

THE AVONDALE MINE DISASTER

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Pennsylvania's long, storied history is plagued by unfortunate mine disasters that cost the lives of many brave miners who dared to venture into the depths below the Earth that, in some cases, swallowed them up and in some cases never gave them back. The Avondale Mine Disaster, which happened on September 6<sup>th</sup>, 1869 is considered the deadliest disaster in Pennsylvania's coal mining history. It claimed the lives of 110 (108 miners and 2 rescue workers) unfortunate souls that bravely were in the mine that day. Many questions are asked when mine disasters occur like: "What caused it?" "What happened?" "Who is responsible?" and "How deadly was the disaster?" This essay will explore mainly on what impact or "legacy" this disaster left on the state. The main legacy of Avondale Disaster is that it led to the passage of the Mine Safety Act of 1870, which mandated safer working conditions for the miners. After Avondale, Pennsylvania mines were forced to adopt mine safety laws that would hopefully prohibit any more deadly disaster like the now infamous Avondale Mine Disaster. Other legacies include other states adopting similar safety measures, medical facilities for anthracite coal miners, and company relief funds. One last legacy of Avondale is that many songs and poems were written about the disaster.

In their book *Tragedy at Avondale: The Causes, Consequences and Legacy of the Pennsylvania Anthracite Coal Industry's Most Deadly Mining Disaster, September 6<sup>th</sup>, 1869*, Joseph Keating and Robert Wolensky offered an in-depth and detailed narrative of the Avondale disaster. They talk about all aspects of the disaster the causes, the rescue attempts and what the disaster's legacy left on the state of Pennsylvania. They also give a detailed description of the Mine Safety Act of 1870. In his book *Death in the Mines*, J. Stuart Richards provides a brief overview of the disaster and briefly mentions the Mine Safety Act of 1870. Since the scope of his

book is not exclusively the Avondale Disaster he does not provide a detailed narrative of the disaster. In his book *Disasters, Accidents and Crises in American History: A Reference Guide to the Nation's Most Catastrophic Events*, Ballard C. Campbell briefly gives an overview of what happened on the day of the Avondale Disaster. The scope of his book is not specifically the Avondale Disaster it is all of America's disasters. So for him to dedicate what little he did to the Avondale Disaster was nice to see. This served almost as an introductory book to my research of the topic. The Mine Safety Act of 1870 was also used as a source in this essay. It was found in a book called *A Digest of the Laws of Pennsylvania from the Year One Thousand Seven Hundred to the Sixth Day of June One Thousand Eight Hundred and Eighty-Three*. It was put together by Fredrick C. Brightly and published in 1885. The Mine Safety Act of 1870 and Joseph Keating and Robert Wolensky's book was the most helpful as compared to writing this essay.

### **What is Anthracite Coal?**

The Avondale mine was an anthracite coal mine. Anthracite coal or "hard coal" is different from that the bituminous or "soft coal"; which mined out in the western parts of the state. Anthracite coal contains much more carbon than bituminous coal. The extra carbon is what makes anthracite coal better for making steel. Bituminous coal is more readily available therefore it is used to generate electricity, because anthracite coal is not as available as bituminous coal, anthracite is mostly used as a heat source. Anthracite coal is better heat source because it has much higher energy content than bituminous coal.<sup>1</sup> "Bituminous coal is mined chiefly in the

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<sup>1</sup> Brian H. Bowen and Marty Irwin. "Coal Characteristics" (Presentation. Purdue University, 2008)

Midwest and Appalachia.”<sup>2</sup> Anthracite coal is only found “...in limited geographic areas- primarily in the Appalachian [Northeast Pennsylvania] region in Pennsylvania.”<sup>3</sup>

### **A Brief History of Pennsylvania’s Anthracite Coal Industry**

Anthracite coal was discovered in 1762 by a group of Connecticut settlers.<sup>4</sup> The first anthracite mine was established near Pittston, PA.<sup>5</sup> From “...1776-1780 mining of anthracite begins in the Wilkes-Barre area.”<sup>6</sup> In 1820 the regions first coal company, Leigh Coal Mining Company began to ship coal out of the region.<sup>7</sup> On September 6<sup>th</sup>, 1869 the region’s first major disaster at the Avondale Mine occurred in Plymouth, PA. The Avondale Mine disaster claimed the lives of about 110 men and boys (108 in the mine and 2 rescue workers). After the Avondale disaster in 1869 Pennsylvania created the Department of Mines and in 1870 the state legislature passed the Mine Safety Act of 1870, which mandated safety protocols for coal miners.<sup>8</sup> In 1917 anthracite coal mining reached its peak in the region, producing over one hundred million tons.<sup>9</sup> When anthracite coal mining reached its peak, it began its slow decline. On January 22<sup>nd</sup>, 1959, the region’s last disaster occurred, the Knox Mine Disaster. The disaster occurred in Port

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<sup>2</sup> Bowen and Irwin. Purdue University

<sup>3</sup> Ibid. Purdue University

<sup>4</sup> Mine Safety and Health Administration. “District 1- Coal Mining Safety and History of Anthracite Coal Mining.” United States Department of Labor, accessed November 2, 2013, [http://www.msha.gov/District/Dist\\_01/History/history.htm](http://www.msha.gov/District/Dist_01/History/history.htm)

<sup>5</sup> Mine Safety and Health Administration. United States Department of Labor.

<sup>6</sup> Ibid. US Department of Labor

<sup>7</sup> Ibid. US Department of Labor

<sup>8</sup> Ibid. US Department of Labor

<sup>9</sup> Ibid. US Department of Labor

Griffith, PA, near Pittston where the first coal mine was established. This disaster delivered the last blow to a slowly declining industry.<sup>10</sup> The anthracite industry in Pennsylvania, though short lived, provided the much needed resource to put Pennsylvania on the map and fuel its economy.

### **Origins of the Avondale Mine**

The Avondale Mine began operating under J.C Phelps of Wilkes-Barre on June 13<sup>th</sup>, 1863. He operated under lease from William C. Reynolds, Henderson Gaylord and Company.<sup>11</sup> The lease was then secured by subsidiary of the Delaware, Lackawanna, and Western Railroad (DL & W), the Steuben Coal Company in of January of 1866.<sup>12</sup> In 1867 the mine at Avondale was passed off to the Nanticoke Coal and Iron Company by DL & W. The Nanticoke Coal and Iron Company was another subsidiary of DL & W.<sup>13</sup> A subsidiary company is a company that is owned by another larger company. The larger company is often considered the “parent” company; they can control all of their subsidiary’s actions.<sup>14</sup>

### **“The Unparalleled Disaster”<sup>15</sup>**

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<sup>10</sup> Ibid. US Department of Labor

<sup>11</sup> Joseph M. Keating and Robert P. Wolensky *Tragedy at Avondale: The Causes, Consequences and Legacy of the Pennsylvania Anthracite Coal Industry’s Most Deadly Mining Disaster, September 6<sup>th</sup>, 1869.* (Easton, PA Canal History and Technology Press National Canal Museum.) p. 2-10, 17

<sup>12</sup> Keating and Wolensky. p. 2

<sup>13</sup> Ibid. p 2

<sup>14</sup> Farlex “Subsidiary,” The Free Dictionary, accessed November 3, 2013, <http://legal-dictionary.thefreedictionary.com/subsidiary+company>.

<sup>15</sup> Ibid. p. 3

On September 6<sup>th</sup>, 1869, at about 10:30 a.m., “four days after a bitter three month strike,”<sup>16</sup> a fire broke out in Steuben shaft of the Avondale mine. This fire is what caused the atrocious disaster.<sup>17</sup> An open flame furnace used by the mine is what caused the fire down in the mine. This furnace was deep in the mine near the shaft and was used to create an updraft of heat. This in turn created a downdraft of fresh air.<sup>18</sup> The mine was mainly worked by Welsh and Irish men and boys. The majority of the victims that perished on that day were Welsh men. So naturally the already existing ethnic tensions were inflamed because the Welsh blamed the Irish men who worked in the mines for the disaster because only six victims were Irish. Only six victims were Irish because most of them took off to attend the funeral of a prominent, well-respected Irish civil leader in the area.<sup>19</sup> The Welsh even went as far as to blame the Molly Maguires or “Mollies” for the disaster.<sup>20</sup> The Mollies were a group of Irishmen that was responsible for much civil unrest in the area during this time and the Civil War.<sup>21</sup> However no credible evidence came up during the investigation that the mine was sabotaged and that the “Mollies” were responsible. This shaft was lined with wood so the fire spread quickly and had plenty of fuel. A new breaker had been recently built on top of the mine; the fire quickly spread and swallowed it up. As the flames reached the breaker, the breaker boys were able to jump off the sides of the building,

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<sup>16</sup> Ibid. p 3

<sup>17</sup> Ballard C. Campbell. *Disasters, Accidents, and Crises American History: A Reference Guide to the Nation's Most Catastrophic Events*. (New York, NY Facts on File, Inc.) p 122-123

<sup>18</sup> Richards, J. Stuart. *Death in the Mines: Disasters and Rescues in the Anthracite Coal Fields of Pennsylvania*. (Charleston, SC The History Press) p.24-32.

<sup>19</sup> Campbell p. 122-123

<sup>20</sup> Ibid. p. 122-123

<sup>21</sup> Ibid. p. 122-123

barely escaping a most awful death. The only escape route, a 237 foot shaft, and was rendered useless to the miners because of the fire.<sup>22</sup> Fire departments from all over the area came to assist in the fighting of the blaze. Even the city of Scranton came to the aid of the fight against the blaze. They sent their fire engine by train. The fire crews and firemen that showed up fought the stubborn blaze tirelessly until it finally subsided at 5:00 p.m.; while the fire was roaring many people gathered around the mine. Many were the families and friends of the unfortunate ones who got trapped in the mine. When word spread curious and concerned onlookers showed up and watched.<sup>23</sup>

Many rescue attempts were made by the people in charge but all of them failed. The first rescue attempt was made eight and half hours after the initial onset of the disaster. The call for volunteers went out but almost none of the off duty miners, of the Avondale mine, came to the aid of their trapped colleagues. Many of the off duty miners were Irish and nearly all the trapped were Welsh. The ethnic tensions between the Welsh and Irish people of the region prevented them Irish from going to the aid of their entombed comrades. The rescuers came from all over the region, some as far as Scranton, and most of them were Welsh. After the first rescue plan failed the supervisors of the rescue came up with a second plan in case the original plan did not work. The secondary plan was to use the nearby connected Union Mine and drill through its walls to get the miners out of the Avondale mine. William R. Storrs took off to Scranton to round up volunteers for the secondary rescue plan. Meanwhile the other supervisors kept on trying to lower rescuers into the mine. They kept on failing because the rescuers had to keep evacuating

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<sup>22</sup> Keating and Wolenky. p. 3

<sup>23</sup> Keating an Wolenky. p 4

because of the presence of deadly gases in the mine. Late in the afternoon of September 7<sup>th</sup>, 1869, William R. Storrs returned with about forty or fifty miners and began with the secondary rescue mission. This plan however quickly was scrapped because they realized that if they were to drill into the Avondale mine the same deadly gases that were halting the other rescue attempts would then flood into the Union Mine and cause another disaster there. On the morning of September 8<sup>th</sup>, 1869 it was now accepted that they were no longer searching for survivors but victims. At 2:00 am on September 8<sup>th</sup> the mine seemed to be clear of “whitedamp”<sup>24</sup> and “blackdamp”<sup>25</sup> Not much later the first two victims of the disaster were found at the mule stable. At 6:30 am a great majority of the bodies were found at the eastside of the mine and they were found with their lunch pails full. Other bodies were found scattered throughout the mine. To the rescuers this suggested that they were “mercifully” shown a quick death. “By 9:00am on September 9<sup>th</sup>, 1869, all of the victims were taken out of the mine.”<sup>26</sup>

### **The Avondale Legacy: The Mine Safety Law of 1870**

The Avondale Mine Disaster, was the deadliest mine disaster up to that point in 1869. In the state of Pennsylvania there was none or very little mine safety laws. This disaster prompted quick and severe changes to the safety within all anthracite mines in Pennsylvania. Quickly passed after the Avondale Mine Disaster, the Mine Safety Act of 1870 did just that. The Mine Safety act was passed in the legislature on March 3<sup>rd</sup>, 1870, and signed into law by Republican

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<sup>24</sup> Carbon Monoxide, a very deadly gas only one tenth of one percent can kill a man. Keating and Wolensky p.138

<sup>25</sup> Carbon Dioxide, is deadly if it breathed in, instead of oxygen. Keating and Wolensky p. 132

<sup>26</sup> Keating and Wolensky p. 6-9, 16

Governor John W. Greary on April 12<sup>th</sup>, 1870. It was the first law in the United States that called for the regular inspection and regulation of coal mines.<sup>27</sup> The Mine Safety Act of 1870 called for several provisions. The biggest provision of the act stated that each new mine had to have two entrances and existing mines had four months to install a second shaft.<sup>28</sup> Both shafts had to be equipped that they could be used as an escape shaft in the unfortunate cases of accidents.<sup>29</sup> If Avondale would have had that second or escape shaft many men and boys may have survived that day. Another provision is that now all mine accidents had to be inspected.<sup>30</sup> Mine disasters were inspected but only the ones of great casualty were. Now all, no matter how small, accidents would be inspected. The Mine Safety Law of 1870 also called for the mines to keep accurate maps of their mines in the case of an accident.<sup>31</sup> These maps would help out the rescuers very much. One of the main hindrances of the rescue efforts was that supervisors had an “idea” of what the mine layout was, but none of them knew the entire layout of the mine.

Under the new law all breaker houses and engine house had to be located a “safe distance” away from the mine shaft.<sup>32</sup> It was customary for breakers and engine houses to be directly overhead the mine. This allowed for more efficiency and saved money on transporting the coal to the breaker. Ventilation shafts were now also mandatory.<sup>33</sup> Asphyxiation by

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<sup>27</sup> Richards p. 24

<sup>28</sup> Keating and Wolensky p. 101

<sup>29</sup> Richards p. 24

<sup>30</sup> Richards p. 24

<sup>31</sup> Richards p. 24

<sup>32</sup> Keating and Wolensky p. 101

<sup>33</sup> Ibid. 101

blackdamp and whitedamp was the major cause of death among the miners trapped in the mine. If the mine had been properly ventilated there may not have been as many deaths at Avondale or however slightly possible the chance would have been is that the rescuers would have been able to get to the trapped miners in time. In the writing of the Mine Safety Act of 1870 the ventilation issue is actually laid out in the first sentence of the second section. The guidelines laid out in the law were very strict and precise, “The owners of every coal mine or colliery shall provide and establish for every such coal mine or colliery, an adequate amount of ventilation, of not less than fifty-five cubic feet per second of pure air, or thirty-three hundred feet per minute, for every fifty men at work in such time, . . .”<sup>34</sup> These ventilation shafts would be overseen by a new the newly created position of the mine -boss.<sup>35</sup> Also, no one under the age of twelve was allowed to work down in the mines.<sup>36</sup>

Another safety measure that the Mine Safety Act of 1870 was that safety lamps had to be installed and maintained by the company who owned the mine.<sup>37</sup> These safety lamps would allow for better visibility in the mines. They would be cleaned and maintained by the mine-boss or his assistants.<sup>38</sup> Double doors and doors that would close “of their own accord”<sup>39</sup> were now mandatory. This was placed in the law because in the event of an accident it would prevent the

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<sup>34</sup> Fredrick C. Brightly. *A Digest of the Laws of Pennsylvania from the Year One Thousand Seven Hundred to the Sixth Day of June One Thousand Eight Hundred and Eighty-Three*. (Kay and Brother Philadelphia 1885) p. 1176-1191

<sup>35</sup> Brightly p. 1180

<sup>36</sup> Keating and Wolensky p. 101

<sup>37</sup> Brightly. p 1181

<sup>38</sup> Ibid. p 1181

<sup>39</sup> Ibid p. 1181

spread of the poisonous gases to other parts of the mine. Also all doors would have an attendant on it, “whose constant duty” was to make sure the doors were not left open.<sup>40</sup> All mines containing explosive gases had to be divided into districts and the maximum amount of worker that was allowed in one district at a time was to be fifty men. Each district of the mine was to be ventilated by separate currents of air. The law forced mine companies to install metal tubes that could be used to communicate from the surface to below the mine and from below the mine to the surface. This was put in the law to make sure that in the event of a disaster there would be communication between the miners who were trapped and the rescuers above ground. The companies were also forced to pay for the maintenance of the communication device(s).<sup>41</sup>

Lifts used to hoist or lower miners into the mines had to be operated by “experienced, competent, sober engineers” and no one else. The engineer must be eighteen years of age to operate the lift used to hoist men up and down the mine shaft. When the engineer was hoisting or lowering miners into the mine no one was allowed to interfere, distract or intimidate the engineer to a point that he was no longer able to carry out his duty. No more than ten men were allowed on the lift at one time. The engineer was to be informed through the use of the metal tube (the newly mandated communication devices) of how many people he was bringing up from the mine.<sup>42</sup> The engineer was forced to take great care when hoisting or lowering miners into the

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<sup>40</sup> Ibid p. 1181

<sup>41</sup> Ibid. p 1181

<sup>42</sup> Brightly p. 1182

mine. The lift that was used to hoist or lower miners must be inspected once every four months.

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The mine safety law also placed restrictions on the miners not just the companies, though it was more or so common sense restrictions. For example workers were not allowed to ride on loaded coal cars. If they were told to prop and timber the roofs of the mine chambers they had to do so. Lastly they were not allowed to partake in any behaviors that would in any shape or form endanger the lives of their fellow coal miners.<sup>44</sup> Anyone caught sabotaging the mine in any way shape or form was subject to fine and imprisonment "...at the discretion of the court trying the same." Any worker defying authority of the mine-boss shall also be subject to fine and imprisonment of the court.<sup>45</sup>

To make sure the anthracite mines followed the new law the state certified and employed six mine inspectors. They had investigative powers and could seek injunctions against companies with unsafe mining operations.<sup>46</sup> In order to become a Pennsylvania Mine Inspector one had to meet the strict qualifications; they must be thirty years of age, a citizen of Pennsylvania, have knowledge of different coal mining systems, must be "intimately connected" with the anthracite coal mines of Pennsylvania for at least five years, and had experience working and ventilating coal mines. The inspectors served five years terms and were always subject to removal of office if they willfully neglected their duties. Before entering the office of the mine inspector they had

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<sup>43</sup> Ibid. p 1182

<sup>44</sup> Keating and Wolensky p. 101

<sup>45</sup> Brightly p. 1182

<sup>46</sup> Keating and Wolensky p. 101-102

to take an oath or affirmation that they will perform their duties with impartiality and fidelity.<sup>47</sup>

The inspectors were to appointed by the court of common pleas, subject to approval by the governor. The inspectors were to be paid three dollars day when executing the duties of their office. They are to be paid by the county in which they are the inspector in.<sup>48</sup> Inspectors were subject to removal of office if at least fifteen reputable coal mining companies or coal miners signed a petition expressing their anger at the mine inspector for the neglect of his duties.<sup>49</sup>

The duties of an inspector of the coal mines was to inspect every coal mine in his to district to make sure that they are following the Mine Safety Act of 1870. The inspectors were allowed to inspect the mine in his district as often as he liked and he was allowed to enter the mines whenever he liked, as long as it did not impede the workings of the mine. When the inspector was there to inspect it was required by the law that the company was to accommodate the inspector anyway he needed, like access to the records of the company among other things. It was also the duty of the inspector to sit in on all investigations in the death of miners in the workplace. Mine inspectors were not allowed to work for any coal mines in their districts while they were the mine inspector of the county. The last duty of the mine inspector was to publish a detailed annual report to the governor of Pennsylvania. This report was to outline all the accidents that occurred in the district's mines, outline how well the mines of his district were following the Mine Safety Act of 1870 in regards to the workers in the mines.<sup>50</sup>

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<sup>47</sup> Brightly. p. 1185

<sup>48</sup> Ibid. p 1185

<sup>49</sup> Ibid. p. 1185

<sup>50</sup> Ibid p. 1186-1189

### **Short Comings of the Mine Safety Act of 1870**

The Mine Safety Act of 1870 was a great first step toward better mine safety, but like most new laws they had a lot of loopholes that mine companies were all too willing to exploit. For example breakers by law now had to be located a “safe distance” away from the mine but breakers that were already in place were “grandfathered in” and allowed to stay above the mine. Another loophole was that the provisions of the Mine Safety Act of 1870 did not apply to companies with less than twenty workers. Another example is that the law stated that no one under the age of 12 was allowed to work in the mine, but it did not extend to the breakers or engines houses, where boys younger than 12 continued to work. One last shortcoming of the Mine Safety Act of 1870 is that it only applied to anthracite coal mines, not bituminous coal mines, which was just as dangerous as anthracite coal mines. So when the first mine inspectors report was published in 1870 it showed that many companies were not following the new law at all. Starting in 1871 mine inspectors started filing the injunctions against the coal mining companies and they were winning. So slowly but surely the Mine Safety Act of 1870 was doing its job.<sup>51</sup>

### **Other Legacies of Avondale**

Over the next three decades many states, influenced by the Avondale Disaster, passed their own mine safety laws and by 1900 at least twenty states had mine safety laws in place. The federal government, however, was far behind the states. In 1885 a bill was introduced and it failed. It was not until 1891 that the first federal mine safety law was enacted that required

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<sup>51</sup> Keating and Wolensky p. 102-104

minimum ventilation and prohibited boys under the age of 12 from working in the mines. The Bureau of Mines (BOM) was not established until 1910 and they were not given the power to inspect and impose sanctions on violators until several decades later.<sup>52</sup>

The Avondale Disaster encouraged the establishment of medical facilities for miners injured on the job. Before the disaster there was talk of doing this but nothing was actually done. It wasn't until 1871, at the urging of the Workingman's Benevolent Association (coal miner's union of the day), the state legislature introduced a bill for the establishment of the Miners' Hospital and Asylum of Schuylkill County. The hospital was never established due to "internal bickering." In 1874 another bill was passed that provided \$15,000 for the establishment of the Anthracite Hospital of Pennsylvania; however the hospital was not established until 1879.<sup>53</sup>

The Avondale disaster convinced mining companies to establish relief funds for their workers when they were injured on the job. The Wilkes-Barre Coal and Iron Company, in 1869 after the Avondale Disaster, pledged to annually donate the dollar amount of a single day's production to the company's general relief fund if each employee would pledge one day's pay per year to the fund. The plan proved successful because the donations generally exceeded the expenses. For example in "1874 total contributions amounted to \$66, 559 while benefits paid totaled \$41, 336."<sup>54</sup> Also in 1869 the state legislature founded the Miner's Relief Association to support injure or disabled workers from Schuylkill and Northumberland areas.<sup>55</sup>

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<sup>52</sup> Keating and Wolensky. p. 111

<sup>53</sup> Keating and Wolensky p. 111

<sup>54</sup> Keating and Wolensky p. 111

<sup>55</sup> Ibid. p. 111

One last legacy of the Avondale Disaster was that many ballads and poems were written about the disaster. These poems and ballads brought the heart-wrenching emotion to the people who were not there. Almost all of the poems and ballads focused on the emotional toll of the disaster and only occasionally mentioned the company's negligence in the disaster. "They highlighted the human sorrow<sup>56</sup>, especially the tragic deaths of the workers and the traumatic losses of the widows and children." The most famous ballad about the Avondale Disaster is called "The Avondale Mine Disaster." There is much mystery surrounding this ballad. The author is unknown and all different regions of the area have different words plugged in to ballad. Many renditions of the ballad exist like "Avondale Disaster" and "Mines of Avondale." They use different words but they convey the same message, the human sorrow of the Avondale Disaster. The many poems published about the Avondale highlight the same emotional cost of the event and not the negligence of the company. Three such poems are: "Lament for Avondale" by Phillip O'Neil, 1869, "The Mines of Avondale" by Alice and Phoebe Cary, 1877, and "Avondale" by Xariffa, 1873. All these poems were written shortly after the disaster even though two they were not published until the late 1870s.

### **Conclusion**

The Avondale Disaster was the deadliest mining disaster up until that point in 1869; on that day September 6<sup>th</sup>, 1869, 110 (108 miners and 2 rescuers) brave men lost their lives on what seemed to be just another day at work. After many failed rescue attempts on September 9<sup>th</sup>, three days after the initial disaster, the last of the lifeless bodies of the coal miners was brought up to

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<sup>56</sup> Keating and Wolensky p. 143

their loved ones who unfortunately were looking on. Even though the amount of life lost on that day in 1869 can never be replaced, they did not die in vain. Their deaths opened the eyes of the state legislature that serious mine safety laws had to be passed and that the workers themselves were not to blame for these disasters but the company's negligence was to blame. The passage of the Mine Safety Act of 1870 is a direct legacy of the Avondale Disaster. The act would not have come to pass if nothing had prompted it. This act is what laid the groundwork for how the key industry of anthracite coal was to be run for the next century. The Mine Safety Act of 1870 had its shortcomings but it was an important first step to making the mines a safer place to work. The Avondale Disaster's legacy was not limited to just the state of Pennsylvania, its legacy stretched to all coal mining states and served as the much needed wakeup call for mine safety laws.

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