

The Hazleton Shaft Colliery

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The Early Years

The roots of the Hazleton Shaft Colliery date back to 1835 when merchant Pierson A. Reading of Philadelphia learned of Hazleton's rich coal lands from James Gowen of the Philadelphia & Reading Railroad who had discovered a coal outcrop within a ravine behind the Drumheller tavern in Hazleton. When shown the outcrop, Pierson, who had been a clerk at The Lehigh Coal & Navigation Company for two years, knew it was a valuable discovery. Though coal had first been discovered in Hazleton a decade prior, it wasn't until 1835 that anything was done to begin extracting the mineral wealth. After learning the land was owned by watchmaker William Drysdale from Philadelphia, Pierson and his business partner Samuel Moore, who was Director of the United States Mint, met with Mr. Drysdale, made him an offer, and purchased his five tracts of land totaling 1,135 acres that would eventually become the entire Hazleton Borough. The group then immediately applied for a charter to form a stock company and on March 18, 1836, The Hazleton Coal Company was incorporated by the Act of Assembly. The coal lands were then conveyed over to the new company on April 25 to allow mining to commence. In addition, the Company also began to layout the very first several squares and plots that would form Hazleton city.

Soon after, The Hazleton Coal Company opened Hazleton "Hazle" Mines Colliery in 1836. Located on the northwest side of the city- a section often referred to as "Upper Mines", the mine was opened via the No. 1 or "Hazleton" slope sunk in the south dip of the mammoth vein, leading to the colliery to be often called, "Hazleton No. 1." This was followed by The Laurel Hill Coal Company, chartered on June 16, 1836, opening the Laurel Hill Colliery on the southeast side of the city via the No. 2 or "Laurel Hill" slope sunk in the north dip of the mammoth vein. The following year in 1837, the Hazleton Railroad made a connection with the Beaver Meadow Railroad allowing for the first coal shipment to be made from Hazleton the following year in 1838. Laurel Hill would later transfer stock ownership of its mining operation to Hazleton Coal Company in 1839, giving the Company control of 36,000,000 tons of virgin coal. The mammoth, or "Big Vein" as it was often called due to its immense thickness, averaged 27 feet thick and was composed of three primary inner benches containing 17 feet of marketable coal of which each of the two slopes could extract 30,000 – 40,000 tons per year.

The third colliery to open was that of The Sugar Loaf Coal Company, incorporated on April 16, 1838. Located on the northeast side of the city in the town of Old Sugar Loaf, the Sugar Loaf Colliery was opened via the Old Sugar Loaf slope, sunk in the south dip of the mammoth vein which was later replaced with the No. 2 or "New Sugar Loaf" slope. The adjacent South Sugar Loaf Colliery, located a half-mile southeast of Old Sugar Loaf, was opened by the No. 3 or "South Sugar Loaf" slope sunk in the north dip of the mammoth vein. Two breakers supported the Sugar Loaf Mines- one at Old Sugar Loaf and one at South Sugar Loaf, while Hazle Mines and Laurel Hill each operated a single breaker. The Sugar Loaf Coal Company would later sell its 1,400-acre property under mortgage to its shareholders under the name Diamond Coal Company in 1841, leading to the Sugar Loaf mines being often called the "Diamond mines." Later in 1845, the Sugar Loaf property was consolidated with The Hazleton Coal Company.

Under the employment of Hazleton Coal Company was a young surveyor and mining entrepreneur who would later be credited not only as the founding father of Hazleton but also be titled the "King of Coal Barons" - Ario Pardee. After serving three years as superintendent of the Hazleton Coal Company, Pardee commenced business as a coal operator under the name Pardee, Miner & Co. who was awarded the contract to operate the Hazleton Coal Company leases in 1840. Under this contract, Pardee became the operator and shipper for both the Hazleton and Laurel Hill mines, and in 1842, began marketing the coal for the Company who retained part of the tonnage to market themselves while paying Pardee a fee in coal. This later changed in 1844, when a new contract was negotiated which established a royalty that was paid to Hazleton Coal Company for each ton mined. In 1843, the organization's name changed to A. Pardee & Company. For the next half a century, Pardee continued to manage the Hazleton mines while expanding operations and purchasing other lands around Hazleton that were rich in coal reserves.

In the late 1840s, Pardee opened the Hazleton No. 3 Colliery, which gets its name from being the third mine opened under The Hazleton Coal Company. Located due north of the Laurel Hill mine, No. 3 would eventually support the largest Pardee breaker in the Lehigh region. During the civil war era, the three Hazleton collieries underwent extensive improvements and were almost completely rebuilt with new machinery to increase capacity for the war effort. By 1860, Pardee, who had purchased the rolling stock of The Sugar Loaf Coal Company, completed the development of the Old Sugar Loaf mine, which at the time, was reported to be the deepest coal mine in the United States at over 970 feet deep. In 1862, work began on sinking two new slopes deeper into the basin at Laurel Hill, identified as slopes No. 4 and No. 5, which led to the colliery to be later called "Hazleton No. 5." In 1863, construction began on a

fourth new colliery identified as Hazleton No. 6. Located due south of Hazleton Mines, the No. 6 Colliery was added to begin extracting the virgin mammoth on the southwestern end of the Hazleton property, which up to that time, had seen no mining activities. By 1863, Ario Pardee had become one of the wealthiest men in America with an annual income in excess of \$1 million (\$23 million today).

Enter Lehigh Valley

Hazleton Coal Company later changed its name to Hazleton Railroad Company on March 9, 1865 and then through the transfer of stock ownership, merged with The Lehigh Valley Railroad Company on May 23, 1868. This action placed all the Hazleton coal lands under ownership of the Railroad. Four years later in 1872, the Railroad Company acquired The Greenland Coal Company, allowing it to then transfer all of its coal holdings over to the newly acquired company which was then renamed, The Lehigh Valley Coal Company on November 9, 1875, establishing the new subsidiary as the mining division of the Lehigh Valley Railroad. By 1881, Pardee's empire had grown to control 4,600 acres of coal lands consisting of eight mines and breakers producing 60,000 tons per month while employing 1,672 men and boys at a payroll of over \$50,000 per year. In addition, the firms of Pardee Bros. & Company, Pardee Sons & Company and C. Pardee & Company, operated other mines in the surrounding Hazleton region while using the parent firm of A. Pardee & Company as the exclusive marketing agent to ship in excess of over 1 million tons of coal per year, making Ario Pardee, the single largest coal operator in the State.

As the 1890s approached, many of the Pardee Collieries had become exhausted of virgin mammoth reserves and had moved on to mining other veins, such as the Wharton, which although high quality, were not as lustful as the mammoth making it more difficult to market. In the spring of 1885, operations ceased at the Old Sugar Loaf Mine which was then allowed to flood. This was followed by the closure of Hazleton No. 6 Colliery on September 8, 1894, after having worked out all the veins. After over a half a century of mining virgin coal, Pardee & Co. looked to sell its mining assets and found a buyer— The Lehigh Valley Coal Company. Rumors of the big deal began to spread in late October 1894 following both parties taking an account of their stock. Other rumors formed after orders were given to empty all the coal pockets in the Pardee breakers- a sure sign to many that something was about to happen. Then on November 1, 1894, A. Pardee & Company transferred the stock ownership of all six of its Hazleton Collieries, along with the J.C. Hayden Spring Mountain Coal Company lease at Jeansville, to Lehigh Valley Coal Company.

During the year 1895, the new management carried out extensive repairs to the existing Pardee breakers which were beginning to show their age. On January 7, new machinery was installed in the No. 3 breaker and in the Laurel Hill breaker, on March 14. As management performed cost studies on the operations, it became increasingly clear that the costs associated with operating multiple breakers, pumping plants, shops, and slopes were uneconomical, and that a more efficient and profitable operation in Hazleton could be run if there was consolidation. While Hazle Mines operated a fairly new breaker with a capacity of 1,200 tons per day which was completed in March 1889, the eastern collieries lacked such high output from a single facility. At the time, the Laurel Hill breaker was rated at 350 tons per day and South Sugarloaf at 500 tons per day while the newer No. 3 breaker, which was completed in October 1889, was rated at 700 tons per day. Therefore, the eastern collieries were seen as the center to consolidate operations. While plans were developed, the old Pardee workings were re-surveyed by the Lehigh Valley survey corps to thoroughly plan out a new mine.

After several months of discussions, on February 6, 1896, Lehigh Valley management announced the construction of an all-new central colliery with a more efficient high-capacity breaker that would ultimately replace the three breakers at Laurel Hill and No. 3 and South Sugarloaf. The new breaker was to be colossal in size while being strategically placed in-between the Laurel Hill and Hazleton No. 3 collieries on the Diamond or Sugar Loaf lands. The target was that each car of coal dumped into the new breaker would save 1 ¼ ton dumped into the old breakers, thus amounting to thousands of dollars saved annually. In addition, a coal hoisting shaft was planned as a direct feed outlet to the breaker, thus eliminating the cost of hoisting and transporting coal from numerous slopes. Instead, transportation to the shaft would take place underground, eventually linking all six Hazleton collieries together as one. Lastly, a new slope was planned that would house an all-new central underground pumping station. This new colliery was given the name, Hazleton Shaft.

On March 18, 1896, a dozen families in Old Sugar Loaf were notified to vacate their homes to make way for the construction of the new breaker. As ground broke, on April 9, Lehigh Valley began accepting bids to sink the shaft which was planned to be sunk in the center of the barrier pillar separating the Laurel Hill mine from the Old Sugar Loaf mine. Dimensions of the shaft were 37'x13'10" and divided up into four hoisting compartments, each measuring 7'6"x12'6" along with a half compartment for pumping water measuring 3'x12'6." The contract for sinking the shaft was awarded to John H. Thomas & Son of Parsons while the contract for the concrete casing work was awarded to McDonald & Sayre of Hazleton on April 25. With the shaft sinking commencing on April 30, the Lehigh Valley survey corps

arrived on May 7 to begin staking out the foundations for the new breaker, which were completed by July. After reaching 75 feet down to bedrock by January 1897, work on the shaft was temporarily suspended and all focus was turned to the sinking of the new slope which would ultimately be used to drain the entire Hazleton basin.

To Tap a Mine

In designing the new mine, Lehigh Valley management chose to reopen the submerged workings of the Old Sugar Loaf or Diamond mine first. This decision was made based on the fact that when the Colliery closed in 1885, the mammoth workings had only been first-mined, meaning there were still millions of tons of coal that could be extracted once the old workings were second-mined or robbed out. It was therefore determined to execute a plan to rob out the old Pardee workings beginning east of the city limits. This mining method would be accomplished by driving rock gangways parallel with and behind the mammoth vein in order to protect its workers while funneling the blasted coal down chutes into awaiting coal cars. Additionally, efforts would be taken to mine other virgin veins above and below the mammoth that had been left untouched during the Pardee ownership. These smaller veins would not only allow for additional coal production but also help offset the development cost as the mine ventured deeper. However, before the rich coal deposits could be readied for mining, the workings of the Sugar Loaf mine needed to be drained.

Although a drainage tunnel with a direct outlet to the Lehigh River was first considered in 1896, Lehigh Valley management favored the installation of a new large-scale pumping station, which not only yielded a significantly lower capital investment but would also eliminate other mine pumping plants in Hazleton. To achieve this, a slope was planned to be sunk on the north side of the basin just west of the barrier pillar dividing the No. 3 and Laurel Hill mines from the flooded Old Sugar Loaf mine. In order to drain the mammoth workings, the slope would need to be sunk in the first underlying vein, which was the Wharton. When choosing the location for the slope portal, engineers opted to use the outcrop of an old breast in the south dip of the Wharton vein near the barrier pillar, which incidentally, was the fortieth breast driven in that vein east of the No. 3 Colliery. It was from this account that many of the workers began calling the new colliery "No. 40" or, "the 40" for short. The name stuck and not only became the number for the new slope, but also the nickname for the Colliery.

Sinking of the No. 40 slope began on August 22, 1896. Designed by General Manager William A. Lathrop of The Lehigh Valley Coal Company, the slope featured the highest stability and workmanship

ever seen before in the Hazleton region. With a spread of 14 feet, a height of 7 feet, and extending 1,075 feet from mouth to foot when complete, the slope lead directly into two large pump houses constructed in the rock behind the Wharton vein off the east and west gangways at the slope bottom, or what would become the established third level of the mine. These pump houses were the first of their kind to feature all structural steel reinforcements, rather than wood, to shelter a pair of high-duty steam pumping engines, ordered from the Dickson Manufacturing Company of Scranton in October 1896. The pumps were of special design by General Manager DeCoursey May of Dickson Manufacturing; driven by Corliss cross-compound engines with a 32" high-pressure cylinder and a 60" low-pressure cylinder with a 48" stroke. Each pump was rated at 3,500 gallons per minute at a vertical lift of 545 feet and was sold under a guarantee to handle all water in the Hazleton basin prior to their acceptance. Power for the pumps came from a new boiler house measuring 47'x212' containing fourteen 72"x18' tubular boilers developing 2,100 horsepower; paired in two sets- eight on the west end to power the pumps and six on the east end to power the entire colliery. With the pumps arriving on June 12, 1897, preparations began to tap the water that had submerged the Old Sugar Loaf mine for nearly a quarter of a century.

While the pump houses were being constructed, a rock tunnel was driven 250 feet southward from the base of the 40 slope to intersect breast No. 39 in the mammoth vein at the Laurel Hill Colliery. Arriving at breast 39, workers then drove a heading east to intersect breast No. 40 which was the last mammoth breast driven before the barrier pillar. A brick dam was then constructed in the center of the rock tunnel of which were placed two 17-inch pipes with stop plugs equipped with bypass valves for equalizing pressure that would allow for the adjustment of water flow to the pumps whenever it was necessary. After this work was completed, on July 18, contract diamond drillers from H. P. Simpson & Company of Scranton were taken to the back of the dam to the east rib of breast No. 40. Here, the task began to drill through the 100-foot-thick mammoth barrier pillar to tap the immense body of water that towered 185 feet above the drillers.

Under the careful supervision of division superintendent Frederick E. Zerby, mine superintendent Caleb Williams, inside foreman Thomas Williams of The Lehigh Valley Coal Company, and state mine inspector William H. Davis, the first test hole measuring 1 ½ inches in diameter and 85 feet in length, penetrated the barrier pillar on the evening of Thursday, July 22, 1897. Water sprayed out with immense force launching fist-sized chunks of coal across the breast. A second 3-inch drill hole, measuring 135 feet in length followed, piercing the barrier pillar at 9:30 PM on Monday, July 26. Four more holes were drilled before the work, having been considered a remarkable feat of engineering, was

successfully completed on August 19. This new arrangement permitted the Sugar Loaf water to drain into the Laurel Hill mine, whose pumps had been pulled in late 1896, and rise to a vertical height of 150 feet behind the dam, thus converting the old workings of the entire Hazleton mammoth basin into a sump 2 ½ miles long. On August 28, the valves on the six boreholes were opened and with the pumps beginning to take on water, work resumed on sinking the shaft in November 1897.

The Mammoth Colliery

Construction of the Hazleton Shaft breaker commenced on April 11, 1898 under the supervision of contractor Henry K. Christ of Mahanoy City, who had been awarded the contract to build the breaker on April 6 after having recently completed construction of a similar-sized breaker in Centralia. Within weeks, over one hundred carpenters applied for positions to work on the massive structure, many offering their services for one dollar a day. Work was soon rushed; carpenters were put on twelve-hour shifts to have the breaker ready by September 15. Below ground, miners worked to reopen gangways and tunnels in the No. 3 and Laurel Hill collieries in preparation for re-mining. As the framework rose, workers began tearing down the old Laurel Hill breaker on May 26 followed by the No. 6 and South Sugarloaf breakers later on in July. On Saturday, September 3, 1898, the breaker was started for the first time and run for several hours to test all machinery. An official who witnessed the test run remarked enthusiastically that, *"it beats everything in the region."*

At the time of its construction, Hazleton Shaft was the largest breaker in the Lehigh region capable of producing 2,000 prepared tons per day. Measuring 180 feet long, 158 feet wide, and 142 feet tall to the top of the car dump, it surpassed every other breaker in size around the city. Constructed of Georgia yellow pine with cast iron main center supports, the inside housed 28 jigs, 7 revolving screens, and 32 shaker screens for washing and sizing the coal, driven by a 250 horsepower Corliss 22"x42" engine. As workers put the final touches to the breaker, work on sinking the shaft was completed on September 8 after reaching a depth of 381 feet, with the last 55 feet being sunk below the second level of the mine to allow for sufficient sump room. In addition, rock tunnel landings had been constructed around the shaft extending 104 feet north and 87 feet south at both the first and second levels. With the breaker nearing completion, mining operations inside officially commenced on September 26, 1898, providing work for hundreds of idle men. Two days later, on September 28, 1898, the breaker went into full operation.

Though it would be a year before the shaft was ready for hoisting cars, coal was supplied to the breaker from Hazleton No. 3 and No. 5 slopes, both of which had been completely revamped with many

improvements to ventilation and safety. In addition, the culm banks from the neighboring old breakers were re-run through the Shaft breaker in order to extract more coal via the new processing machinery. On September 30, the mine received its first consignment of mules and on November 2, the first fifteen out of 300 new mine cars arrived. On December 17, Lehigh Valley began accepting bids to drive two massive tunnels- one 1,300ft long and the other 1,200 ft long running north and south from the shaft landings on the first and second levels. These two tunnels would provide direct haulage to the shaft landings while intersecting the Tracy, Diamond, Orchard, Primrose, Mammoth, Wharton, and Gamma veins before ending at the Buck Mountain vein. Rock contractor David J. Roderick of Scranton was awarded the contract to drive both tunnels on March 13, 1899, which were completed in 1900.

By February 1899, the shaft framing was complete and ready for installation of the cages and guides. The new shaft engine house, measuring 52 ½'x95 ½', housed two 30"x48" steam hoisting engines manufactured by Vulcan Iron Works in Wilkes-Barre, which were placed into position on March 4. Each engine drove twin conical drums- one of 10-foot in diameter and the other of 14-foot in diameter, containing 1,250-feet of 1 ¾ inch cable to raise and lower each shaft cage. By mid-1899, the shaft was put into service. In early 1900, a new 300-foot-long feed conveyor was installed to more efficiently convey the coal from the shaft to the breaker. This system, which had commenced construction on September 13, 1899 by contractor Christ, greatly increased the colliery's output which was proven on May 29, 1900, when all previous hoisting records at the Shaft were broken when 850 cars were hoisted to the breaker in 9 hours' time. With the new colliery in full operation, the neighboring No. 3 breaker, which remained as a backup in case the Shaft breaker went down for any reason, was later razed in October 1903, leaving only the Hazle Mines breaker on the western end of the city to remain operating in conjunction with the Shaft breaker until 1933 when underground operations consolidated with the Shaft. The Hazle Mines breaker was later razed in March 1934.

The early 1900s brought on a booming expansion for the new Shaft Colliery. On January 1, 1903, the Company took the first step to expand the mines' reserves by acquiring the adjoining East Sugar Loaf Coal Company Stockton Mine lease from Linderman, Skeer & Company, allowing for the Stockton No. 2 mine to be reopened and merged with the Shaft the following year, in September 1904. Additionally, a new 30'x100' addition was put on the breaker to house 10 more jigs. More improvements came in January 1905 with the installation of electric haulage inside the mine, which slowly began phasing out the use of mules. This was followed in April by the arrival of the first pair of several new mine motors along with new telephones which replaced the old speaking tubes previously installed inside the mine in

1900. On November 1, 1905, Lehigh Valley again expanded its reserves with the acquisition of the Tench Coxe-Stockton lease which also included other Coxe-controlled coal properties. In April 1909, Lehigh Valley announced the reopening of South Sugar Loaf No. 3 in preparation to rob out more old workings. Concurrently, the breaker was further expanded and remodeled in order to handle additional incoming coal from Stockton, Eckley, Derringer and Tomhicken Collieries, all of which had eliminated the use of their own breakers making Hazleton Shaft the largest central breaker in the middle coalfield.

Driving a Tunnel

During the flood in December 1901, the 40 slope pumps struggled to keep up with the rapidly rising water level, which gained 50 feet in 12 hours. To assist the pumps, twin 2,000-gallon water tanks were constructed and installed in the two western shaft compartments to hoist water from the second level to the surface. Two more water tanks were installed in the shaft during the January 1903 flood, however, even with this addition, flooding on the lower shaft level still occurred. As seasonal floods continued to plague the mine, the need to purchase larger pumps was seen to be the only possible solution to keep the mine dry. Beginning in 1903, a skip was taken off along the north side of the pump rooms in the 40 slope to allow for the addition of more pumps. In January 1906, work began on sinking a rock slope branching off the east side of the 40 slope for the addition of a third pump room to handle all of the Stockton mine water. Five more pumps were installed in the 40 slope up to 1911, doubling the plants' power from 7,000 to approximately 15,000 gallons per minute. However, despite all of these improvements, it became clear that the big pumps with their great capacity were insufficient in keeping up with flooding conditions, proving the undoubtful need for a drainage tunnel.

In 1909, Lehigh Valley purchased a tract of land alongside the Lehigh River with intentions of using it as the portal for what was to be called the "Glen Onoko Tunnel"- a massive 10-mile-long drainage tunnel extending northwest from the bank of the Lehigh River and penetrating the sixth level of the Shaft mine, thus ending water issues not only in the Hazleton basin but also for other neighboring collieries. This project was later put on hold and in 1914, a second proposed tunnel project was taken up known as the "Nescopeck Tunnel." This tunnel was targeted to intersect 92 feet below the established third level at Hazle Mines and extend 5 ½ miles northwest to the portal at Nescopeck Creek, into which the Jeddo Tunnel also emptied. After acquiring the necessary tracts of land overlying the location for the tunnel, management began accepting bids for the project in 1915 and entered into discussions with G.B. Markle & Company who owned both the Jeddo Tunnel and the riparian rights of Nescopeck Creek. It was during these discussions that Mr. John Markle, President of G.B. Markle & Company, expressed that The

Lehigh Valley Coal Company had no right to further contaminate the creek nor obtain the benefits of its releases without legal action following, which, therefore, led to the project's abandonment in July 1917.

In subsequent years, numerous meetings were held with officials from The Jeddo Tunnel Company, The Lehigh Valley Coal Company, and G.B. Markle & Company, to review the possibility of connecting the Hazleton mine with the Jeddo Tunnel, which was initially figured as the solution for dewatering the Hazleton basin back in 1896 when engineers established the third level elevation for the 40 slope plant. Finally, in 1917, both parties agreed to allow an independent engineer to report on the proposed tunnel projects which, when released in September, was most favorable to a connection tunnel between the Hazleton basin and the Jeddo Tunnel as it accounted for the lowest initial cost. The proposed project, known as "Tunnel X", would extend 1.8 miles northeast from the third level of the Hazleton Shaft mine to intersect Tunnel A of the Jeddo Tunnel system at an estimated capital cost of \$325,000 (\$7.3 million today). The Glen Onoko Tunnel, on the other hand, had the highest upfront cost estimated at \$1.75 million (\$39 million today). Although negotiations carried on after 1917, nothing materialized until 1929 by which time the water situation in the Hazleton basin had become worse due to the extensive stripping of coal outcrops which thus brought on more inflow from surface subsidences and breeches. Strikes, labor troubles, and unbalanced market conditions, all lead to the delay in driving the tunnel.

Finally, on January 10, 1933, the Jeddo Tunnel Company awarded a contract to Kaschak & Hidgon of Hazleton to drive a connection tunnel from the Ebervale mine to the Hazleton Shaft mine. Construction began on February 20, with crews working from both ends to eventually join the tunnel in the middle. At the Ebervale mine, a rock slope was sunk to the elevation of the tunnel floor, allowing crews to begin advancing northeast at a descending grade toward Jeddo Tunnel A while also advancing southwest at an ascending grade toward the third level of the Hazleton mine. At Hazleton Shaft, workers drove a rock turnout off the third level landing from an internal slope in the Buck Mountain vein to begin driving the tunnel northeast. As crews advanced deep through the mountain, extra time was taken to timber through any red shale encountered to prevent roof failures. Throughout the construction, patrolling watchmen were employed to alert the workers in case of a break-in from local bodies of water which could trap the men driving the tunnel on a descending grade.

On September 8, 1934, a final blast was made and both crews came face to face. The driving of the tunnel was almost perfect in that both ends met within 8 inches along the rib. After several months of timbering, the tunnel was officially put into service on April 1, 1935, at an overall final cost of \$297,000 (\$6.2 million today). With Tunnel X complete, drainage on third level Shaft could flow by gravity out the

tunnel, thus eliminating the need for the big 40 slope pumps along with their associated expenses. Additionally, the tunnel released 3,000,000 tons of previously inundated reserves on the third level for immediate mining and also provided a shorter discharge point for future pumping plants as the mine advanced deeper. The tunnel quickly proved its value during the flood in March 1936 when the water was observed to be 5 feet below the roof of the tunnel as it exited the mine at a rate of 49,500 gallons per minute- more than three times the pumping capacity of the 40 slope plant.

The Colossal Expansion

During the 1930s, as reserves above the third or water level decreased, more stripping coal was imported and run through the breaker to make up for the lack of tonnage. This, along with the mining of thinner, low-yielding veins, began to increase the overall cost per ton. In October 1937, a reserve and cost analysis report was prepared on the Hazleton Shaft Colliery by Vice President & General Manager Frank H. Wagner of The Lehigh Valley Coal Company. His report outlined the options of either shutting down the colliery to develop it into a more productive point over a two-year period at a total loss of \$2 million (\$40 million today) or boosting production while continuing operations in which the total losses were not expected to exceed \$750,000 (\$15 million today) over the same two-year period. Ultimately, in order to maintain a sound cost at Hazleton Shaft, deep mine production would need to increase and the amount of imported stripping coal, decrease. After consideration, management's decision was to continue to operate the colliery and increase production from 2,000 tons per day to an objective of 4,500 tons per day in order to maintain a sound cost to meet the trend of realization and provide profit.

To achieve this huge production increase, mining would advance into the Stockton No. 5 section of East Sugar Loaf, located in the eastern spoon of the mammoth basin and well above water level. This would provide the breaker with the necessary tonnage while pumping operations worked to begin draining the Stockton No. 3 section, which hadn't been operated since the strike of 1902 when the mine was abandoned and allowed to flood. Here, engineers identified that virgin coal in the Mammoth and Wharton veins still remained below the flooded fourth and fifth levels of the Stockton mine which would provide for an additional 20-years of mine life. Finally, because 65 percent of the reserves were still inundated, operations would continue to drain the Diamond and Hazleton basins into the Jeddo Tunnel in preparation for mining another level. Even as the anthracite market continued to shrink, the decision to continue developing the Hazleton Shaft mine was seen as a logical move if the Company wanted to ensure its customers a supply of Lehigh region coal in the future.

In May 1938, approval was given to deepen the shaft by 117 ½ feet from second level down to the third level to accommodate for the mine development. Additionally, the two western water hoist compartments, which had long been out of use, were to be reconditioned for coal hoisting; thereby doubling the amount of coal delivered to the breaker each day. In driving the shaft, management elected to raise the extension from third level to connect with the shaft bottom on second level in order to eliminate having to idle the shaft from hoisting coal for an extended period of time. Work began on July 1, with rock contractor Hugh G. Jeffrys of Mt. Carmel employing three shifts in the raising and one during the sinking and within three months' time, the first car was hoisted from the new third level landing on September 26, 1938. The shaft extension not only boosted production on the new level but also eliminated three internal slopes in the Buck and Orchard veins previously used for hoisting coal up to the second level to then be hoisted by the shaft.

In addition to the deep mine expansion, a new steel breaker was planned to replace the aging wooden breaker in order to increase output and also reduce the risk of fires. The new breaker would be constructed to the east of the adjoining old breaker, in order to not halt coal processing, until the switch over between the two plants was ready to be made. Pouring of the foundation began in late October 1941 and soon, the steel structure began to rise. On July 2, 1942, the old Shaft breaker processed its last load of coal before being officially shut down. As work began to demolish the old breaker and switch over to the new breaker, coal was temporarily shipped to the nearby Silver Brook breaker for processing until the final touches were made. Finally, after undergoing two weeks of test runs, on September 3, 1942, the breaker went into full operation. Although smaller in size than its predecessor, the new breaker featured all-new processing equipment capable of producing 4,500 tons of prepared anthracite per day when operating two shifts. By 1942, the colliery had grown to employ over 1,400 men underground and 300 on the surface, making Hazleton Shaft the largest colliery in Lehigh Valley's holdings and Hazleton's single largest employer.

In mid-1943, work began on driving the shaft 200 feet down to the new fourth level of the mine in order to continue extracting the rich mammoth reserves in the Stockton and Sugar Loaf sections, which was completed by October 1944. Throughout the 1940s, seasonal flash flooding frequently halted development work between the fourth and fifth lifts, often leading to the suspension of work until the pumps could get a handle on the water. Such was the case in July 1945, when heavy rains accounted for a 40 percent decrease in Hazleton's anthracite production, and in July 1947, flash flooding attributed to a 200,000-ton production loss with fourth level being drowned out and idle for three weeks. During this

time, representatives of the Hazleton Shaft local United Mine Workers of America advanced a “mine flood control” project proposal to Washington, which requested federal assistance in the funding of the Glen Onoko Tunnel in order to improve the safety of working conditions and eliminate the periodic idleness from heavy rains. The proposal failed to arise necessary interest and was later dismissed. By 1948, development was advancing on the fifth level with the shaft landing beginning to take shape after reaching a depth of 847 feet from the surface. This time, however, only the two eastern compartments were deepened, leaving the two western compartments to remain at the fourth level.

End of An Era

As 1950 turned the corner, the market demand for anthracite continued to weaken while operational expenses continued to rise. One of the biggest cost contributors was the sheer amount of energy consumed for pumping, which had more than tripled from 14.4 tons of water pumped for each ton of coal mined in 1941 to 48 tons of water pumped per one ton of coal mined by 1954. With the winter of 1953 leading to an even further decrease in anthracite sales, Lehigh Valley could no longer sustain the high operational expenses attributed to running such a large operation. Therefore, on November 25, 1953, management announced the suspension of operations on third level Shaft, laying off 153 workers. The decision, made based on the exhaustion of veins on the third level, was then followed by the elimination of second shift on February 16, 1954, which laid off an additional 458 miners at Hazleton Shaft and 141 at Hazle Mines, leaving 640 to remain employed underground. The layoffs, which went by seniority, also curtailed the breakers’ output from its record peak of 5,600 tons per day down to 2,900 tons per day.

More grim news came at 1:15 p.m. on Monday, May 4, 1954, when management announced the termination of operations at Hazle Mines which at the time was producing 150 cars a day to feed the Shaft breaker. The cease order, which was made based on the high energy consumption for pumping while mining the ninth level, thus laid off 130 more workers leaving only a skeleton crew to maintain the pumps. Following the announcement, Hazle Mines union President Thomas Howley insisted the operational expenses were not that high and sought to take over the mine with other officials from the United Mine Workers by attempting to form a lease with the Company which would enact the Union to run the mine. Additionally, the decision was made to close the Lehigh Valley Coal Company district mining office located on East Broad Street in Hazleton. Management was then transferred to either the Shaft Colliery office at the No. 40 slope or to Lehigh Valley’s corporate office in Wilkes-Barre.

With the layoffs effective, management reduced the wage cost but still needed to maintain production in order to make the colliery feasible to continue operating. On May 14, Lehigh Valley issued an order stating that production at Hazleton Shaft must increase from 760 cars per day to 1,100 cars per day within one week or the Company would permanently close the mine. This 15 percent production increase, equated to 2.8 cars of coal loaded each day per man compared to the previous 1.75 cars of coal per man. The following day, the Hazleton Shaft local issued a statement that the miners agreed to do everything humanly possible in order to attain the company's goal and keep the colliery open. Two weeks later, Hazleton Shaft union President Joseph McCluskey reported an increase of about 145 cars per day from the shaft hoist within a seven-hour shift, stating that an additional shift hour would help in the return of empty cars for work the next day. Another suspension order came on June 21, 1954 calling to halt all rock work being done to driving tunnels and gangways for continued development inside the mine. The order, which laid off 35 contractors, further enhanced the feeling among the workers that the mine would never go any deeper. But the final disaster that would seal that collieries fate, was about to come.

On the morning of Thursday, August 18, 1955, the local weather reported that Hurricane Diane, which had struck the coast of North Carolina the morning prior, was headed directly for north and central Pennsylvania with a drenching supply of rain. In response to the approaching storm, workers were ordered to close all safety doors to seal off the mines' main pumping plant located 885 feet underground below the fifth level at the end of the shift. This plant was the home of twin electric-automatic centrifugal pumps- the mines true lifeline. The pumps were designed to automatically turn on and off based on a change in water elevation in the sump, thus eliminating the need for a constant pump attendant. Additionally, the pump room, constructed in rock, was designed to be sealed off during high water conditions in order to allow the pumps to continue pushing the water up 388 feet to the discharge at Tunnel X.

Diane struck Hazleton late Thursday afternoon, dumping 11.1 inches of rain on the city within 23 hours- the highest rainfall ever recorded in 55 years. The storm system, which had stalled over Hazleton, continued into Friday and was classified as the worst flood to hit the region at the time. As basements and streets flooded, and creeks and rivers rose, so did the Hazleton mine pool. On Friday, Hazleton Shaft Superintendent Hayden Owens, accompanied by other foremen, entered the mine to investigate for damage. Arriving at third level, water was observed to be 6 inches below the top of the Jeddo Tunnel as it exited the mine while fourth and fifth levels, which were actively being worked prior

to the flood, were completely submerged under 300 feet of water. Further investigation showed that the pumps, although isolated, were not operating, making it clear that either the safety doors failed or that water had come down from the third level and down them out.

Returning to the surface, some supervisors believed the immediate situation was hopeless. Owens later reported that although the company's main interest was to resume operations as soon as possible, no definite period could be set estimating when work could resume, adding that the water was still seeping into the mine and would need to recede from the third level before the lower levels could be pumped. In addition, Joseph McCluskey commented that the colliery might be idle for up to 30 days until the water level receded. Over the next couple of weeks, management assessed the damage and estimated that the cost to dewater the mine along with replacing all of the lost equipment and machinery ranged between \$750,000 – \$1 million (\$8 – \$10.7 million today). Moreover, it was estimated that it would take approximately six months to a year's time before the mine could be completely dewatered after which, several additional months of rehabilitation work would be required before mining could resume. Unfortunately, due to the company's financial situation at the time, and with no insurance to cover the damage, Lehigh Valley could not defray the tremendous capital to begin rehabilitating the mine.

By September, desperation began to hit the homestead. On the evening of September 9, more than 700 miners organized at the United Mine Workers building on West Broad Street in Hazleton along with union representatives to discuss actions to reopen the mine which had left 1,000 workers unemployed. During the meeting, a full report on the condition of the colliery was given, which identified the water elevation inside the mine to be 88 feet below the third level shaft landing and still rising. It was also brought to attention that since the flood, no attempt had been undertaken to begin pumping out the mine as the task was believed to be only achievable through financial aid. Joseph McCluskey concluded by asking the entire Hazleton area to join a regional-wide movement with the United Mine Workers and Lehigh Valley Coal Company officials to seek state and federal aid by requesting that every man, woman, and child write to their State Senator and State Representatives for help. Additionally, all union leaders at the international and district levels pledged to help the company. In response to McCluskey's plea, Dr. Edgar L. Dessen, President of the Greater Hazleton Chamber of Commerce, immediately wrote to several government officials including Joseph Kennedy, Secretary of Mines, and Thomas Kennedy, International Vice President of the United Mine Workers of America, stating that the city had hit massive

unemployment and was faced with the permeant closing of the Hazleton Shaft mine which represented \$3 million of annual income for the community.

Pennsylvania State Senator James Duff later responded to the City Council on October 8 that the federal government would consider a plan to drain the Shaft mine proposed by the State under the cooperative mine drainage program, but, that plan should benefit the entire coalfield as much as possible; not just one property. Additionally, he cited that the Commonwealth of Pennsylvania stated that no state funds could be employed in the operation, maintenance, or rehabilitation of flooded mines without a special act from the state legislature. Finally, Duff emphasized that neither the Civil Defense Administration nor the U.S. Army Corps of Engineers had the funds or legal authority to make monetary contributions to private entities. Though other agencies did respond with offerings of equipment, none offered financial assistance. On October 11, Thomas Kennedy and Mart Brennan, President of the United Mine Workers District Seven, along with Harry W. Bradbury, President, and Harold B. Wickey, Vice President and General Manager of The Lehigh Valley Coal Company, met with Director John J. Forbes of the United States Bureau of Mines in Washington to discuss alternative means to get the mine back in operation. Their efforts were also unsuccessful.

By late October the prospect of receiving any federal aid for dewatering the mine was looking dim. On October 19, the City Council read the response letters from Senator James Duff and Wilkes-Barre Congressman Daniel Flood which stated that The Lehigh Valley Coal Company did not request direct financial assistance from the government as its officials felt that the company could not qualify for direct aid under the current government regulations. Additionally, it was further emphasized that the federal government didn't have the legal authority to give loans to private industries on such a matter as pumping. Moreover, Flood added that he had heard many unverified rumors that the Coal Company had scheduled the closing of the Hazleton Shaft Colliery even before the mine flooded. Flood concluded that with Congress not scheduled to reconvene until January, there was little hope of any immediate action without enabling legislation.

As 1956 turned the corner, it became clear that no agency was willing to help the situation. During a U.S. Senate subcommittee hearing on proposed legislation to relieve hardship in depressed areas held in Wilkes-Barre on February 10, Thomas Kennedy adamantly expressed his concerns about the lack of efforts being done to help Hazleton's unemployed workforce, stating that the answers received by Legislators Duff and Flood were "inadequate." Urging on the importance of anthracite, Kennedy suggested that the U.S. should invest in its homestead rather than in foreign regions and that Congress

should set up a national fuel policy to explore exporting coal and prevent the importing of other international fuels. Moreover, Kennedy stated that the closure of the mine should be viewed as a national defense situation, explaining that it could take months to rehabilitate a shutdown mine along with its employment, should it be required for wartime efforts. With the suspension of underground operations in Hazleton, the Shaft breaker continued to run and process coal from nearby stripping operations while employing around 80 workers.

A King Dethroned

Lehigh Valley's anthracite production began to take an even further nosedive during the late 1950s due to the respective loss of market, forcing the Company began to begin divesting itself of its coal properties by leasing or selling them to other operators. On May 27, 1957, Hazle Mines was leased to coal operator Rudy Paulick from Luzerne, with authorization to re-mine the workings above the water level in specific areas approved by Lehigh Valley engineers. Though the reopening provided work for 43 miners, economic conditions and the quick exhaustion of coal above water level led to the mines' closure three years later. On June 10, 1957, The Lehigh Valley Coal Company was rolled into a subsidiary under the new parent company name of Lehigh Valley Industries, as the first step in the declaration of diversifying business operations into other industries other than anthracite mining. Over the next few years, three separate entities were acquired allowing the Company to expand into the manufacturing of furniture springs, automobile directional signals, and lamination assemblies for electrical components.

On April 1, 1959, Lehigh Valley leased three of its major holdings, which included the 2,032-acre Hazleton Shaft Colliery, to Pagnotti Enterprises of West Pittston, headed by Louis Pagnotti I- the largest coal stripping operator in northeast Pennsylvania. Under the new ownership, the Shaft breaker underwent an \$800,000 renovation in July which included the installation of a new heavy media circuit to replace the old Chance cone cleaning system to more efficiently separate coal from rock, a 20,000-ton capacity clean coal storage system, and the doubling of the breaker's retail coal pocket capacity from 1,100 to 2,200 tons. Although the Pagnotti firm did express interest in dewatering and reopening the Hazleton Shaft mine, nothing ever materialized and over time, the colliery became a memory. On October 4, 1963, Pagnotti Enterprises purchased all of Lehigh Valley Coal Company's anthracite holdings and assets at a sale price exceeding \$500,000. Finally, after selling its last coal operation on January 28,

1964, Lehigh Valley reported a \$25 million tax credit to its shareholders, thus officially dethroning the once-mighty firm, 89 years after it first entered the mining business.

Hazleton Shaft Colliery never reopened after the flood of 1955, but its massive breaker would continue operating until April 21, 1982, when the breaker was idled due to economic conditions. The breaker was temporarily put back into service for a couple of months during the summer of 1984 following a fire that damaged the Harleigh breaker on June 24. In 1998, a new company, Hazleton Shaft Corporation, formed and leased the Hazleton Shaft property to begin processing the 8-million-ton culm bank left behind by the old breaker. That same year, Pagnotti sold the Shaft breaker for salvage and on October 1, 1998, the largest monument to Hazleton mining vanished from history.