The human cost of coal: exploring the impact of the 1890 Llanerch colliery explosion and other major mining disasters in the South Wales coalfields, 1890-1914

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The human cost of coal: exploring the impact of the 1890 Llanerch colliery explosion and other major mining disasters in the South Wales coalfields, 1890-1914.

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by

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The human cost of coal: exploring the impact of the 1890 Llanerch colliery explosion and other major mining disasters in the South Wales coalfields, 1890-1914.

Introduction

In 1913, Britain was the leading coal-exporting nation of the world. The South Wales coalfield, the largest in Britain, accounted for over 40% of British coal exports. At this time, between 30-50% of all the men in Wales, and over 70% of the working men in the Rhondda valleys, and their families and their communities, were dependent for their livelihood on a single industry, coalmining. Coal from Wales coal had helped fuel Britain’s industrial revolution, its thriving economy, and the expansion of the Empire. Welsh steam coal powered the Royal Navy and was regarded as the finest source of steam power in the world. In Wales, this “Black Gold” had fuelled the socio-economic, industrial, cultural and political transformation of the nation. Coal had helped shape a new, modern Welsh identity, where the strong, brave, grimy-faced miner held an iconic status. At the turn of the century, ‘King Coal reigned supreme’ in Wales.

Extracting this ‘Black gold’ came at a cost. The dangers of working in mines had long been recognised. In 1834, Friedrich Engels wrote that “In the whole British realm there is no occupation in which a man may meet his end in so many diverse ways as in this one”. Between 1890 and 1914, there were 1000-1250 deaths each year in British coalmines,

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3 Davies, History of Wales, pp. 387 and 459.


5 Davies, History of Wales, p. 389

6 Jenkins, A concise history of Wales, p. 177.

representing a quarter of all industrial deaths: ‘For South Wales miners, the risk of death in the workplace was ever present’. There is a substantial historiography of coal mining and pit accidents in South Wales in the late nineteenth and early twentieth centuries. The focus of that literature is on the causes of accidents; on the regulations aimed to prevent them; and on the social, economic and political consequences of the longstanding conflict between miners and mine owners - the ‘labour history’ of Welsh coalmining. There is little in this literature about the human impact of mining accidents in Wales, although Paxman’s recent history of British coalmining does place emphasis on the impact of accidents. Several contemporary historians, notably Curtis et al working on the major research project ‘Disability and Industrial Society,’ have shown that the risks of accidental death, as well as those of injury, disability, and premature ageing, were all much higher in miners from South Wales than in other British coalfields, or in men working in other occupations in the region. But there are few publications which consider the impact the many major explosions in Welsh mines during this era - accidents which killed hundreds of men – had on their families and


their communities. The aim of this project is to explore this neglected human aspect of the cost of Welsh coal in the late nineteenth and early twentieth centuries.

On 6 February 1890, a massive explosion killed 176 men working in the Llanerch colliery near Pontypool. In this dissertation, that accident will be used as a case study to investigate the characteristics of a Welsh coalmining disaster and the responses to it. The first chapter will provide a critical analysis of the Llanerch disaster and the official inquiry which followed. It will address fundamental questions including: what was the cause of the accident; was it avoidable; did it influence working practices in Llanerch or elsewhere? The key primary source will be the Report of the Inquest Arising out of the Llanerch Colliery Explosion, 1890.14 The Inquiry was set up to establish the cause of the disaster, to assess the culpability of the key parties (the employers, colliery officials, and the miners themselves), and to make ‘suggestions’ about how to reduce the chances of future accidents.

The second chapter will provide the broader context of the Llanerch explosion. It will describe the nature and scale of fatal colliery accidents in South Wales. Between 1890 and 1914, over 8000 miners in South Wales died in accidents, 1393 of them in large explosions.15 This chapter will address the question ‘Why were fatality rates from massive explosions and other accidents consistently higher in South Wales than in other British mines?’ It will show that two factors, the unique geology, and the distinctive working practices in South Wales mines, contributed to this excess mortality. This chapter will then compare and contrast the 1890 Llanerch disaster with the Senghenydd explosion of 1913, which killed 439 miners. The official report of the Inquiry into the Senghenydd disaster is a key contemporary source for that comparison.16

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16 Redmayne, Richard A.S., Evan Williams and Robert Smillie (1914), Reports to the Right Honourable the Secretary of State for the Home Department on the Causes and Circumstances Attending the Explosion which Occurred at the Senghenydd Colliery on Tuesday, 14th October 1913, Cd. 7346, London: HMSO.
The final chapter will explore the human cost of the Llanerch disaster and what is known about the impact of the sudden deaths of so many men and boys from a small Welsh community. Key primary sources will include the personal data on each of those who died in Llanerch which were included in the Inquest report;\(^\text{17}\) examples of contemporary newspaper articles; and items from the People’s Collection of Wales and other websites. Dot Jones’ work on the everyday lives of miners’ wives in the Rhondda and the toll on their health and welfare, and Catherine Welsby’s study of the battle for financial support for the families of those killed in Senghenydd, will be used to illustrate the plight of the surviving widows after such a disaster.\(^\text{18}\) And finally, this chapter will examine how these disasters were remembered in Welsh mine communities.\(^\text{19}\)

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\(^{17}\) Greene, H. D. (1890) ‘Inquest arising out of the Llanerch Colliery explosion, 1890’.


Chapter 1: ‘The Sad Calamity at Llanerch Colliery’

In the early hours of Thursday, 6 February 1890, Richard Ashman walked from his family home at Pentwyn tips near the village of Abersychan to his workplace in the Llanerch Colliery. Ashman worked as one of the mine’s two firemen, the colliery officials responsible for checking the safety of the mine each day, and for detecting dangerous levels of any toxic gases. He was 55 years old and had worked for 30 years in the local area. At 4:15 that morning, he descended the mineshaft to perform his routine duties. At 7:00 a.m. he wrote in the mine’s daily report book, that ‘all was in safe working order’.

At 8:45 that morning, a loud explosion was heard by those at the pithead and in the nearby villages. Thick black smoke poured from the entrance of the shaft for several minutes. Underground, Richard Ashman was some distance from the site of the explosion. He was knocked unconscious by its tremendous force. He was seriously burned on the face and arms, but he survived. Many of his friends and colleagues were less fortunate. By dusk, it was known that 176 miners working in the Cook’s slope ‘district’ of the mine had been killed. Amongst the dead lay Richard Ashman’s three sons: George, aged 20, Thomas, aged 21, and William, aged 17. Ashman also lost his son-in-law, William Williams, his thirteen-year-old grandson of the same name, and his brother-in-law, William Alsop, who lived in the house next to Ashman’s home.

The Llanerch colliery had long been regarded as a safe pit. There had not been a previous ‘major fatal incident’ - that is, one involving more than twenty-five deaths - in the 32 years since the current colliery had first opened. As in most mines, over the years there had been

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21 Greene, ‘Inquest arising out of the Llanerch Colliery explosion’, pp. 5-8 and 30. This report allows a timeline for Richard Ashman to be constructed for the morning of the explosion. He would prove to be a critical witness in the Inquiry and Inquest.

several deaths of individual miners due to rock falls or haulage accidents. So why was there such a catastrophic event in February 1890? Was that accident avoidable and were there any warning signs before the explosion? Was there evidence of negligence on the part of the mine-owners or officials, or of the miners themselves? Were there any lessons learned from this calamity that altered safety practices in the mine or beyond? These questions and others were addressed in the Report of The Inquest Arising out of the Llanerch Colliery Explosion, 1890, which is the key official source for understanding the disaster. The official inquiry was set up within days of the disaster. It was led by HD Greene, QC, a barrister appointed by the government. His report was presented to the Secretary of State for the Home Department and Parliament three months later.

The Coroner’s Inquest and Greene’s Inquiry ran in parallel. The two processes had different, but overlapping, objectives. The purpose of the Inquest was to identify and establish the cause of death of each of the 176 victims. The Inquiry had a much broader remit: to establish the cause of the disaster; to look for evidence of negligence and to decide if there were grounds for prosecution; and, most importantly, to recommend steps to reduce the risk of future catastrophes. The Inquiry board included representatives of the mine-owners, Partridge, Jones and Co Ltd; of the miners’ unions; and Her Majesty’s Inspector of Mines for the district. Thirty-one witnesses were called over six days of proceedings, including Richard Ashman, the injured and bereaved fireman.

The report describes the structure and working practices of the mine. Coal had been extracted from this site since 1825: the current shaft had been opened in 1858. By 1889, over 70,000 tons of steam coal were being extracted each year. A new ventilation system, designed to dissipate dangerous gases, had been installed a year before the accident. The mine employed 300 men, who worked a double shift system. Importantly, for over thirty years, Cook’s slope, the ‘district’ of the mine where the explosion originated, had been

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23 Greene, ‘Inquest arising out of the Llanerch Colliery explosion’
worked with naked lights, rather than the safety lamps designed to reduce the risk of igniting flammable gases: there had been no major explosions, but on 19 October 1889, four months before the accident, two men working on Cook’s slope had been burnt in a small, localised explosion.26

Following the investigation of that prior incident, Her Majesty’s Inspector, Mr Martin, spoke and then wrote, to the owner, Mr Edward Jones, urging him to introduce safety lamps to reduce the chances of any further explosions. The mine’s daily inspection records showed that around that time, on several occasions, small amounts of methane (‘firedamp’) had been detected but had caused no problems.27 In the correspondence between the owner and the inspector, and in the testimony given by them during the Inquest, which were included in the report, Jones explained that the miners greatly disliked the locked safety lamps that Martin was recommending, as they provided much poorer illumination then the old naked flame lamps and damaged their eyesight (disabling visual problems, such as nystagmus or ‘dancing eyes’ were common in miners).28 This correspondence also reveals that introducing safety lamps would have resulted in an increase in the wages to be paid by seven and a half percent, although it was stated that that cost was not an obstacle to their introduction. The Inquiry report records that, as further inspections of the mine had shown no evidence of gas after the October accident, ‘no action was taken upon this suggestion that locked safety lamps be introduced’ before the explosion.29 The only other relevant incident was that two days before the explosion, there were roof falls on Cook’s slope, but no gas was detected there, including just two hours before the explosion.30

When the explosion occurred, every single man and boy then working on Cook’s slope was killed. Medical examinations would show that they died either from the mutilating force of

26 Greene, Llanerch Inquest Report, p. 5-6
28 Curtis & Thompson, ‘Disability and the family’, p. 29.
the explosion, from burns from the fireball it created, or from suffocation as the oxygen was consumed and toxic gases of combustion, notably carbon monoxide (‘after-damp’) were formed.\textsuperscript{31} An inspection by Mr Morgan, the mine manager, soon established the precise site of the origin of the explosion, where he noted ‘an upheaval of the floor’, indicating a sudden major shifting of the rock strata, which had not been present before. Morgan and his fellow rescuers were confronted with the horribly mutilated and burnt bodies of their colleagues, many of whom were unrecognisable.\textsuperscript{32}

The ‘causes assigned’ to the explosion in the Inquiry report were that it was either due to a sudden huge release of gas after a rock fall or disruption of the floor (‘a blower’), or to a more gradual accumulation of gas in the roof space after the recent falls. It was agreed that the gas had been ignited by a naked flame lamp used by one of the miners. The Inquest jury unanimously agreed that all 176 men had died an ‘Accidental death’.\textsuperscript{33} There was no ‘sufficient proof to attach culpable liability to anyone for the disaster.’ Although there was minor criticism of Richard Ashman, the fireman’s, record keeping, there were no grounds for prosecution of anyone. It was accepted that the mine was well managed.

At first sight, this seems a clear-cut verdict and conclusion, which exonerates everyone. But the situation was more complex than that. In a final section of his report, entitled ‘Safety lamps or naked lights?’ Greene takes a more critical view.\textsuperscript{34} He argues ‘That this explosion would not have occurred if locked safety lamps had been used in Cook’s slope, seems probable, and the disaster has procured their introduction at an additional expenditure of seven and a half percent in wages besides the outlay of providing and maintaining them’. This statement reveals that Greene thought this catastrophe had been potentially avoidable. Furthermore, by including details of the cost of introducing safety lamps, he appears to be raising the possibility that consideration of cost may have played a role in the decision of the owners not to use them. Greene acknowledged that the miners in Llanerch and neighbouring

\textsuperscript{31} Greene, Llanerch Inquest Report, pp. 17-22.

\textsuperscript{32} Greene, Llanerch Inquest Report

\textsuperscript{33} Greene, Llanerch Inquest Report, p. 11-12.

\textsuperscript{34} Greene, Llanerch Inquest Report, p. 14.
collieries preferred to use naked flames because of the brighter illumination and visibility they provided and ‘because they were more easily movable’. But in his view, the miners had ‘a blind prejudice against locked lamps.’ He referred to the disagreement between the inspector, Mr. Martin, ‘a strong advocate of … safety lamps’, and Mr Jones, about their use. So, it appears that, for differing reasons, there was a resistance to introducing safety lamps, from both owners and miners. Greene then recommended that there should ‘be a clear and positive prohibition against using naked lamps in a mine wherever there is inflammable gas’ and to suggest ‘the general use of safety lamps being made compulsory … may possibly have to be again considered by Parliament’. (In fact, safety lamps were introduced into the Llanerch mine within weeks of the disaster, when the colliery re-opened: in the fifty-seven years the mine remained open, there were no further explosions). And finally, in recognition of the extensive workings Richard Ashman was expected to inspect each day, Greene suggested that it may require more than a single fireman on each shift ‘to prevent the lives of hundreds being risked upon the vigilance of one’, thus revealing a note of sympathy towards the burden of responsibility of the fireman.

Although it can be argued that this report’s verdict and conclusion convey mixed messages, it nevertheless provides an authoritative, objective and assessment of the Llanerch disaster. This was not always the case with such Inquiries. As discussed below, in the Inquiry into the Senghenydd disaster, the evidence given, and the interpretation of that evidence with regard to culpability, could be extremely partisan, the miners’ representatives taking one view, and the mine-owners proposing a very different interpretation of responsibility. Even in the Llanerch Inquiry, there appears to be a contradiction between the verdict that no-one was at fault - with its implicit suggestion that the accident was unavoidable - and Greene’s closing statement that if safety lamps had been used, the explosion would probably not have

occurred. But, to appreciate the significance of the Llanerch tragedy requires a broader view of the context of major mining disasters in the South Wales Coalfield.
Chapter 2 - Llanerch in context

The Llanerch explosion was not an isolated incident. As Trevor Boyns, the author of two seminal articles on accidents in the South Wales Coalfields wrote, ‘The history of the coal mining industry has been punctuated all too frequently by colliery explosions and the associated waste of human life’.\(^{39}\) Between, and including, Llanerch in 1890, and the devastating explosion in Senghenydd in 1913, there were nine major explosions which collectively claimed the lives of 1393 men in South Wales.\(^{40}\) Each of these catastrophes attracted an enormous degree of interest and sympathy, in both the public and the press. However, such explosions accounted for only a minority, a fifth, of all the South Wales colliers who died at work. In that period of 1890 to 1913, a further 6400 men died in the South Wales Coalfield, often in ones or twos, as a result of accidents involving the haulage of coal, rock falls, or shaft incidents, and less frequently, in accidents amongst those working on the surface.\(^{41}\) On average, three men died each and every day in British mines over this period. The number of deaths in the South Wales mines doubled between 1874 and 1914.\(^{42}\) These ‘mundane deaths’, ‘the steady drip-drip’ of death in the mine, passed largely unnoticed by the public and unreported by the press.\(^{43}\) In addition, each year, over thirty thousand Welsh miners suffered serious, often disabling, injuries.\(^{44}\) Many thousands more were disabled and died from respiratory illnesses, notably pneumoconiosis and bronchitis.\(^{45}\) When compared to other British coalfields, the rates of deaths, injuries and occupational diseases, were consistently 30-50% higher in the South Wales coalfields.\(^{46}\) For example, in 1893, 26% of all coalmining deaths in Britain were in Wales, which employed 18% of the national workforce.\(^{47}\)

Why was this so?

\(^{39}\) Boyns, 'Technical Change', p. 156.
\(^{40}\) Boyns, 'Technical Change', p. 177.
\(^{42}\) Boyns, 'Work and death', p. 513
\(^{43}\) John Benson, cited in Davies, History of Wales, p. 459.
Two key factors contributed to this excess mortality - the geology of Welsh mines, and the distinctive working practices in mines in the South Wales.\textsuperscript{48} The fragile geological structure of the rock strata in South Wales’ mines led to more frequent rock falls than, for example, in the coalfields of north-east England.\textsuperscript{49} The dry, friable nature of the rocks meant that these mines were dustier than those in other regions, contributing to the risk of explosions and also, in the longer term, to the development of lung diseases. In addition, the type of coal being extracted differed from that in other British fields. In the South Wales coalfield, particularly in its eastern part, the highly sought-after steam coal predominated, rather than anthracite or bituminous coal which were less efficient in generating steam power and hence less in demand. These steam coal deposits were far more likely to contain large volumes of flammable gases, sometimes under considerable pressure, which could be released either by excavation by the miners, by rock falls or sudden shifts of rock strata, as occurred in Llanerch. The most important of these gases, methane or ‘firedamp’, if present in significant concentrations (5-14\%) and mixed with the oxygen in the air, could be ignited by naked flames, electrical sparks or by ‘shot-firing’ (the localised use of explosives to break the rock-face), and cause massive explosions. The steam-coal mines of the eastern South Wales coalfield were known to be notoriously ‘fiery’, that is prone to explosions: a disproportionate number of major explosions occurred in this region.\textsuperscript{50} In addition to methane, there was also increasing recognition that coal dust could exacerbate, or indeed, be the sole cause of, massive explosions.\textsuperscript{51} These distinctive geological characteristics all increased the risk of fatal accidents such as explosions and roof falls in south Wales and they influenced how the miners worked. Of particular relevance to the Llanerch explosion, which had been caused by a naked flame lamp of one of the miners, was the type of lamp the miners chose to use - naked flame or safety lamp.

\textsuperscript{49} Catherine Preston, ‘Chapter 9: Industrialisation’ Pp. 8-10.
The two key ingredients for an explosion in a coal mine are an adequate amount of a flammable material, that is, either methane or coal dust mixed with oxygen, and a source of ignition. The naked lamps that most miners preferred were the commonest source of ignition in the explosions in South Wales in the late nineteenth and early twentieth centuries, although sparks from electrical signalling equipment or machinery, or less commonly, from shot-firing, were sometimes implicated. The danger of firedamp being ignited by miners’ naked flame lights had been recognised for well over a century before the Llanerch explosion. Early in the nineteenth century, several eminent scientists, including Humphrey Davy, George Stephenson and William Clanny, had designed safety lamps that were far less likely to ignite methane. These had become increasingly refined over the subsequent decades. But although they were safer, and they were increasingly recommended by the Mines Inspectors, they were often rejected by the miners, for the reasons recorded in the Llanerch Inquiry report and discussed above. Safety lamps were heavier and more cumbersome, and most importantly, they gave much poorer illumination. This meant the miners were more likely to injure themselves in the dark confined spaces in which they worked. Furthermore, their use was shown to reduce a miner’s daily output of coal, the measure which defined his wage. This reluctance on the part of the miners to use safety lamps is illustrated by the fact that in 1890, 136 collieries in South Wales used locked safety lamps, but 221 mines were still working with naked lights. By 1894, four years after Llanerch, two-thirds of Monmouthshire colliers were using safety lamps, three times the proportion from seven years before; but even by 1907, naked lights were still used in many collieries. The Llanerch Inquiry had led to safety lamps being introduced into that mine within weeks but clearly had not altered working practices in many other South Wales collieries.

Alongside the development of safety lamps, other technological innovations to reduce the risks of accidents were proposed by the Mines Inspectorate. Improved, electrically powered fans were introduced to improve ventilation and so reduce the risk of flammable gases accumulating. As the importance of the accumulation of fine coal dust as a potentially

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explosive material was increasingly recognised, new water sprinkling systems and stone dusting, were developed to suppress the dust and reduce the risk of explosion. However, as Boyns and many other authors have demonstrated, the colliery owners and management were often reluctant to introduce these safety measures, which were costly to install and maintain, and which reduced their profit margins. The colliery management in South Wales was often particularly tardy in implementing the increasingly strict legislation and safety regulations issued by the Mines Inspectorate. Many mining deaths in Wales could have been avoided by adhering to these rules.

But the responsibility for safe working did not rest solely with the management. The miners also had a duty of care; to themselves and to their workmates. Often there was a conflict between working safely and following the official regulations and working in a way which maximised the miner’s productivity: and as a result, corners were often cut. One important factor in this poor adherence to the regulations by the miners, was that, unlike the system in other coalfields, miners in South Wales were paid on a piecework basis: their weekly wages were not fixed but varied depending on the weight of coal they had produced. Any time at work that was not producing coal was regarded as wasteful: it was ‘deadwork’. When Daunton compared the different working practices in the Great Northern coalfields and the South Wales fields, he found that in Northumberland and Durham, where the rock strata were more stable, timbering was not performed by the hewers, the men who did the hand cutting of the coal, but by special workers employed to do just that. By contrast, in South Wales, where the friable, fragile geological nature of the mines demanded far more intensive timbering of the mine workings to prevent potentially fatal roof falls or wall collapses than the northern fields, the hewers were traditionally expected to do their own timbering. But the more time a Welsh miner spent shoring up walls and roofs with timber, the less coal he

59 Daunton, ‘Down the Pit’ pp. 582-584.
would produce and the less pay he would receive. Safety and productivity where therefore in direct conflict; many miners took risks; and many avoidable accidents occurred. (Daunton noted other important differences in the working practices in the two regions, including different shift patterns, and a different hierarchical structure and social status in the different occupations underground in the two regions). So, partly because of the geology of their mines, and partly because of the longstanding traditions and customs of the way they worked, Welsh miners were different.61

Although there are often similarities between them, the circumstances of each major explosion differ. Two of the nine major explosions in the South Wales coalfields between 1890 and 1913 occurred in the Universal Colliery in Senghenydd, near Caerphilly, in 1901 and 1913.62 A comparison of the Llanerch and the Senghenydd explosions is used here to reveal important differences between them. The Senghenydd explosion of 14 October 1913 was ‘the greatest disaster in the annals of British mining,’63 and it remains so to this day. It killed 439 miners. The official inquiry, led by Mr R A S Redmayne, the Chief Inspector of Mines, lasted four months and called fifty-two witnesses. Unusually, and unlike Llanerch, there were three senior assessors appointed: Mr Redmayne; Mr Evan Williams, of the region’s Coalowners Association; and Mr Roberts Smillie, President of the Miners Federation of Great Britain. The miners’ union had insisted on the inclusion of a senior union representative: the mineowners had done the same. The appointment of these three assessors would prove to be important in the Inquiry’s conclusions about the cause of, and responsibility for, the explosion.

The 1913 Inquiry heard that the recommendations to reduce the risks of future recurrences that followed the previous investigation of the 1901 Senghenydd explosion, which was triggered by shot-firing, and in which 81 men died, had not been implemented. In 1913, Redmayne, in his summing-up noted multiple breaches of the 1911 Coal Mine Act by the

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62 Redmayne, ‘Senghenydd Inquiry’; Singleton ‘Mining disasters’ pp. 107-123.

63 Redmayne, Senghenydd Inquiry’p.1
management.\textsuperscript{64} There had been multiple breaches of regulations about the ventilation fans, the safety lamps, the clearing of coal dust, the electrical signalling equipment and the level of inspection by the firemen. Redmayne concluded that these breaches ‘point to a disquieting laxity in the management of the mine’.\textsuperscript{65} Mr Smillie of the union concurred. Mr Williams, the Coalowners representative, perhaps rather unsurprisingly, robustly rejected this judgement. In a ten-page rebuttal, he explained he was ‘unable to subscribe to Mr Redmayne’s report’.\textsuperscript{66} He refuted that there had been the many breaches of the ‘bewildering number of new obligations by the Act’. In his opinion, ‘the explosion was not consequent upon the breach of the Act or regulations’, and ‘that any irregularities were of no importance’.\textsuperscript{67} He did agree with the two other assessors that the cause of the explosion was accumulation of coal dust and that nearly all of the miners had died from carbon monoxide poisoning (‘afterdamp’) but unlike Llanerch, there was no consensus on cause or culpability.

As in Llanerch, the Coroner’s Inquest verdict was of ‘Accidental Death’ for all 439 victims. One manager was fined £25 for breach of mining regulations. Despite the litany of errors, the company was exonerated of any negligence, and the charges of manslaughter brought against them were dismissed, in what Geraint Jenkins called ‘an obscene denial of the truth’.\textsuperscript{68} \textsuperscript{69}

Under the Workmen’s Compensation Act of 1897, the owners of the mine, Lewis Merthyr Consolidated Colliery Ltd, were obliged to pay £76,000 pounds in compensation to the dependants of those killed - £50 to £80 for boys and young men under 24 years of age, and £300 for experienced miners, paid in weekly instalments.\textsuperscript{70} Two hundred and seventeen wives and four hundred and eighty children also received support from the relief funds established immediately after the calamity.\textsuperscript{71}

\textsuperscript{64} The 1911 Coal Mine Act had been constructed to draw together into a single piece of legislation the multiple previous Parliamentary Acts relating to mining activities which had been published over the previous 60 years.

\textsuperscript{65} Redmayne, Senghenydd Inquiry’ p. 35.

\textsuperscript{66} Redmayne, Senghenydd Inquiry’ pp. 42ff.

\textsuperscript{67} Redmayne, Senghenydd Inquiry’ p. 51.

\textsuperscript{68} Boyns, 1986, ‘Technical changes’ p. 175.

\textsuperscript{69} Jenkins, ‘Concise History’, p. 236.


\textsuperscript{71} Singleton, ‘Mining disasters’ p. 117.
This comparison reveals important differences between the Llanerch and Senghenydd explosions and Inquiries. The Llanerch explosion was a ‘one off’. There had been no major explosion there in the 32 years before 1890, and none in the six decades after. By contrast, at Senghenydd there had been a serious explosion in 1901: vitally, the official recommendations made at that time to prevent future explosions had not been implemented. Both the 1901 and the 1913 Inquiries concluded that accumulated coal dust had been ignited and this had caused the explosions: both concluded that inadequate steps had been taken to reduce this. The Llanerch Inquiry found no deficiency in the management of the mine, whereas in Senghenydd it was argued by the Chief Inspector of Mines that there was ‘a disquieting laxity.’ The conclusions of the Llanerch inquiry were undisputed: no consensus was reached about the cause of the Senghenydd explosion. The conflict between owners and unions, which had intensified across the South Wales Coalfields in the 1890s and early twentieth century, was reflected in the insistence that both parties had co-assessors to represent them in the Senghenydd Inquiry, and it seems probable that that owner-union conflict contributed to the divergent, and one might argue, partisan, conclusions of the 1913 Inquiry. The introduction of the 1897 Workmen’s Compensation Act meant that the owners of the Universal Colliery had to pay compensation, however inadequate that might have been, to the surviving dependants: that had not been the case with the earlier Llanerch explosion. And as discussed in the following chapter, the financial impact on the families of the victims of these disasters was considerable.

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72 Friends of Llanerch, ‘Llanerch Colliery explosion’. 
Chapter 3 - Assessing the human cost of the Llanerch explosion.

It is difficult to comprehend the human impact of any disaster in which hundreds of people die. The stark figure of ‘the final death toll’ - 176 in Llanerch, 439 in Senghenydd - fails to convey the levels of emotional suffering triggered by such tragedies. The men and boys who died in the Llanerch explosion were not the only victims of that disaster: their deaths must have deeply affected their families and dependants, their friends and workmates, their local communities, the church congregations that so many were part of. So how can a historian explore this human cost of a tragedy such as Llanerch?

There are a number of relevant primary and secondary sources available. For example, a simple memorial card entitled ‘The Sad Calamity at Llanerch Colliery’ is revealing (Figure 1).

Figure 1: Anon, February 1890. Memorial Card for ‘The Sad Calamity at Llanerch Colliery. Museum of Wales. Available Online https://museum.wales/media-dams/d8b3605d-70d4-3dd3-922a-ab7e73fda2e9/large/
It was a custom in Wales for memorial cards to be produced after fatal accidents: the National Museum and the People’s Collection of Wales have several of these cards from different disasters. Sometimes a card named a single man, or a small group of men, who had lost their lives: after major disasters, memorial cards recorded not only how many miners had died, but also the numbers of surviving dependants, as in the Llanerch card. As well as providing the overall death toll, that card reveals that the victims included ‘56 youths and boys under 18’. Seventy-one of the men were married: forty-eight were single. Their deaths ‘left besides other mourning relatives and friends, seventy-one widows and two hundred and thirty children’. This simple document sheds light on the human aspect of the catastrophe.

A second relevant source is the official Llanerch inquest report. In a lengthy Appendix, the report’s author, HD Greene, listed personal details on each man who died: this included their name, age, address, marital status and the number of children they had, their occupation, and the cause of their death.73 Not all official reports on mining disasters did this: in the report on the Senghenydd catastrophe, the 439 victims were given only a number and cause of death.74 Redmayne, the author of that report, wrote ‘I have omitted the names and addresses of the dead for obvious reasons’: it is not ‘obvious’ what these reasons were, but it can be argued that this omission consigned the Senghenydd dead to anonymity in the report.

Analysis of the Appendix of the Llanerch report, yields valuable messages. From the home addresses, it is clear that most victims came from a small number of neighbouring villages and hamlets close to the mine, including Talywain, Snatchwood, Abersychan, Pontnewynydd and Pentwyn. The addresses show that often two, three, four or five members of the same household died in the explosion. It can be calculated that the average age of those who perished was twenty-seven. The youngest child to die was William Williams, the grandson of Richard Ashman: William was only twelve years old. Forty-four of those who perished were

74 Redmayne, Senghenydd Inquiry Report, p. 52ff.
aged between twelve and fifteen: many of these young boys died working alongside their older brothers, fathers, grandfathers and uncles.

The archives of a range of local Welsh newspapers, and national dailies such as *The Times* and the *Manchester Guardian*, are also valuable contemporaneous sources. It was the norm after major mining disasters for journalists to descend on the site of the disaster: the public took great, sometimes morbidly voyeuristic, interest, in such tragedies.75 (Another characteristic of this public interest was the appearance of thousands of ‘disaster tourists’ who flocked to the site of a disaster). The Llanerch explosion was no exception to these phenomena. Within a day of the disaster there were multiple newspaper articles and editorials published. These articles often gave remarkably explicit and lurid details of the catastrophic injuries sustained by the victims. As the scale of the tragedy became apparent and the chance of there being any survivors disappeared, journalists’ focus turned to interviewing survivors or bereaved relatives, to descriptions of the funeral processions and burials in the local chapels. Later, the progress and the verdict of the inquest and the inquiry were reported in great detail.

The local authors of the e-book *Llanerch Colliery Explosion: The Cost of Black Gold* (2016) have compiled extracts from several local newspapers, including the *Pontypool Free Press, The Cambrian, Cardiff Times, The Weekly Mail and the South Wales Daily News*.76 The articles in these papers provide a vivid picture of the aftermath of the explosion. Extracts from a series of articles from *The Cardiff Times* of 8 and 15 February 1890 illustrates this below.77

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It is clear from the numerous newspaper articles that immediately after the explosion, many rescuers, or ‘explorers’, descended into the pit, despite the risk to themselves, to try and save their colleagues.\textsuperscript{78} Seven local doctors promptly arrived at the pithead to tend to the survivors from other parts of the mine, many of whom had suffered serious injuries. The rescuers, led by the mine manager, Mr Morgan, soon discovered the first bodies. Many had been so hideously burnt or mutilated that they could be identified only by remnants of clothing or items such as belt buckles or tobacco pouches. The number of dead meant that they had to be brought up packed into the trams used to move coal. Once brought to the surface, each had to be identified by a relative: a wife, a mother, a father, or their landlord. By the end of the day, the scale of the disaster had become apparent. As reported in the \textit{Cardiff Times}, ‘In the little hamlet of Snatchwood, scarce a household had escaped. In a single line of houses, Club Row, there were thirteen dead among six households. Sarah Matthews had lost her husband, Edward, and two boys they had adopted from the workhouse (\textit{Cardiff Times} 15 Feb) …. In Abersychan, another family mourns the loss of five - Thomas Morgan, his two sons and two lodgers - leaving a crippled widow and six young children totally unprovided for’.\textsuperscript{79}

A particularly poignant description came from a reporter from \textit{The Cardiff Times} who visited the home of Richard Ashman two days after the accident.\textsuperscript{79} ‘Mr Ashman was sitting by the fireside with his head covered in bandages. His hands displayed fearful marks of burning. In a corner lay all that remains of his three sons. In the next house lay his grandson and his father. “The boy was only thirteen. It was only last Monday week that he first went to work” his weeping wife Anne explained’. In the same edition, that newspaper commented on the scale of the impact on schools, noting that the attendance register of one local school showed thirty-eight children had lost their father, eleven a brother and nineteen an uncle.

Religion and attending church were a key part of the lives of many Welsh miners and their families. All the papers, local and national, described the multiple funerals. For example, one

\textsuperscript{78} Friends of Llanerch, ‘Llanerch Colliery Explosion’
\textsuperscript{79} Anon. \textit{Cardiff Times}. ‘City of the dead’ 15 Feb 1890. Available at Welsh Newspapers Online \url{https://newspapers.library.wales/view/3428821/3428827/124/Llanerch} Accessed 3 March 2022
newspaper described the vast cortege for Mr. John Cooke of Talywain, a prominent member of the United choir. ‘The singing was deeply impressive as they sang Pantycelyn’s glorious hymn ‘in the deep and mighty waters.’ There were many other similar funeral processions which passed through the surrounding villages. On the Monday following the disaster alone, there were over 100 burials. At the small Ebenezer Congregational Chapel in Cwmffrwdor, thirty-eight members of the congregation were laid to rest, including Richard Ashman’s three sons placed in a shared grave (Fig 2). Twenty-seven members of the English Baptist Church in Abersychan died in the explosion: they are commemorated with a fine marble tablet.

80 Friends of Llanerch, ‘Llanerch Colliery Explosion’
The press promoted the several relief funds that were quickly established, first locally in Abersychan, and within days by the Lord Mayor of London, Henry Isaacs. His letter to The Times of the 17 February 1890 appealed for ‘a sympathetic response on behalf of the poor widows and children who have been rendered destitute by this most distressing calamity.’ 81 The Lord Mayor was correct: the effect of such a calamity on the families of the dead miners was profound. In the small coalmining communities of south Wales, almost all of the

population were reliant on the wages earned by the men working in the pits. The sudden loss of that income that followed the death of the breadwinner, or of the several breadwinners, in the family was catastrophic. There were few other sources of income for women in these communities. Since the introduction of the Coal Mines Act in 1843, women, and children under the age of twelve had been prohibited from working underground. To make ends meet, many had taken in male lodgers who paid a modest rent. As Dot Jones stated in her study of ‘Women’s Lives in the Rhondda, 1881-1911,’ ‘in the traditional view of the mining community, miners occupy the foreground as men engaged in dirty and dangerous work while women figure in the background as those who wait and support.’ Of course, the women did not simply wait: their unpaid, and often unrecognised, domestic labour within the home was vital for the livelihood of the family, of the community and indeed, of the industry. Women’s roles were completely defined by their husband’s occupation. Jones shows that theirs was a remarkably harsh life, often lived in an overcrowded, unsanitary environment; a lifestyle which took a great toll on their health, and indeed, on their lifespan.

This raises the question about how the widows of the Llanerch disaster coped with the drastic change in their circumstances. The several relief funds that were quickly established provided some financial support and in addition, some miners subscribed to insurance policies which provided additional support. Sadly, the accounts of the Llanerch Relief Funds were not available for scrutiny for this dissertation. However, Catherine Welsby has studied how relief and compensation were awarded to the widows of the Senghenydd disaster: her article is relevant here. The Senghenydd explosion resulted in 217 women being widowed and 522 children were left fatherless. The owners of the colliery awarded, on average, £173 pounds in compensation for each of victim. This was paid not as a lump sum, but as weekly instalments which varied from three shillings to ten shillings, rates of relief considerably short of the weekly income that the widows could have expected without the loss of their

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83 Welsby, Catherine (1995), “‘Warning her as to her future behaviour’: the lives of the widows of the Senghenydd Mining Disaster of 1913’, Llafr, 6 (4), 93–109.

84 Welsby, Widows of Senghenydd, pp. 94-97.
breadwinners. This compensation and payments from the Senghenydd Explosion Relief Fund remained the major source of income for the bereaved families. The committee which administered the Fund devised strict criteria for eligibility: widows were expected to provide their marriage certificate with their application form. There were criteria for ‘ chastity’ and ‘ unchastity’ and it was stipulated that certain moral standards were to be maintained if the widows were to receive support. Cohabitation could lead to support being withdrawn. Welsby, arguing from an explicitly feminist point of view, stresses the patriarchal attitude of the all-male committee that made these decisions. Her article shows that those bereaved by a major mining disaster faced difficult hurdles to achieving fair and adequate financial support. It seems likely that this applied to the widows of Llanerch also.

It is therefore clear that major mining accidents like Llanerch had a profound influence on families and communities. But how were such disasters remembered? It was not possible to identify any written documents such as diaries, letters or autobiographies from the survivors of the explosion, or the relatives of the dead, which would have helped answer that question. However, David Selway’s research study entitled ‘Death underground: mining accidents and memory in South Wales’ does explore this issue, albeit in a later period. By analysing 200 recorded interviews from the 1970s Coalfield History Project, he examined the memories of members of the mining communities. From these oral histories he found that ‘the prospect of serious injury or death was accepted as a part of life by the miners and their families’. Rather surprisingly, he found that memories of major disasters were largely absent from the coalfield’s collective memory, ‘being occluded by recollections of smaller, more frequent accidents.’ These smaller accidents were recognised as cumulatively causing far more deaths and injuries than the dramatic, but less frequent, large disasters like Llanerch. Miners’ representatives, like the South Wales Miners’ Federation and the National Union of Miners, also focused more on health and safety, and the prevention of day-to-day accidents and crippling industrial diseases such as pneumoconiosis: Selway found little mention of

86 Bloor, ‘No Longer Dying for a Living’ pp. 92-3.
major disasters in their records (p. 190-3). For most people living in the South Wales mining communities, these calamities did not figure large in their memories.

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Conclusions

Coal mining was the most hazardous occupation in Britain in the late nineteenth and early twentieth century. The South Wales Coalfield, a vital part of the Welsh and British economies, was the most dangerous coalfield in the British Isles. Deaths from day-to-day accidents or from massive explosions, serious injuries, and disabling occupational diseases like pneumoconiosis, were all more common in South Wales than elsewhere. This increased risk reflected a combination of the geological characteristics of the Welsh mines and the different customs of Welsh working practices. There was a constant conflict between maximising each miner’s output and maintaining their safety, and all too often, safety becoming a secondary consideration for both miners and owners. Both the owners and the miners themselves were often reluctant to implement the safety recommendations made by the Mining Inspectorate, in Inquiries and the several Royal Commissions on Mining. This reluctance to accept change is exemplified by the debate about the introduction of safety lamps in the Llanerch mine – the ‘miners’ blind prejudice’ as HD Greene wrote: tragically, it was only after the ‘terrible calamity’ that safety lamps were introduced into the Llanerch mine. Many of the disasters, which together claimed the lives of thousands of Welsh miners, could have been averted if official safety recommendations about safety had been adopted earlier.

A key aim of this dissertation was to explore whether it was possible to study the Llanerch explosion in a way that made it possible to shed light on the human impact of such a disaster, an aspect of Welsh coalmining which has been surprisingly absent from the historiography of the subject. It can be argued that that aim has been, at least partially, achieved in this dissertation. The absence of any contemporaneous personal documents from the survivors or the bereaved clearly seriously limits providing a detailed ‘history from below’. Nevertheless, by using a range of primary sources, and secondary sources from a wide range of historiographic subspecialties, it is hoped that a clearer, even if incomplete, view of the human impact of such a disaster in South Wales - on families and communities - has emerged.

It seems appropriate to end this dissertation by reflecting on the plight of Richard Ashman, whose story has been a tenuous thread throughout this paper and who exemplifies the strong, stoical and brave Welsh miner, who still holds such iconic status in the history of Wales.
and in the creation of a distinctive national identity. It is impossible not to feel sympathy for Mr Ashman, a man who had risen over his 30 years in the mines to become one of Llanerch colliery’s two firemen, the officials who played such a key role in keeping their fellow miners safe. The criticism of him in the Inquiry, in which he was a key witness, however gently and sympathetically expressed, must have been a heavy burden for him to bear. He lost his three sons and three other close relatives. He was seriously injured himself in the explosion, but he returned to work in the mine when it reopened. It is difficult to imagine how he and his wife Ann, and the thousands of other relatives of those who perished in Llanerch, Senghenydd, and the many other Welsh mining disasters, managed to cope with the trauma of their loss. They merit greater respect, and a greater recognition of the sacrifices that they made, than they have received to date in the historiography of the Welsh coalfields.
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**Valuable websites accessed for background information**

- Durham Mining Museum ([www.dmm.org.uk](http://www.dmm.org.uk))
- Northern Mines Research Society ([www.nmrs.org.uk](http://www.nmrs.org.uk))
- Coal Mining History Resource Centre ([www.cmhrc.co.uk](http://www.cmhrc.co.uk))
- Welsh Coal Mines ([www.welshcoalmines.co.uk](http://www.welshcoalmines.co.uk))
- Museum of Wales ([www.museum.wales](http://www.museum.wales))
- People’s Collection of Wales ([www.peoplescollection.wales](http://www.peoplescollection.wales))