattice is to be within twenty feet of the face is a bad rule, as twenty feet is too great a distance. I am bound to believe that Box's naked light fired the gas. I cannot speak as to the duties of the officers, as I am not sufficiently conversant with the colliery. I think if the brattice had been up to the face, the gas would have passed away. Mr. Dobson said that twenty feet was the maximum, but the law distinctly stated that it was to be brought up closer if there was an accumulation of gas."

The verdict

This concluded the evidence, and the Coroner than gave an epitome of the evidence, remarking that while the facts seemed to show that the explosion was occasioned by Box taking the top of his lamp off they had the further and more important question to consider as to how the gas had accumulated? They had heard the evidence of Mr. Evans and Mr. Brough upon the question of

ventilation, who both agreed that the brattice was not carried sufficiently close to the face of Box's stall, although they also admitted that it was not so far removed as to make it a culpable neglect on the part of those entrusted with the ventilation. There was also a supposition that the gas had accumulated from a door having been left open. He thought, from the care and attention they had paid to the evidence, they would not have much difficulty in arriving at a verdict. The jury then consulted for a few minutes, and returned a verdict of "Accidental Death." The inquiry lasted till seven o'clock.

The Editorial of the Cardiff Times commented: - Respecting the explosion at Cwmpennar last week, we invite attention to the evidence given at the inquest on Thursday. It will be seen that three more victims have been added to the list, making twelve who have died, besides the many who have endured physical and mental suffering, and those who have been deprived of relations who earned the daily bread that was consumed in the family. True, it's an oft-told tale. With some it has ceased to excite astonishment. Nevertheless, we would urge a perusal of the story, and that it may be allowed to have a voice. What is that voice? That although man may not hope to have perfect control over the destructive elements which exist in the coal-mine, care and attention will give him such an immunity from danger as to well repay him for all the pains-taking he may give in the midst of so much hazard. We had scarcely finished the above article before tidings of an event at Blaengwawr was received.

Caution to colliers - A collier sent to jail for smoking in a pit

The '*Cardiff & Merthyr Guardian*,' Saturday, December 1st, 1860 reported: - We have repeatedly called the attention of the colliers to the dangerous practice of smoking in collieries, and their removing the gauze of their lamps. This dangerous practice has been carried on to such a great an extent, and the lamentable results have so frequently happened, that the coal proprietors of the Aberdare works are determined to impress upon the magistrates the necessity of sending the delinquents to prison in all cases where the charges were proved.

In these representations they have been most ably seconded by Mr. T. Evans Esq., the Government Inspector for South Wales. This extreme measure has not been adopted by the employers out of a spirit of Tyranny, but for the good of the workmen. Doubtless, the evil practice of smoking in pits may go on for a long time and unattended by the evil results, but it invariably ends in depriving many fellow creatures of their lives. It has been argued, and very justly so, that the infliction of a mere fine will not meet the evil, and the rest of the colliers

working in the same pit as the delinquent 'club' together, and pay the penalty for him.

On the 21st ult., the very day after the fearful explosion at Messrs. Powell's Duffryn Pit, Mr. T. Evans went down Messrs. Dixon & Co's Duffryn Pit to make an examination, when he was informed that a collier named James Jones had been guilty of smoking. In consequence of this dangerous practice and the recent fearful accident, he considered it to be his duty to summons Jones before Mr. Fowler, the Stipendiary Magistrate for Merthyr and Aberdare. The case was heard on Saturday last, and the charge fully proved. Mr. Fowler, in sentencing the prisoner, said the law gave the magistrates power to punish the offence most severely, and they had determined to inflict the heaviest punishment in all cases. In the present case, however, he was willing to take into consideration the good character he had received, and therefore he would only be sentenced to seven days' hard labour, which he, Mr. Fowler, hoped would act as a warning to the prisoner and all others. In connection with this subject we append a circular that Mr. T. Evans has printed to be sent to all the colliers in his district: -

Notice

At the Police Court, Aberdare, on the 27th of November, before J. C. Fowler Esq., James Jones, collier, was sentenced to seven days imprisonment, at Cardiff gaol, for smoking tobacco in Deep Duffryn Colliery. Mr. Fowler, in passing sentence, said that the Act of Parliament gave the fullest power to the Magistrate to punish all who violate the rules so necessary for the safety of the lives of persons employed in mines. The sentence would have been heavier had it not been for the previous good character of the prisoner. That all future similar offences would be more severely dealt with.

Another explosion at Lower Duffryn Pit

The '*Cardiff & Merthyr Guardian*,' Saturday, December 8th 1860 reported: - On Saturday last, December 1st, 1860, another explosion occurred at the Lower Duffryn or Cwmpennar Pit, the property of Messrs. Powell & Son, by which one man was killed and another severely injured. The particulars, so far as we can glean, are as follows: - After the late explosion it was ascertained that one of the stalls had been set on fire, and an apparatus was erected in order to force carbonic acid into the place to put out the fire. On the day mentioned, Mr. Williamson, the manager, Mr. Strick, civil engineer; Griffith Llewellyn, overman; George Evans, and others, went down to see how things were, and to let in air. They had not been down long when an explosion took place, by which Mr.

Wilkinson was slightly injured, and the man Evans very severely. The party managed to get out of the way, but Griffith Llewellyn, who gave evidence at the late inquest, went back for something, when a second explosion occurred and he was killed on the spot. It is conjectured that when the furnaces were cleaned out a spark of fire was left behind, which fired the gas. An inquest was opened on the body and stands adjourned to this day. Mr. Thomas Evans' Inspector of Mines report for 1860 reported that George Evans must afterwards have died: -

Inspector of Mines report for 1860

Another explosion of gas at Messrs. Powell's colliery

Mr. Thomas Evans, Inspector of Mines, in his annual report was later to write: - This is the third explosion this year in Messrs. Powell and son's collieries. At this colliery within a few years, three explosions have taken place, and 33 lives lost. The shaft is in the valley of Aberdare, and the workings are of a considerable depth under the neighbouring mountains. The coal worked is that so well known in the market as the "Merthyr steam coal."

The explosion at the Lower Duffryn Colliery, on November 6th, set fire to some timber in a stall in the nine-foot vein. Some days passed before it was discovered, though, in fact, they were at work in one district of the same seam of coal.

On the 16th of November the smoke was seen coming from the stall. They built a wall at one entrance to the stall, and were about to stop up the other entrance, when an explosion from inside blew down the stoppings; the men came back into the level, and tried then to stop up the airway, and this was unsuccessful. The entrance to the mine was then stopped, and 'carbonic acid gas' forced into the colliery. The top of the upcast was also closed, and it remained in this state for some days until they considered the fire was extinguished.

The return air from the nine-foot vein came up a staple into the four-foot vein, and thence to the general upcast shaft. On the 1st of December the work in the four-foot vein was stopped, a waterfall brought down to the downcast shaft, and directions given to the flue-men to put out the furnace.

Mr. Wilkinson, the under-viewer, together with his under-agents, went down the mine of the night on the 1st of December, and before opening the stoppings into the nine-foot vein, or removing the covering off the staple into the four-foot vein, Mr. Wilkinson went to examine the furnace, and says he was satisfied the

fire was out, and all would be safe to pass the gas over from the nine-feet vein. They then gradually opened the nine-feet vein, and allowed air to circulate through the workings, taking with it the accumulated gas.

This continued for some time, when they heard an explosion, and then another. A man then came down the shaft and told him about it, for there had been a heavy explosion in the upcast, which had done much damage. They were proceeding to the shaft, but before they got to the carriage another explosion took place. Two poor fellows, Griffith Llewellyn, overman, and George Evans, fireman, were both killed; the others were blown down and became insensible for a time.

Some days after I made an examination of the mine, and found the explosion had done considerable damage in the headings and levels of the four-feet vein. There can be no doubt the explosion took place at the furnace, or near the bottom of the upcast shaft. It was one of the most violent explosions that I have ever had to investigate. Some fire must have remained in the furnace or shaft, and passing the gas from the nine-feet vein, too quickly, without sufficient air to render it non-explosive. The under-viewer was in the colliery the whole time, and must have imagined all safe; he is a man of considerable experience in colliery work and in fiery mines.

It is to be regretted, when the fire was first discovered, instead of closing up the mine, they did not drive an airway to it, and then put the fire out. Closing up mines is always attended with danger, and should not be resorted to except under extreme circumstances. Since a record of accidents in mines have been kept and published, I find that at Messrs. Powell and Son's collieries explosions have been as follows: -

12th February 1852, at Abergwarw 1 death.

10th May 1852, Middle Duffryn, 65 deaths.

12th May 1855, Gelligaer, 1 death.

14th September, 1857, at Llantwit 1 death.

25th February 1858, at Lower Duffryn, 19.

9th March 1860, Cwmdare, 1 death.

18th March 1860, Llantwit, 1 death.

6th November 1860, Lower Duffryn, 12 deaths.

1st December 1860, Lower Duffryn, 2 deaths.

This list shows an awful loss of life. Many of the collieries are extensive and fiery, and in my opinion should have the undivided attention of a first-class resident viewer. The collieries have not been under the same management during the whole time referred to in the above account of deaths.

The deaths at the Lower Duffryn Colliery, 6th November 1860*		
Name	Age	Occupation
Thomas Evans	31	Collier
David Richards	25	"
John Rendle	25	"
John Davies	33	"
R. Williams	15	"
George Morgan	11	Doorboy
John Box	35	Collier
John Regan	62	"
Evan Thomas	34	"
Edwin Jenkins	16	"
Robert Lewis	20	"
James Lewis	12	"
Deaths of those at the Lower Duffryn Colliery, 1 st . December 1860*		
Griffith Llewellyn	Age unknown	Overman
George Evans	Age unknown	Fireman

The number of accidents recorded for the South Wales district for 1860, as recorded by the Inspector of Mines, Mr. Evans, read as follows: 10 explosions of fire-damp, 26 falls of coal, 29 falls of roof, total falls in mines 55.

In shafts: - Falling into shaft from surface, 5; things falling from surface 3; falling from part way down, 3; total in shafts 11.

Miscellaneous underground: - explosion of gunpowder, 1; suffocated by gases, 2; falling into water, 2; on incline-planes, 3; by trams and tubs, 13; by machinery underground, 1; Total misc. accidents underground, 22.

On surface, by machine on surface, 1; Misc. on surface, 3; gross total 101 accidents.

These resulted in those killed by **fire-damp**, 26; **death by falls of roof**, 55; **death in shafts**, 12, and **Miscellaneous**, 25, making a total of 118.

Total deaths in the South Wales district: 1859, 122; 1860, 118.

Total deaths in collieries owned by Thomas Powell: 1858, 29; 1859, 5; 1860, 60.

The first part of the new Act (the education clauses) does not come into operation until July next (1861). It will be found practically that no boy will be employed in coalmines under the age of 12 years; this will afford two years more for their education, and they will also be better able to take care of themselves in the mines. It is to be regretted the law does not compel the owners to furnish men with a copy of the rules; how can it be expected a collier can know what are in the rules unless they are given them and read over at the time of his employment?

If a man violates a rule and he is summoned before the magistrates, and it is then proved that he had no rules, how can he be punished? I believe in my district, with perhaps one or two exceptions, they will be as before, be given to each man, in fact the Aberdare colliery owners have made a special rule to the effect that every workmen shall apply for rules when employed.

Single link chains for raising and lowering persons will soon be unheard of, and good winding machinery substituted; the colliery owners of this district are now taking them off, or prevented men going on them. When safety lamps are used the compulsory locking will set at rest a long vexed question; in many of the small mines it was impossible to make the owners provide locked lamps.

It is most important that carriages should have covers; only this week a life was lost from removing the top to bring down timber and neglecting to put it back again. The inspector in future will know of all accidents. This is important, as an explosion might have been more serious, and still not have caused death; nothing would ever have been heard of it. Including the ironstone mines of the coal measures in the Mines Inspection Act, increases the duties of the inspectors, more especially for the next few months, for in each case, rules will have to be drawn up, suitable to the circumstances which present themselves. I

have attended meetings of the colliery owners at the several towns of Aberdare, Merthyr, Newbridge, Neath, Llanelli, for the purpose of rearranging rules. In the course of a few weeks they will, I hope, be all settled. As regards to the education of the miners, I think that every colliery should have a school; that the men themselves pay some little towards it and every encouragement given to schools. In this district, in consequence of its rapid growth and enormous growth of its coal trade, it is most difficult to obtain the services of men with good practical knowledge to fill the position of overman or fireman, who can read or write; much can be done at the schools referred to.

There is no prospect of the establishment of a mining school in Wales there are so many difficulties both pecuniary and otherwise. The Bristol school in the adjoining district is badly attended and does not afford encouragement neither does it get the support of the coal trade generally. – **Mr. Thomas Evans, Her Majesty's Inspector of Mines, January 1861.**

BLAENGWAWR COLLIERY, FRIDAY, 8TH MARCH 1861

Colliery explosion near Aberdare – Loss of 13 lives

Despite the optimism of H. M. Inspector of Mines it would only be just over 12 weeks before another significant accident occurred. The '*Cardiff and Merthyr Guardian*' reported: -

It is once again our painful duty to report another explosion from the firing of gas, by which thirteen lives have been sacrificed and seven persons seriously injured. On the news being brought to Cardiff on Friday evening, the greatest interest was manifested to obtain full intelligence. The fatal occurrence took place in the four-foot vein, Blaengwawr nine-foot colliery, belonging to Mr. Davies. The explosion took place at about a quarter past seven o'clock on Friday morning last, and in a short time the fatal news spread with lightening speed throughout the town and district of Aberdare, and in a short time hundreds of people had assembled in the locality of the colliery, all making frantic enquiries after husbands, children, brothers and relations.

It was known that there were in the pit, in workings which a very extensive, about 250 or 300 men and boys, but in a short time the fears of the majority were allayed as to the extent of the calamity. The colliery was examined on the morning before the men went down to work at 6 o'clock; was thoroughly examined in every part; in fact the pit is held to be the best ventilated in the district, and is worked with naked lights and safety lamps.

The part where the explosion took place is worked with naked lights, and is about a mile and a half distant from the pit's mouth. No sooner than the catastrophe came to the knowledge of Mr. Davies, Jnr; the manager, and the other officials, then immediate steps were taken to get out the killed and wounded; to ascertain the extent of the calamity, and to rescue the living from their entombment.

A special messenger was also sent to Mr. Davies, the surgeon to the works, who resides at Bryngolwg, and that gentleman immediately attended and administered to the suffering and afflicted. By 8 o'clock the full extent of the damage done to life and property were known; by twenty-minutes to 10 o'clock all the bodies were brought up, and before a quarter to twelve o'clock the pit was again in proper working condition. Mr. Brown and Mr. Gray, from Mountain Ash, and agents from other works, were in ready attendance to render all the assistance in their power. The following is a list of the killed: -

David Thomas, 60, a widower, his left arm was broken in two places; his skull fractured and his body severely burnt.

John Morgan, 53, left a widow and several children; skull fractured, left thigh broken and badly burnt.

Morgan Howells, 35, left a widow and 5 children; face and body badly burnt.

Ebenezer Thomas, 13, skull fractured and face and hands badly burnt, left leg broken in two places.

Henry Evans, 13, frightfully burnt.

Howell Hopkins, 46, left a widow and 2 children; badly burnt.

George Philips, 31, left a widow and 3 children; large hole in the right side, and badly burnt all over.

William Philips, 18, skull fractured and body badly burnt.

Charles Williams, 44, right leg broken, skull fractured, and body badly burnt all over; his father and sisters depended upon him for their maintenance.

Richard Williams, 42, brother to the last mentioned deceased, badly burnt.

William Davies, 14, skull fractured.

Thomas Jones, 34, left a widow and 1 child; right arm and leg injured.

William Davies, 11, right leg broken and face badly burnt. This boy was brought out of the pit alive but died on Saturday. The poor fellow Jones was also taken out alive, and struggled hard against death for upwards of three hours, but nature had to succumb, notwithstanding the skilful treatment of Dr. Davies.

Besides the above, there are seven men frightfully burnt, and not much hope is entertained for some of them, especially a man named Terrant, whose escape from death was most miraculous. The accident is generally supposed to be caused as follows: - One of the men who went down to work had carelessly left open a door; and Terrant in going to his stall stuck his candle against a gob to enable him to pull off his clothes. In an instant the gas fired, and Terrant was blown down but managed to escape.

On Saturday, an inquest was opened before Mr. George Overton Esq., coroner, at the Boot Hotel. The foreman of the jury was Mr. John Lindsey, brewer. The information on the accident was forwarded to Mr. Evans, Government Inspector of Mines, but he was unable to attend the inquest and it was adjourned until Tuesday. It was only a short time since an explosion took place in the six-foot colliery, when one man was killed and five badly injured. The '*Monmouthshire Merlin*' of 16th March 1861 reported: -

Fearful colliery explosion at Aberdare - Twelve men killed

Scarcely has the inquiry into the wholesale destruction of human life at the Black Vein pit, Risca, closed, before we have to record another disaster of a similar character, but fortunately much less extensive in its effects, at Aberdare. The calamity about to be described took place in what is known as the "Four-feet vein pit," at between seven and eight o'clock on Friday last. The pit belongs to the Blaengwawr colliery, which is worked by Mr. David Davies, whose name stands very high amongst his workpeople for the attention which he pays to the ventilation of his mine, and for the care which he on all occasions manifests for the welfare of those employed by him. The men descended to their work at their usual time, little thinking of the catastrophe by which they were threatened, and by which in a few short hours so many of them were to be hurried to an early grave.

The explosion took place at about twenty minutes past seven o'clock, and upon its becoming known above ground, the utmost terror prevailed, the relatives of the unfortunate miners, in their ignorance of who had been killed, giving way to the most poignant and in many cases maddened grief. The officials lost no time, when the calamity was known, in taking the steps necessary to ascertain the extent of the sacrifice, and to rescue the survivors from their dangerous entombment in the mine.

Messengers were despatched for medical as well as other assistance, and Mr. Davies, the surgeon to the works, hastened at once to the colliery, and rendered the most anxious and kind attention to the survivors

A painful feeling was created in the case of a man named **Thomas Jones**. The poor fellow was brought out alive, though greatly injured, and struggled hard with death for three or four hours, during which time Dr. Davies paid him the most unremitting attention. The "great warrior," however, proved too strong for him, and he succumbed. Besides the men above enumerated, there are several others who are injured and burnt with greater or lesser severity, and

whose fate cannot of course be determined. Every attention which kindness and skill can suggest is being paid to them, and it is hoped that at any rate the greatest portion of them will recover. The causes which led to the explosion are as yet involved in obscurity, and as the men in the excitement which prevails, seem unable to give any satisfactory explanation of it, it will probably remain undiscovered until an examination of the works has been made. Information of the terrible calamity has been forwarded to the coroner, and also to the colliery inspector for the district, and a very searching, inquiry will be instituted. Several of the men who were killed have left widows and orphans, and the catastrophe has plunged the neighbourhood into a state of the deepest gloom and sorrow.

A rumour has been prevalent in the neighbourhood of the disaster that the explosion was caused, by the reckless conduct of a collier in going with a naked light into a portion of the works upon which the fireman had placed a danger signal. This man is said to have survived. On Saturday Mr. Overton opened an inquiry upon the bodies, but in consequence of the unavoidable absence of Mr. Evans, it was only of a preliminary nature, and was adjourned till next Tuesday. The poor fellows who were killed were buried on Monday last. It is satisfactory to know that the majority of the deceased men were members of the Odd Fellows Society, the benefit of which will be opportunely felt by their widows and orphans.

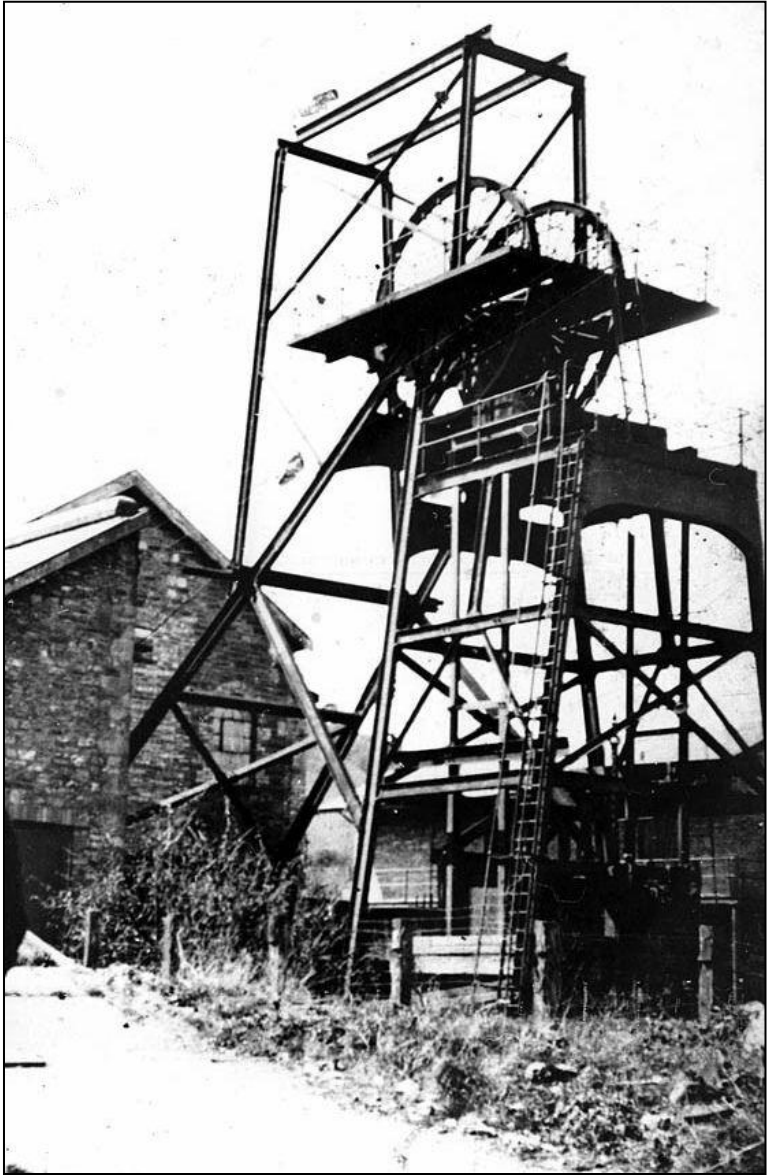
The late colliery explosion at Aberdare

The adjourned inquest

The adjourned inquest was held at the Boot Inn, Aberdare, on Tuesday, March 19th 1861, before George Overton, Esq., coroner, and a respectable jury. Mr. Evans, Government Inspector, was present, and Mr. Frank James, solicitor, Merthyr, attended on behalf of the owner of the Blaengwawr Colliery.

Since the explosion we are glad to say that no further deaths have occurred, and although there are five or six men under medical treatment, it is expected that they will all recover. We last week published the names of all the victims, and need not again repeat them.

The following gentlemen answered to their names and were sworn as the jury: — James Lindsay (foreman) William Jones, James Eglestone, Lewis Jenkins, Thomas Evans, W. J. Thomas, David Evans, John Williams, Lewis Griffiths, David Morris Thomas, Benjamin Davies, Richard Grey, Edward Edwards, James Smith, and David William.



Blaengwawr Colliery date unknown

The Coroner then addressed the jury in the following terms: - "We are assembled here to-day to proceed with the inquiry which we commenced on the 9th inst., as to the cause of the unfortunate catastrophe that occurred at the Blaengwawr Colliery on the 8th inst. This valley has become so unhappily notorious for occurrences of the kind that I am sure you must feel, equally with myself, the great importance that must attach to an inquiry of this serious nature; and you will not, I am convinced, require any admonition from me to direct your best energies and judgment to the investigation of this serious calamity.

From the evidence we have already received, it appears that there are no less than thirteen persons who have fallen victims to the explosion. You have seen the bodies of them all, and you would have fancied they were all very much burnt, and I scarcely ever have seen a case of the kind where there was such evidence of the violence or the shock. In most cases we find that the greater number of the victims have fallen a sacrifice to the after-damp, which is the consequence of the explosion, rather than to the explosion itself, and they have died from suffocation, and not from burning or violence, which is the primary effect of the explosion.

The average of the deaths arising from suffocation in those cases is, I believe, generally computed at about 75 per cent. This is so far an exception. We have lately, unfortunately, had several cases of explosion, two of a very recent date. One very serious one at the Cwmpennar, or Lower Duffryn, Colliery the other in another pit attached to this colliery. On the former inquiry I referred to statistical accounts to show the number of accidents that occurred in the district, compared with other parts of the kingdom and I regret to say it was very unfavourable, and that we very much exceed the average; and with regard to this particular locality, I can speak from my own experience that during the last year they increased very considerably.

The question that naturally suggests itself is: - What can be the reason for this? It would not be becoming in me, sitting here in the capacity I do, to express an opinion; but I do not think it is so difficult of solution; and I trust you will give your utmost attention to the matter. The frequent occurrence of these events are too apt to make us callous or indifferent, and we look upon this, I fear, too much as a matter of course, and therefore do not investigate them as strictly as we ought. This, however, is not the case in reality. I have not known a single inquiry of this kind when it has not appeared that the extent of the misfortune would not have been very much reduced, if indeed the event would not have been entirely prevented, if proper precautions had been taken in time.

In investigating cases of this nature, there are two points to be considered. The first is, how did the gas which caused this explosion become ignited and secondly, how came the gas there? The first of these questions will, I believe, from the information we obtained on the last occasion, be made clear and palpable. There is, strange to say, one fortunate being who alone escaped alive from the scene of death, who I trust will be sufficiently recovered to appear before you and give evidence. But the other question will require the exercise of your judgment, and you will have to inquire and be satisfied how the gas came there, and that will involve the important inquiry, whether the ventilation of the pit was properly conducted, and the management in other respects scientific and proper, and the several officers who held the important situations in the pit had discharged their duties efficiently and satisfactorily.

And while I am alluding to this subject, I cannot help noticing one fact that appears to me important. It appears that in this pit they have been in the habit of working generally with naked lights. It is, I believe, now the exception in this valley, in the four-foot vein, and I am not aware of more than one or two collieries that have omitted the precaution of using locked safety-lamps to the south of the district. The late Government Inspector of this district, the much lamented and highly talented gentleman, Mr. Mackworth, and also his predecessor, Mr. Blackwell, who was a very experienced and able man, in the evidence they gave on the different inquiries, invariably urged the propriety, if not the absolute necessity, of using safety-lamps entirely in the four-foot vein; and, I believe, now almost all the collieries to the south of this place use them entirely, but unfortunately scarcely one of them adopted them until some serious accident had occurred. I believe they are all now convinced of the benefit to be derived from them. The proprietors of this colliery will, I trust, be able to give us good reason for not adopting them; and I mention it thus early to enable them to do so. We will have the able assistance of Mr. Evans, the Government Inspector, who has, I understand, made a careful examination of the pit. I trust you will be able to come to such a conclusion as will satisfy your own consciences and the public at large. “

P.S. Jabez Matthews was the first witness. He handed in a list of the deceased, thirteen in number, who died from the effects of the explosion on the 8th of March.

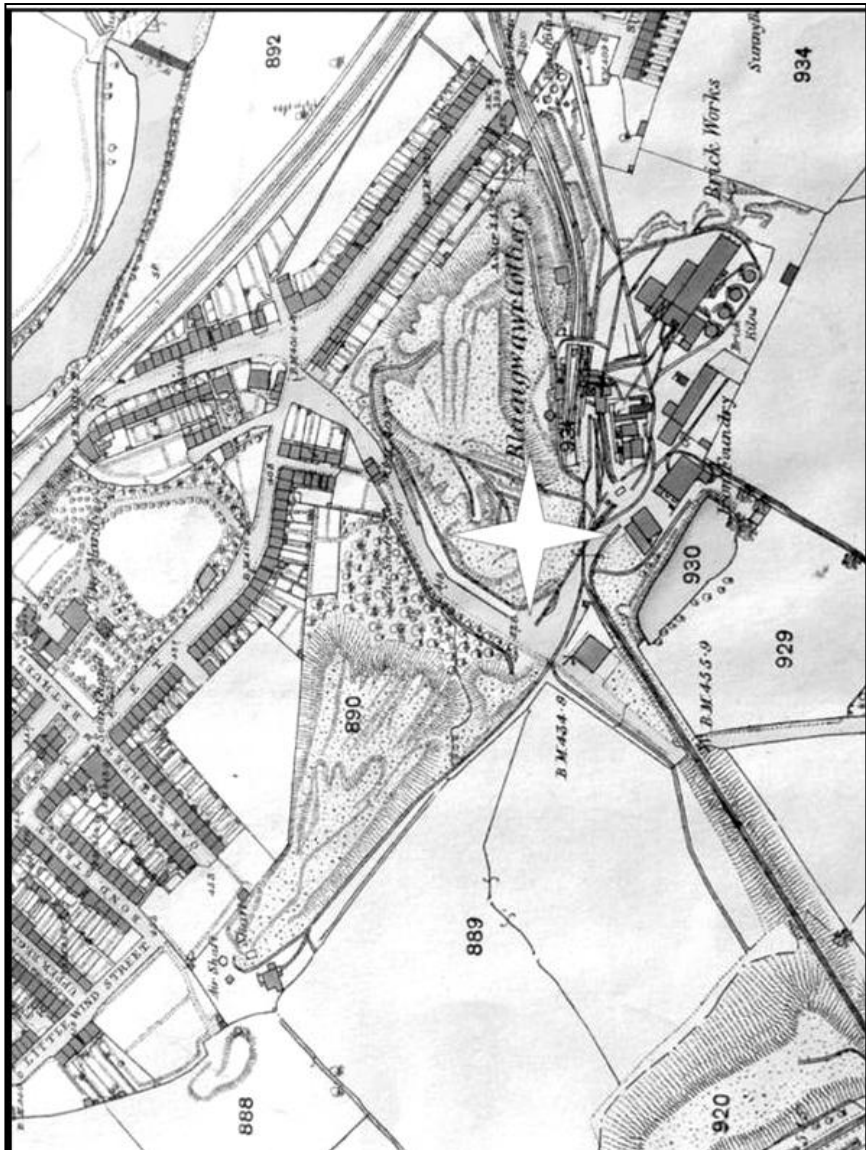
James Davis, jun., Esq., said: - “I am the manager of the Blaengwawr Collieries, of which my father is the proprietor. I produce a plan of the colliery and a copy of the laws for its regulation. In accordance with a recent Act of Parliament we have prepared new laws, which have been approved of by the Secretary of

State, but they have not yet been circulated amongst the men. Richard Richards is the name of the overman. My father has three pits, yielding about seven or eight hundred tons per day. There are four deputy-overmen under Richard Richards.

The Blaengwawr colliery produces about three-fifths of the whole quantity raised. Hopkin Williams, Morgan Hopkin, David Morris, and David Hughes, the deputy-overmen, are also firemen. There is also an assistant fireman named John Richards. We ventilate by means of two furnaces and two downcast shafts. There is no separate ventilation for this colliery. There are three different seams of coal worked, namely, four, six, and nine feet. There is a furnace in each upcast. The section of both furnaces is forty-four feet each, and the great furnace fifty-six feet, grates and all included. 36,972 feet of air per minute will pass through the furnace fixed in the nine feet vein. The other measures 28,440 feet. There are four flue-men. Jeremiah and Morris attend to one upcast, and Phillips and Probert to the other. The explosion took place in the Crimea, or four feet working, the ventilation of which is supplied from a split of air from the nine feet down-cast. The air is split into five, and is governed by regulators. At the bottom of the pit the air is divided, one split going north and the other south."

Witness then described the course and quantity of air supplied to different parts of the colliery, but this part of the evidence could not be understood without the assistance of the map of the colliery. After describing the position of the workings Mr. Davis continued: - "In Nos. 8 and 10 headings several doors were blown down. The explosion was confined to Nos. 8 and 9 headings, and the marks of fire do not extend beyond these headings. In my opinion the men were going to their work when they were killed. I have measured the air by one of Biram's anemometers. I had taken the measurement before, but not within the last twelve months. I know that the same quantity of air has been supplied since these experiments. I know by my own experience, as I had never to report a deficiency of air.

I have been in the habit of going down about once a week. I last saw the colliery on the Thursday preceding the accident, and saw the part of the mine where the explosion is believed to have taken place. I was at the pit in about half-an-hour after the explosion, and found the overman and firemen there. We went down the pit immediately. The overman preceded me, and put up canvas doors to restore the ventilation, as the doors had been blown down. We reached the No. 10 heading about nine o'clock, about an hour and a half after the explosion had taken place. I remained there until all the bodies were recovered.



Location of Blaengwawr Colliery C. 1915 o.s. map.

Some of the men had stripped ready for work. The men in the other workings were uninjured. Two men were killed who were sitting at the mouth of this heading.”

Witness then described the duties of the firemen as specified in the rules. The men are not allowed to proceed to their work until the fireman has reported that all is safe. The overman meets the fireman every day after he has made his examination. This is the custom, although the rules do not specify it. Never had any reports from the overman as to neglect of duty on the part of the fireman.

Mr. Davies (another) said he was surgeon of the Blaengwawr colliery. He saw the deceased men, a list of whom he handed in. David Thomas was burned and badly contused. **Howell Hopkins** was burned slightly and suffocated. The man named Terrant was not fit to attend. He would not be able to leave the house for a fortnight. **James Davies**, a boy, who was suffering from fractured skull, was getting on well, but it would not be prudent for to examine him as his mind must not be excited. **William Davies**, a door boy was severely injured. **Morgan Rees** was suffering from fractured ribs, and no danger would result from his examination. There were about seven persons injured, only five of whom were at present under his care.

Richard Richards said he was overman of the Blaengwawr colliery, and had been so for seven or eight years. Could not read, write, or speak English. He had the oversight of Blaengwawr colliery only. On the morning of the explosion he went down the pit at half-past seven, and while in the nine feet vein he heard the report of the explosion. Some -one ran to him and told him it was in the Crimea, and he proceeded to the place as soon as possible. As he was going he met Terrant on the incline, coming up. He was burnt. He said the fire was with him in his stall. He passed Terrant and proceeded further. After he had gone down to the flat he saw David Davies sitting down and his son on his lap. The boy had a blow on his temple, and he was quite dead. He asked David Davies if there were any others dead, and he said there were.

He saw Thomas Jones, who was also dead. He went up No. 10 dip, and found the body of Howell Hopkins. The sulphur was too strong to proceed further, and he turned and went through the airway and reached within thirty yards of the nine feet dip. He met George Phillips, who was then going to his work. He ordered some canvas to be put up at the seven and nine feet dips, which had been blown away, to direct the air in its proper course. After this was done the air became improved, and he was enabled to proceed to No. 10 heading. There he found the body of Ebenezer Thomas lying about thirty yards up the heading.

He found the body of Richard Williams about ten yards further on. Went up to the top of the heading, and found the brattice broken down. Then went across to No. 9, and down towards the level, and found the body of William Phillips. After removing this body, he found that Charles Williams and Morgan Howells were missing. Went in search of them, and found Charles Williams and Morgan Howells opposite the hole going into Morgan Rees's heading.

Could not read Welsh, but had the rules read over to him. His duties are to have the works carried on right for the safety of people's lives. There are particular rules for his guidance. The fireman has to go round the works every morning, and see that there is no gas in the workings. When there is gas, a board is put up to show that there is danger. It is a square board with the word danger painted in white upon it. It is hung up at the mouth of the stall. When the fireman has been round he always comes to witness at bottom of the pit, or in the lamp room at the top.

He comes to him for the purpose of reporting if he had seen any danger. On the day of the explosion he reported nothing unusual. Hopkin Williams was the fireman of the Crimea district that morning. He saw him on the top of the pit about half-past six. He said that everything was right.

John Richards is the assistant fireman, and walks the air courses to keep them in repair. He had been putting up timber all the night before the accident in John Rees's parting in No. 10 heading. Went to Terrant's stall and found a little fire. Saw a mark of chalk in the lower road, but none in the upper. It was within eight inches of the coal. There ought to have been a similar mark opposite on the lower road. Terra
nt's danger board was put up on the pillar at one of the entrances. The board at the entrance was blown off or at least it was not up. There were 28 or 20 yards of bratticing in No. 9 heading.

The Coroner remarked that it was marked 44 yards. The reason why they use safety lamps in No 9 heading is because it is a single heading, and a good deal of brattice work. There is a brattice in Nos. 9 and 10 headings worked with naked light. In working on the face of those headings safety lamps are used. At the time of the explosion the face was about 44 yards before the brattice in No. 9 heading, and in No. 10 heading it was about 35 yards. All the men who were killed worked in Nos. 9 and 10, excepting three labourers and William Davies, who was killed on the incline. Two labourers were killed in the neighbourhood of Morgan Rees's stall, as they were going to clear away a fall in the heading. The fall had taken place during the night. Hopkins told witness there was a fall,

and he sent them to clear it away. The jury then retired to take the evidence of William Terrant, who is unable to leave the house, after which they adjourned till ten o'clock on Wednesday morning.

Wednesday, March 20th 1861

The inquest was resumed this morning, when the Coroner read the evidence of **William Terrant**, which, as will be seen, most distinctly asserts that the gas was exploded by his naked light. The witness's testimony was as follows: -

“On Friday morning, the 8th instant, at half-past seven o'clock, I was going to my work, in the four-foot vein at the Blaengwawr Colliery. The deceased, Charles Williams, Richard Williams, and Ebenezer Thomas went before me, and when I got near to the entrance to my stall I came up to them. We proceeded together until we came to the first stall in John Rees's heading. They asked me to go and have a whiff. I replied that I would first go and see my stall, as there are sometimes falls in the roadway, and I wanted to see if there had been any lately that required to be cleared away. I promised to join them as soon as I had been to my stall. I went into my stall, and found the usual signal-board on the road where it ought to be placed by the fireman, with the side marked No. 5 upwards. I proceeded about ten yards into the stall, and was about to take off my clothes, when the naked lamp which I had in my hand set fire to some gas in the stall. I saw an explosion take place from my light. I was blown some distance by the explosion. I got up as soon as I could, and made the best of my way out. I fell down several times, and was nearly exhausted. At last I met some men who had been in a different part of the pit, and were uninjured. They gave me some water to drink, which refreshed me, and I was then able to get out. I met the deceased William Davies. He entreated me to assist him. I was too exhausted to do so.

I worked with a naked light in my stall. The stall has been driven in about 40 yards. I had not been in further than ten yards that morning. I intended going back to join the other men, after I had seen the state of my stall, to have a whiff. I am quite certain the gas ignited in my stall and from my lamp. The top of my stall is bad from one end to the other, and is supported upon pillars entirely. Some scallings fall now and then from the roof, small pieces, not large ones. There are frequently small “blowers,” but not any serious ones. I believe that is the case in all parts, but I have not been working much where there is gas. The fireman had been in my stall that morning and left the usual mark. I do not know whether any falls had taken place that morning. I had not been to the face of the stall only about ten yards in. I have been informed, since the explosion

that John Richards or someone, had been in the stall that morning, after the firemen, fetching some rails. The mark used by the firemen is a square piece of board with the word "fire" painted on one side and a number (for the day of the week) on the other. The men in our heading had not begun to work. I was the only person in that heading who escaped alive. I have always found my stall very free from gas. I have never seen any gas there, and there was always plenty of air. I was very severely burnt and bruised, and have been very bad ever since. I am scarcely yet able to get out of bed."

Hopkin Williams said he was a fireman in the Blaengwawr colliery. He stated: - "Can read and write Welsh but not English. At the time of the explosion I was on duty. I went to the works at a quarter to four in the nine feet vein. Went down the incline into the Crimea or four feet vein, and walked down to No. 7 heading. I tried the air and found it all right. I proceeded down the heading to the end and turned into the first stall on the right side. I tried for gas and put the usual danger mark. I went into the stall on the left hand side and put up a similar mark. I then went into No. 8 heading and examined all the stalls. I also went as far as No. 10 heading and found the door shut and the cramp on. Returned to No. 9 heading and tried for gas between the roadway and the heading. I found the door shut. I went as far as Morgan Howell's stall which is the first, and found everything right. I put up a chalk mark to indicate that there was no danger. Crossed to George Phillips's working in the same stall and put up a board with the figure 5 on it. In like manner visited the various stalls in this heading and found all safe. I examined the face and there was no gas. Proceeded to No. 10 heading and found the brattice all right and visited all the stalls with the same result, putting up the signals as before.

From there I went into William Terrant's stall which is like the others, a double one. I saw nothing out of the way, and put up a chalk mark on the top. Proceeded along the face of the other road and found all safe. Had never found gas except about three weeks ago when the doors were left open for some trams to pass. All the coal from Nos. 9 and 10 headings passed through No. 7 heading into the level. After having inspected all the walks I met a number of colliers at the bottom of the pit, who were coming to their work. I believe that the cause of the accumulation of gas was in consequence of the door between 9 and 10 having been open. Did not know how the door had been left open, except some of the men had passed through and left it open. Was quite certain that the door was shut and the cramp on when I visited it that morning. Could not say how long a door would require to remain open to produce such a quantity of gas as would cause such an explosion. If the door of Terrants' stall had been left open there would have been some accumulation of gas, but not

sufficient to cause such results. I always use a safety lamp when making my examinations. A large stone had fallen between No. 9 and 10 heading, and I sent three men to remove it. These men met with their death afterwards."

John Richards said: - "I am the assistant fireman. Can read and write English, but I decline to give my evidence in that language. My duties are to walk the airways in the morning. On the morning of the explosion I was timbering a portion of John Rees's or No. 10 heading. I had been working with three other men all night, and did not finish till half-past five. Saw Hopkin Williams, the fireman, on the parting of John Rees's heading. During the night I had occasion to go to Terrant's stall for a rail, but found no gas."

Richard Williams said: - "I worked at No. 12 cross-heading. I was in on the morning of the explosion. I know nothing except that I was blown away by the explosion. I became insensible, and was carried out."

John Picton said: - "I worked in the inner stall of No. 12 heading. I was in my stall when the explosion took place. I went in about a quarter past six. I saw the fireman shortly after put up the signal that all was right. I found the air very good, there being no gas. I worked with a safety lamp."

James Davies, aged seventeen, said: - "I had a little spare time previous to commencing work, and went up to the door between No. 9 and 10 headings. I met William Davies, the door boy, and saw the door open. I asked him who left the door open, but he could not tell. I don't know who left it open. If I had known I would have told Hopkin Williams. I was blown away and rendered insensible. I had my ribs fractured."

Morgan Rees said: - "I was taking off my things when the explosion took place. Heard a conversation between James Davies and the door boy regarding the door being left open. I was in the cross-heading when the explosion occurred, and was much hurt. I have worked in the place seven months, and never saw a lamp full of gas. Whenever anything was wrong I told the gaffer."

The Coroner asked if there was any more evidence. On being answered in the negative, he said he felt considerable difficulty as to the door being left open, and should have liked if anyone could have explained that circumstance. Mr. James, solicitor, Merthyr, said he could give no further explanation than the evidence had brought out. It had been proved that the fireman had examined the door about half-past five, and found it shut. Who opened it after it was impossible to say.

Mr. T. Evans said: - "I am her Majesty's Inspector of Mines. My district is South Wales; Blaengwawr colliery is in it. I have twice examined this colliery since the explosion - on the 12th and the 18th. The workings of the four feet, or Crimea, are a considerable distance from the shaft. The engine plane* is about a mile; it is, however, for the most part of good sectional area. The return is still longer, and in some places contracted. The shafts are sufficiently large, but the upcast is shallow and not walled. The quantity of air passing into the Crimea is said to be about 15,000 cubic feet per minute. There are 105 men and boys, and nine horses, employed working about 140 tons of coal daily. This would give about 100 cubic feet of air per man. The four-foot coal gives off a considerable quantity of gas, and 100 feet of air is not sufficient. The explosion, I think, took place in Nos. 9 and 10 headings. The door, if left open, would allow the gas to accumulate. It should not have been left in charge of a boy of ten years and three months old. The door must have been open a considerable time to allow Terrant's stall to fill with gas. Judging from the appearance of the place it would have taken at least an hour.

*(Engine plane - Usually a sloping roadway with an engine towards the top hauling up trams)

In November last an explosion took place in Mr. Davis's colliery. Several men were injured and some were killed. It was in the six feet vein, and near the up-cast shaft, but had nothing to do with the present district. I then recommended locked lamps, and expressed the opinion that had they been used the explosion would not have occurred. I have since then directed the attention of Mr. Davis, the manager, to the necessity of using locked safety lamps exclusively. I believe, from the inspection I have made, that if safety lamps had been exclusively used, and the separation door between Nos. 9 and 10 headings had been doubled, in all probability this explosion would not have occurred. I do not suggest to the use of lamps regardless of ventilation, for the first general rule applies to the point.

An adequate amount of ventilation shall be constantly produced at all the collieries to dilute and render harmless noxious gases, to such an extent as that the working places of the pits and levels of such collieries shall, under ordinary circumstances, be in a fit state for working. That rule cannot be complied with without sufficient ventilation." In answer to Mr. James, Mr. Evans said in the North of England they generally use naked lights in working maiden coal. There is a slight reaction amongst the engineers of the North of England as to the exclusive use of safety lamps in the collieries of Durham and Northumberland. Did not think it would be the natural effect of using safety lamps to neglect

other precautions. "I am quite sure that it will never be safe to work coal in the Aberdare district without safety lamps." By the Coroner: - "I wrote to Mr. Davis on the 11th December, urging him to use safety-lamps exclusively. That letter was written in consequence of the explosion in November. In that letter I objected to a person being engaged as overman who could neither read nor write, and therefore was not qualified to instruct the men in the rules.

Mr. Davis said, in answer to Mr. Evans's letter, that in consequence of having to attend to commercial matters, his father had agreed to engage a new manager, and he had resolved to leave the question of safety-lamps until he took charge of the mine. Mr. James Davies said it was not competent for a manager to make an absolute rule of that kind without the consent of the Secretary of State. The Coroner: - "Well, I will rule otherwise. It is perfectly competent to make a rule of that kind when the lives of human beings are concerned."

The verdict

The Coroner then summed up the evidence, dwelling strongly upon the necessity of the exclusive use of safety-lamps, the mysterious opening of the door, and the fact of the overman not being able to read or write. The jury consulted together for about an hour and returned the following verdict "**Death caused by an explosion of fire-damp, caused by the door between Nos. 9 and 10 cross-heading being left open by some person unknown.**" They also wish strongly to recommend that safety-lamps be exclusively used, according to the recommendation of Mr. Thomas Evans, the Government Inspector of Mines for South Wales." The editorial of the same newspaper reported: -

The Blaengwawr explosion

"For once a tolerably plain account has been obtained of the manner in which a colliery explosion has occurred. The evidence which we publish this week, relating to the above melancholy event, includes the statement of the man who was the unconscious cause of the disaster. Although in the very midst of danger, his life was miraculously preserved, and he has told his tale. It is a very brief one.

He went to work on the morning in question, with a naked light in his hand, and on entering his stall the gas which had accumulated was fired, and thirteen poor fellows were killed, and others were injured. How gas came to accumulate is not quite so clear; but there is room for the conjecture that a door, which was under the care of a young lad, had been left open, and thus the free circulation of

atmospheric air was prevented. What followed was a natural consequence. The main question which we feel called upon to deal with is that of naked lights being used in the colliery. Mr. Inspector Evans says he recommended the manager, last autumn, to adopt the safety lamp. That official excuses himself on the ground that the colliery was about to be handed over to another manager, and he thought it desirable to wait until that event transpired.

On the other hand, Mr. James, the lawyer, avers that in the absence of a special rule making safety lamps a necessity, the owner or manager had no right to carry out Mr. Evans's recommendation without first having the sanction of the Home Secretary. There may be a shadow of something in the manager's excuse, but we cannot see the least point in the lawyer's suggestion, inasmuch as official sanction cannot be absolutely necessary where a precaution of vital importance is in question. That implies a deference to red-tapeism which a man like Mr. James, we should have thought, would have been ashamed of. The Inspector has unequivocally placed on record his opinion, that the absence of lamps was the cause of these deaths. How far, in that case, the owner and manager are culpable is a question which naturally suggests its self. What room is there for the assumption that all may be right, when the only precautions known to colliery engineers are neglected? Such an assumption is tantamount to gross negligence, and if there is not legal responsibility, we think the public will easily see that moral responsibility of a fearful nature attaches to the powers that be in a case of this kind.

Suppose we adopt the theory which Mr. James would have set up by his cross-examination of the Inspector, that safety lamps were not considered essential by some colliery engineers. What other safeguard was there for the men in these perilous circumstances? Even here the colliery was at fault; for the Inspector points out a defect in the amount of ventilation which the veriest tyro in such matters could easily perceive. One hundred cubic feet of air per man is evidently meagre, where the conditions for maintaining life are so susceptible of derangement.

So that whichever view we adopt, there is defectiveness apparent; and therefore to shield the owners behind the theory which Mr. James would have us adopt is only to draw off attention from another and equally glaring deficiency in the management of this pit. How long will it be before public opinion is allowed to produce a wholesome effect on those who work with the lives of thousands of men in their hands? Law seems to have very little influence. Public opinion, through the Press, must seek to be heard. If that is not done, there is little hope of these things being set right.

An intelligent appreciation of the difficulties to be overcome is wanted on the part of those who conduct large enterprises of this kind. They ought to surround themselves by men who are capable of giving distinct opinions on all the minutiae of management, whilst managers and their deputies should be men removed from all servility or partiality by the encouragement of their noblest impulses to do what is right between master and men. What an opportunity managers and overseers have of acting impartially on all those momentous questions which affect the interests of the employed and the employer. How worthy the ambition of men in the sphere which those men occupy who were examined this week, if they would but aspire to the ability to read the example of such men, in its influence upon those who are under them, would be more valuable than it is; because the reflex influence of ignorance in a superior is to deaden the sensibility to intelligence in those who are beneath.

Taking all these circumstances into account, we are persuaded there is running through the system of colliery management a defect which partakes both of the moral and the intellectual. We want a higher tone in both these respects, and not until that has been reached will there be a greater desire to improve upon the present machinery for preventing explosions.”

After every inquest, the Inspector of Mines, who attended it, made a report to the Home Secretary. The following is the report made in this case: -

Mr. Evans' report - Explosion of gas at Blaengwawr

To the Home Secretary

This is an extensive colliery in the Aberdare valley, belonging to Mr. David Davis. On the morning of the 8th of March an explosion of gas took place at this colliery, and was attended with serious loss of life. Thirteen men and boys were killed by the explosion and its effects. The colliery at this time was under the management of Mr. David Davis, Jnr., son of the proprietor, and Richard Richards was his under-viewer.

It appears that on the morning in question the men proceeded to their working places as usual, and from the evidence of William Terrant, a collier who worked in this part of the mine, that on entering his stall or working place an explosion of gas took place, and at his naked light. I made a careful examination of the colliery a few days after, and found the explosion occurred in working of the four-foot coal, a considerable distance from the bottom of the shaft. The air passed along an engine-plane, which is about a mile in from the shaft, then

through the workings and back through the return air-way to the bottom of the upcast shaft. This return is in many places small. The ventilation of the working places at Terrant's stall was wholly dependent on a single door left in charge of a boy only 10 years and 3 months old. Last year I had to report an explosion at Mr. Davis' colliery. I recommended, and after by letter, the use of locking safety lamps, and had my suggestion been carried on this explosion would not in my opinion have taken place.

The under-viewer is unable to read, write, or speak English, how can it be expected that he will inform himself of the requirements of the rules and teach others? Richard Richards said at the inquest: - "I am overman (under-viewer) at Blaengwawr Colliery. I have been so for 7 or 8 years. I cannot read, write, or speak English. When the explosion took place I was near the bottom of the pit, it was about 7.30 in the morning. Directly on receiving information from one of the hauliers that an explosion had occurred, and having ascertained it was in a part of the mine know as the 'Crimea workings,' I went there as soon as possible, and on the engine-plane met William Terrant, a collier; he was burnt, and on asking him where it had happened, he said 'with me in my stall.' It was some time until I could get into the workings. I did so that evening and remained until all the bodies were out. I know something of the rules they have been read to me. I consider it is my duty to ensure the places are kept safe for men to work in. It is the duty of the fireman (or deputy-fireman), to go around in the mornings before the men came in."

The accumulation of gas in Terrant's stall took place in the night previous, and in my opinion was from insufficient ventilation and the single door left open. The fireman if he had examined that stall in the morning ought to have discovered the gas; I am inclined to think Terrant's stall was left without examination. Believing this explosion occurred from a non-observance of the first general rule, there was not "*an adequate amount of ventilation to dilute and render harmless noxious gases to such an extent that the working places of the pit and the travelling roads to and from such working places shall under ordinary circumstances be in a fit state for working and passing therein.*"

In accordance with your directions, I instituted proceedings against the owner, Mr. David Davis, for a violation of the first general rule; and to prove my case, William Terrant was examined, and said he found the gas in his working place in proceeding along the travelling road, and the explosion took place at my naked light. The magistrates took time to consider their decision which they gave at length. Mr. Fowler, the stipendiary magistrate of Merthyr, gave the decision of the Bench. He said: -

“This was an accusation laid against the owner of the Blaengwawr Colliery, for an alleged violation of the first general rule. That rule requires that an adequate amount of ventilation shall be constantly produced to such an extent as that the working places of the pits and levels shall, under ordinary circumstances, be in a fit state for working. The facts are that on the morning of March 8th and explosion took place in heading No. 10, when a collier named Terrant entered it with a naked light.

The stall had been previously examined by the fireman, and found safe. It is admitted that the workings in general are adequately ventilated, and the cause of the explosion appears to have been an exceptional and local accumulation of gas. The inspector proved the fact of the explosion, but did not supply the Bench with evidence as to the causes which led to such accumulation of gas, which, doubtless, he had been unable to ascertain with sufficient certainty.

But from the evidence given by the defendants, it seems that the ventilation of Terrant’s stall depended upon a certain door being kept shut, and that the real cause of the explosion was the keeping open of some of that door by which the air would have cleared the stall was sent into another direction. Assuming this to be the cause, was the proprietor liable in any form for this result? First, what is the scope of meaning of the first general rule? It appears to me to refer to the general management for the ventilation of a mine, by the proper construction of airways, doors, and other contrivances for the dilation of noxious gas.

To use the language of the rules, if he has made due provision for the proper ventilation of the mine, he has done his part; if he were to neglect or refuse, wilfully and knowingly, to adopt measures that are necessary for the safety of the mine he would be responsible for the omission in one form or other. Having adopted such measures, it appears to me that he is not liable for the wilful negligence of others, or for any unforeseen accident.

The liability may be tested by supposing a charge of manslaughter to have been founded on these facts; could a bill have been preferred against the owner? I think not. The rule is, that the negligence must be personal, in order to make it culpable and criminal; but in this case, supposing the gas to have accumulated from the neglect of any one, it would seem that that guilty person was the deceased doorkeeper, or some other person unknown, rather than the defendant; and if a charge of manslaughter had been contended at the trial, that it is quite possible and consistent with all the facts, that the explosion was *caused by an escape of gas from some fissure or blower which had broken out, and had exhausted itself in a very short time.*

It seems to me that the possibility of such a cause was not sufficiently negative, and if such a supposition is at all reasonable, no conviction could have taken place at the supposed trial; and if such a defence would prevent a conviction of the defendant for the general rule is not meant to make an owner responsible for the extraordinary conditions and circumstances, that is, for casual and unforeseen circumstances, and for the malicious or negligent acts of servants, but only for the general condition of the mine, in connection with its ventilation; in fact, if it were otherwise, and an owner were held criminally responsible for the negligence of subordinates, few men would venture to be the occupiers of a colliery.

But it may be said that the owner is liable, because the door which had been referred to was not self-acting, and was not double. If the explosion may possibly have happened from a blower, it would be needless to consider these points, but as that supposition may not be sound, I have considered these suggestions also with regard to the to the construction of the door. There is no evidence to show, with perfect certainty, that it would not act, and that it was not, in fact, propped or wedged open on the morning of the accident.

In the next place I am unable to determine with certainty whether it is a main door; I am disposed to think that it is, and if so, that it ought to be doubled. But in that case, I think the proper person to be summoned is the overman or underground agent, and not the owner; for the certified special rules make it a distinct part of the duty of the underground agent, deputy, or overman, to see that the doors are rightly hung and constructed. As the rules thus fix a special duty upon certain officers, so, I think, a violation of them must be specially charged against these officers in a summons, setting out the special offence in the language of the rule.

On the whole, therefore, I think that if the door itself was faulty, a charge might be made against any officer whose duty it is made to see to it, and that if it was rightly constructed, but was maliciously or negligently wedged open, a charge might be successful against the person so acting; and that if the explosion might possibly have suffered from a sudden escape of gas from the coal, no one could be charged.

Looking at rule 19, I think that if there had been no doors at all the manager and owner might have been charged with the offence of not providing adequate ventilation, under rule No. 1, general rule; but that, having provided doors, the particular construction was part of the duty of the overman to see to, under rule 19."

Thirteen poor fellows lost their lives by this explosion. Terrant who fired the gas was proceeding as was the custom with a naked light – he was not to blame; if it was due to the careless act of a door-boy surely someone is responsible, employing a boy at the tender age of ten years and three months at so important a position of trust. It was difficult to prove how the gas accumulated; it might be that the door was left open or there was insufficient ventilation to dilute the gas given off. The door was a main separation door, and ought to have been double. I agree with the magistrates that the owner of the colliery was not liable for such details when the duty is imposed on the overman by the special rules. But I do not think the special rules can override the general rules, for surely if the owner appoints an incompetent person to carry out a specific duty no special rule can relieve the owner of responsibility.

Mr. Thomas Evans
Her Majesty's Inspector of Mines

More recklessness in a colliery

At the Aberdare police-court, on Tuesday, March 19th, 1861, Thomas Pearce, a haulier in the Deep Duffryn pit, at Mountain Ash, the property of Messrs. Nixon & co., was charged with breaking one of the special rules of the colliery, by smoking tobacco in a dangerous part of the mine. Henry Adams, a collier in the same pit, proved the case. Defendant was committed to the county gaol, with hard labour, for three months. Defendant, on leaving the court, made violent threats to Adams. He was recalled, and ordered to find sureties for his good behaviour for 12 months.

Life of the colliery and the owner

Blaengwawr Colliery was opened in 1843 by David Davis. Following his death in 1866 control passed to his sons until the colliery was closed in 1885. The colliery did not reopen until the Powell Duffryn Steam Coal Company bought it in 1914. The colliery was closed for good in 1926. Blaengwawr literally translates as 'Headwater of the Gwawr (brook).

Born in Llanddeusant, Carmarthenshire, David Davis's first business was a grocer's in Hirwaun which proved successful enough to fund his move into the coal industry. His first concern was a level at Cefn Rhigos, which he purchased in 1842, but he soon sold this to develop the larger Blaengwawr Colliery, which was sunk in 1843. With the help of his sons David and Lewis he expanded his business by opening Abercwmbol Colliery and later a colliery at Ferndale in the Rhondda Fach, a hitherto unexploited area. In 1865 Davis was a member of a

group of coal owners who opened a new dock at Penarth in protest against the heavy charges levied by the Marquis of Bute.

Blaengwawr

Colliery

(2013417)

The photograph shows the old Blaengwawr colliery, just behind Maesyffynon Lane. It was opened in 1843 and closed in 1914. It was quite a large complex, and contained a total of nine shafts (four of them for ventilation). The colliery was the scene of several accidents, the worst being the explosion in March 1861, when thirteen workers lost their lives (including two 13-year olds and one 14-year old). A 10-year old lad was killed by a roof fall in 1864, and a pit lass was killed on the surface in 1869. (*RCT Libraries*)**Blaengwawr Colliery** (2013417)

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The working of the mines in the South Wales district

Mr. Evans, Inspector of Mines for South Wales, in his official report on the workings of the Mines Inspection Act in the South Wales district says: - "The number of lives lost through accidents in and about the coal mines of South Wales in the year ending December, 1859, were 122; in 1860, 118; and in 1861, 110; showing a decrease each year.

The loss of life from 'falls of roof' and 'sides of working places' in the year 1860, was 55; in the year 1861, it was 63, showing an increase of 8; and I regret having been obliged to report that in my opinion many of them were, with ordinary care and caution, preventable.

There is not sufficient attention paid to the condition of the roof, and the proper use of timber by the overman or collier; timber is seldom used whilst the collier is 'holing' or working under the coal. I have constantly pointed out its necessity, and unless it is attended to each year will show an increase in the number of deaths, and more particularly as the workings extend in the thick mines.

The shaft accidents for the year 1861, including miscellaneous about shafts, number 111. The average of the last few years is 135. This shows a small decrease, but again some of these were preventable.

Thirteen lives have been lost this year 'run over or crushed;' 3 only on engine-planes, and 10 on horse roads. In many of the larger collieries there are separate travelling roads to the working places, and this does away, to a great extent, the necessity of walking along engine banks; and now that places of refuge are to be provided along the sides we may hope for less accidents upon the incline; but the great loss of life occurs amongst young boys having charge of horses bringing down, along cross-headings from the working places, heavy loads of coal, the inclination very often being considerable. These horses work in loose chains, and the load is scarcely under control.

I have frequently noticed this matter in my reports, and I am still of the opinion that if shafts (for horse and tram) were used many lives would be saved. The common practice in this district for door-boys, who are supposed to attend to their doors, to assist the hauliers, and indeed do nearly all the work; they run about the colliery, seldom at the doors, and are constantly meeting with severe accidents; these poor boys, if necessary at doors, ought to have proper places made for them near the doors, safe from the falls of roof, and always in attendance.

In the South Wales there are but few single divided or bratticed shafts. In my annual report from the year 1858, I stated they had been commonly used in the district, but that I had in many cases succeeded in getting other shafts sunk, or communication made.

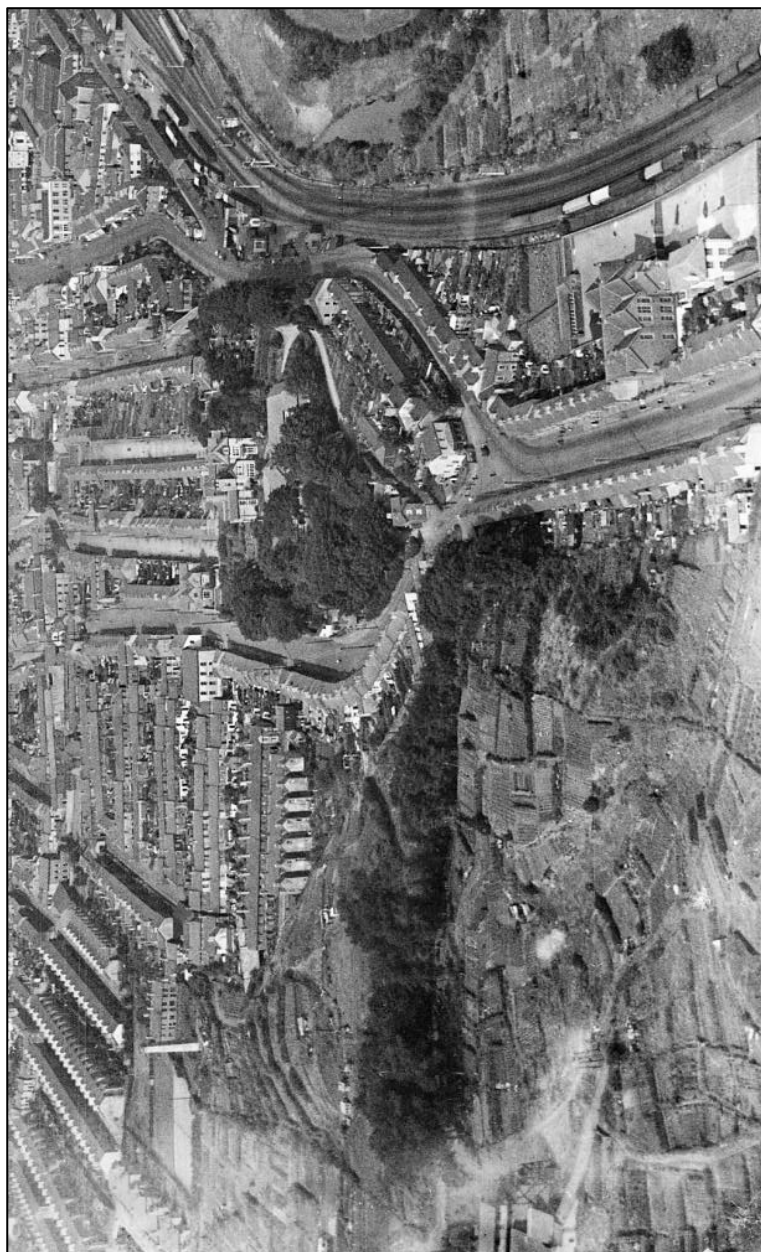
Since that time they have each year become less and less. There are, however, now about 14 single brattice shafts left, some of them in a bad state, defective brattice, badly constructed, and under sufficient size. I am of the opinion that in this district no colliery should be worked, or iron-stone mined, unless there are separate shafts, or outlets, with natural strata between such shafts, unless it be for opening out a colliery, making communication with another shaft, while exploring a new district; and then only a limited number of persons to be employed.

Most of the colliers will, I hope and believe, lose no time in getting the other means of egress made. I have always considered a single brattice shaft most dangerous, especially when made of wood and with a furnace at the bottom,

and in this district there is no good reason why they should be allowed to continue at work.

In many of my reports I have urged the necessity of doing away with the dangerous practice of raising and lowering persons in water-balance machines as single linked chains. I think now in South Wales there is no instance of a single linked chain employed for winding purposes.

The education clauses of the Act of Parliament came into operation in July last. The general effect in this district will be that no boy under the age of 12 years will be employed underground. Nearly all the large collieries and iron-stone mines have, as all the other works, established schools, and now throughout South Wales it is the exception to find a district without its schools, and as a rule they are well attended.



**Aerial view of Cardiff Road & remains of Blaengwawr Colliery
bottom left c. 1930**

And so the record of the early colliery disasters comes to an end. Unfortunately there was not enough room to include those incidents that included the deaths of nine or under, as there were too many to report. To end I would like to publish this article from the Mining Journal of September 1858 which tries to explain some of the things that occurred over the last few years: -

Colliery accidents in the South Wales district

Within the last few years numerous colliery accidents of a serious and painful nature have occurred in the South Wales district. The world has not been startled by any single catastrophe of enormous magnitude, like that at Lundhill, Yorkshire, on 19th February 1857 where 189 died, but so frequent and unceasing are the small casualties that the aggregate loss of life is hardly less great. It is no exaggeration to assert that not a single week passes by without one or more of these fatal accidents occurring. Fresh deaths are constantly added to the long, dreary list, till at last they excite little observation even in the neighbourhood where the victims lived.

An investigation necessarily takes place before the coroner, and the Government Inspector attends, and the evidence in one case affords a sample of the evidence in all others. The general public hear very little of these incidents.

There are thousands in this country to whom Wales is a *terra incognita*, and no part of the kingdom of equal extent is so disregarded by the press. Events there are so little heard of as though they took place in Central Africa. Even locally, loss of life in mines is regarded with indifference or as a thing of course. The feeling which it is calculated to inspire is blunted by habit, and nothing more than a vague sentiment of pity is produced

It is not surprising that the results of this should be an inattention to, and not infrequently a palpable disregard of, the means which might be adopted to preclude the repetition of calamities so deplorable in their consequences.

There appears to be an utter absence of a general determination to prevent the records of mining enterprise being so blood-stained as they now are. The evil might unquestionably be greatly reduced in extent if adequate exertions were made. It cannot be doubted that the coroners and Government Inspectors do all in their power to search into the causes of accidents, and to detect carelessness; but their successes do not always correspond with their good intentions. The witnesses examined at inquests would often tell but one story if they could.

Revelations of neglect would only inculpate themselves or their superiors, and the consequences in either case would be the same. It need scarcely be pointed out that the collier who provoked the enmity of his over-looker would speedily have cause to regret his conduct. Without going so far as to insinuate that in every instance a system of suppressing or evading the truth is adopted, or could be so with security, it may be safely affirmed that the circumstances under which an inquest is held are not favourable to the elucidation of a mystery which it is desirable to preserve by those who alone hold the secret.

The jury is usually composed of men dependent for their very bread on those whose conduct they are to exonerate or blame. This constitutes a very powerful reason for their not wishing to penetrate too far below the surface presented to them and for repressing any tendency they may feel towards fault-finding. It might not prevent them seeing at all, but it would assuredly induce them not to see too far. Hence, one inquest on what is called an "ordinary" case is precisely like another, a rapid formality characterising the proceedings from beginning to end. The witnesses declare their ignorance of any neglect of duty, and as dead men tell no tales, the odium of the fault is cast upon the unfortunate person who has already borne the penalty.

While these facts are too well supported by the occurrences of every-day life to admit of refutation, it must still be allowed that many accidents take place which require no concealment, and which involve no blame. The labourer in mines must always be subjected to dangers which no human ingenuity or forethought can avert. A treacherous roofing may give way, or a sudden "fall" put an unforeseen and inevitable end to the life of a poor miner.

Some parts of the South Wales coal field are especially hazardous, and we are, therefore, prepared to hear of a larger number of accidents there than in securer places. The fiery mines of Aberdare involve an occasional sacrifice of life for which none, it may be, are responsible; but what we contend for is, that catastrophes which might have been avoided by proper precautions occur infinitely more frequently than those which happen notwithstanding the exercise of due care and vigilance.

Whether the mischief arises from the recklessness of the collier, or the neglect of the agent, does not affect the argument; the cause of accidents in the majority of instances we maintain to be the disregard of principles which ought to be scrupulously observed. Many a man's life has doubtless been forfeited by his own temerity or blindness - by his contempt of danger, or wilful defiance of the laws which governs his safety. Safety-lamps are opened for the purpose of a

better light, or to enable the miner to smoke, and his existence is sacrificed to his inconsiderate rashness. In other cases the ventilation of a pit is so bad that it is absolutely a marvel that the men who work in it are not destroyed. These kind of "accidents" form the rule, pure accidents the exception.

Unfortunately, a very striking proof of this has recently been afforded. The official investigation into the cause of an explosion in the Cyfing Pit, Ystalyfera, furnishes us with an instance where six lives were lost, and six families thrown into beggary, through the most manifest and flagitious carelessness.

Scarcely three weeks ago 12 men descended into the pit in question, bearing with them naked candles, in accordance with their usual practice. In the Swansea Valley this mode of working mines is common, and Mr. Evans tells us that were the pits properly ventilated no danger need be feared, the quantity of gas given out being so small. It is evident, however, that where one important precaution is dispensed with greater regard should be paid to others. The actions of the men just before the explosion proved that the inattention - we had almost said the foolhardiness - of all concerned was carried to the utmost in every respect. Smoking was indulged in; sparks, as a matter of course, flew about, and in a few minutes six of the party were laid mangled and dead, the remainder having a very narrow escape. The fault of the whole misfortune rests, as the evidence irresistibly proves, with the manager, Rees Thomas. He had never given the men copies of the rules; he neglected to see that the person appointed to inspect the pit every morning did his duty, and his knowledge of the ventilation of the *colliery* is proved to have been imperfect, in the extreme. He probably knew less about it than the dullest of his men.

He declared that, in his opinion, it was so perfectly safe that he did not even think it necessary to distribute rules - in point of fact, that the men might be allowed to do anything in any manner they pleased. Yet Mr. Evans states, and Mr. Lionel Brough substantiates him, that little or no provision was made to ventilate one portion of the colliery - that with such a system accumulations of gas were sure to take place, and that the condition of the colliery tended to cause accidents generally. Moreover the same gentleman asserts that the immediate cause of the explosion was the pit not being inspected in the morning - a *laches* (unreasonable delay, as in asserting a right or claim) attributable to Rees Thomas. Never, surely, was the entire management of a colliery condemned in terms more explicit than these. Not a single circumstance transpires to palliate the culpable carelessness displayed by the manager. His pit was little better in point of order than a tap-room where the men could smoke, and perhaps drink (for there were no rules to break), as much as they pleased.

Their conduct was not regulated in the slightest degree, and we can readily imagine how gladly they would turn to account the want of authority over them. But for the accident this might have concerned the proprietor of the pit alone; as it is, the matter is a public one, and the careless manager is open to universal censure.

THE END

Glossary of mining terms

Adits are driven into the side of a hill or mountain, and are often used when coal is located inside the mountain but above the adjacent valley floor or coastal plain. In cases where the mineral vein outcrops at the surface, the adit may follow the coal vein until it is worked out, in which case the adit is rarely straight. The use of adits for the extraction of ore is generally called drift mining.

Bell pit is a primitive method of mining coal, iron ore or other minerals where the coal or ore lies near the surface. A shaft is sunk to reach the mineral which is excavated by miners, transported to the surface by a winch, and removed by means of a bucket, much like a well. It gets its name because the pit in cross section resembles a bell.

Brattice cloth – A kind of plastic sheet for covering ventilation doors; also for directing air-flow into places of working made of tarred hessian.

Downcast - A ventilation shaft, where fresh air is drawn (or forced) into the workings. Where the colliers ascend and descend to their work.

Dip - Working a seam to the 'Dip' means working down-hill, as opposed to working the 'rise', uphill.

District - The area in a colliery that is legally under the supervision of a mine deputy.

Double-parting - A roadway containing one tramway entering a section of wider roadway containing two set of tramways. It is a transfer area where a full 'journey' of coal is deposited and another 'journey' of empty trams is ready to be taken to the coal face.

Dumb drift - A dumb drift was a short length of airway that by-passed the ventilating furnace near the bottom of the shaft allowing the return air to be drawn up the shaft without contacting the furnace - explosive! An alternative was to place the furnace itself in the drift drawing in intake air and expelling it into the shaft thus drawing the return air up from shaft bottom - again, isolating the furnace from direct contact with gas laden air.

Engine plane – Usually a sloping roadway with an engine towards the top hauling up trams.

Goaf - The worked out ground of a coal mine.

Haulier - A miner who drives a horse to the coal-face or stall with an empty tram and returns to the 'double parting' with a full tram of coal. He is in sole charge of his horse.

Heading - A Tunnel in advance of any coal-face, driven to determine mining conditions ahead.

Level – A level is a tunnel which follows the seam of coal from the surface. Other factors, such as water and roof conditions, would decide the accrual pitch of the level's initial gradient.

Plates - Metal or wooden supports for carrying the rails that were used to move the tram loads of coal.

Upcast shaft - A secondary shaft that returns stale air to the surface. It normally contained a furnace fire at shaft bottom.

Seam - One of a number of beds of coal normally found throughout a coalfield.

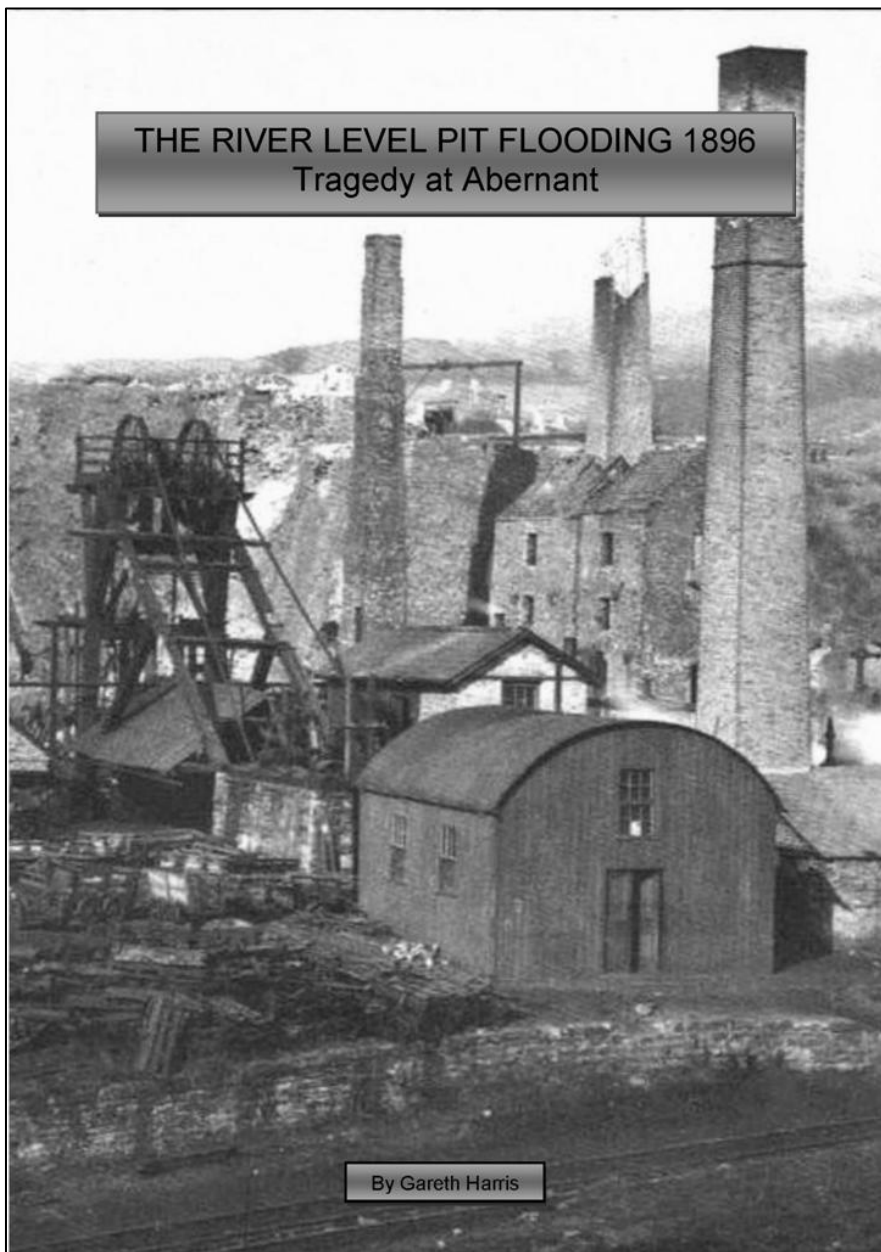
Shaft - The vertical sinking of a colliery to a required seam. Most shafts are circular in section, and designed to hold one or two cages.

Return - A ventilation term. The area of a mine through which travels the foul air and gases from the workings and coal faces, on the way to the upcast shaft.

Stall - A working place at the coalface where the coal was extracted; in a coalface 100 yards long there would be as many as 20 or 30 stalls, each separated by a pillar of coal left to support the roof.

Thurling - The point where one heading breaks into another.

**THE RIVER LEVEL PIT FLOODING 1896
Tragedy at Abernant**



By Gareth Harris

Further reading at the Aberdare Library

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Gareth Harris



The author of this book 28/06/18