

Crayon drawing by Frank "WYSO" Wysochansky (1915-1994) – M C Korb Collection

## Coal Mining in Upper Lehigh, Butler Township, Luzerne County, Pennsylvania

Michael C. Korb, December, 2022

Pennsylvania has long been a leader in reclaiming legacy mining problems - abandoned mine land reclamation - and has completed reclamation of thousands of AML sites across the coal fields of Pennsylvania. One of those sites was in Butler Township.

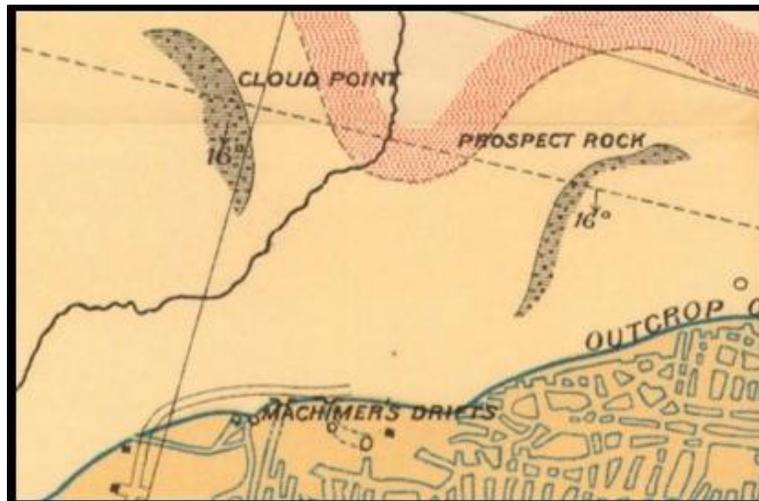
During 1998-2000, Pennsylvania's Department of Environmental Protection (PADEP) Bureau of Abandoned Mine Reclamation (BAMR) did work on a strip-mined site in Butler Township, reclaiming twenty-one abandoned mine "features" on more than two hundred and forty acres. One of those, the North Basin, was a water-filled strip-mine pit that swimmers and ice skaters frequented and had seen at least a dozen drownings over the years, dating from at least 1890. The project was on a site known locally as "Hell's Kitchen," which the Upper Lehigh Coal Company and its successors mined in the hundred years between 1864 and about 1970.



Figure 1. Hell's Kitchen Reclamation Project (Hazleton) *Standard Speaker*, March 27, 1998

Over 60 percent of the world's anthracite coal is here in northeastern Pennsylvania. During the 19th century anthracite coal was the fuel that ignited the Industrial Revolution in America. Our region became the land of opportunity – an expanding economy, growing communities, exploding immigration, innovations in transportation and industry. The eventual demise of the anthracite industry resulted in the opposite effect – a shrinking economy, loss of jobs, out migration, financially distressed local governments, and extensive environmental degradation. Upper Lehigh, in Butler and Foster townships, and the Upper Lehigh Coal Company were an important part of early Anthracite Industry.

It is believed that in about 1844, Joseph Birkbeck, an early settler of what is now Freeland, was the first to find coal in the Upper Lehigh area. Sometime before 1864, small scale coal mining in Butler Township began at a site referred to as “Machimer’s Drifts.” This mine was near a conglomerate rock outcrop known as “Prospect Rock,” just northwest of Upper Lehigh, shown on Figures 2 and 8 below. It is likely that John/Johannes Machimer/Mochamer/Machamer (c.1776-1863); his son Samuel (1804-1877) whose farm is recorded on Beers’ 1873 Butler Township map; or most probably, his grandson Nathan (1833-1900) dug the drifts. All three were Butler Valley farmers and are all buried at St. Johns Cemetery.



**Figure 2. Machimer's Drifts, Pennsylvania's Second Geological Survey AA Atlas v.2 pt. 2 plate 1**

Large-scale mining at the Upper Lehigh collieries began in 1866, then-operated by the Upper Lehigh Coal Company. Coal shipments began in 1867 when 16,252 Tons, 17 hundred-weight of the hardest, finest, anthracite coal went to market on the Lehigh & Susquehanna Railroad (L&SRR). Over the next one hundred years, men mined sixteen million tons of anthracite in Butler Township.

In the summer of 1872, an unknown news service writer wrote, *“Standing at the little village of Upper Lehigh, some one thousand nine hundred feet above high-water level and surrounded by the lofty hills, it is astounding to know that 350 feet beneath are men hard at work raising 200,000 tons of coal per year from veins fifteen feet thick.*

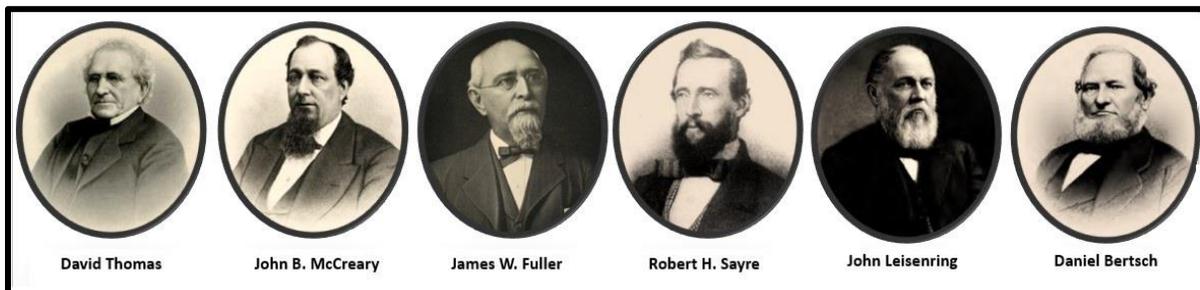
*By aid of an ingenious machine to break coal - one of the largest of the kind in existence – the valuable mineral is raised from these deep slopes. With extraordinary ease, the mineral is crushed into all requisite sizes, from the large lumps required by steamers to the little pieces used in our cooking stoves, all cleaned and made ready for market.*

*All day the powerful engines are kept at work raising the coal, and all night pumping the water from the mines.”*

A party of Mauch Chunk businessmen, including John Leisenring, Richard Sharpe, and Asa Foster, explored for coal in Luzerne County on lands of the Tench Coxe Estate of Philadelphia in 1854. Their partnership of Sharpe, Leisenring and Company leased land from the Estate and began work on the Council Ridge Colliery and the village that became Eckley. Members of this group, acting as the Nescopeck/Nescopeck Coal Company bought property around Upper Lehigh in what would become Butler, Foster, and Dennison townships. Later, acting as the Upper Lehigh Coal Company, they leased the "Hell's Kitchen" property from the Coxe Estate.

The origin of Nescopeck Coal Company's land purchase was recounted in an 1895 account published in the *Carbon County Democrat* by Edward H. Rauch. Rauch's friend Thaddeus Stevens, an abolitionist who would become a U. S. Congressman known as the "Great Commoner," had owned the 3000+acre Nescopeck Coal Company land, having gotten it as settlement of a \$3000 loan. Asa Foster approached Stevens about selling it, and Stevens sold the land to Leisenring and Foster for \$25,000 around 1860.

David Thomas, president of Thomas Ironworks in Catasauqua and a major buyer of anthracite coal, was President of the Nescopeck Company Coal in 1865. Thomas; Leisenring; and Robert H. Sayre, vice president of the Lehigh Valley Railroad and the Bethlehem Iron Company were directors. After advertising the property "for lease" in 1865, Leisenring, Thomas, Sayre and others founded the Upper Lehigh Coal Company to operate mines on the property, and many of its stockholders were involved in the business. Daniel Bertsch, Leisenring's brother-in-law and a partner in the company, was President of the Upper Lehigh Coal Company in 1865. He was also the first Mine Superintendent. William Powell and Samuel B. Price, also stockholders in the company, were the first Mine Foreman and Chief Clerk and Agent.



**Figure 3. Upper Lehigh Coal Company Incorporators 1865. various sources.**

John Leisenring (1819-1884) was then also Principal Engineer of Lehigh Coal and Navigation (LC&N), where he had been the builder of the famous Switchback Railroad. He went on to build a renowned career investing in the coal industry and building businesses that would continue to be controlled by his descendants for four generations. Known as the "Boy Wonder of Anthracite," Leisenring became involved in many coal mining partnerships starting in 1854. Council Ridge Colliery, Nescopeck Coal Co., and Upper Lehigh Coal Co. would be the first of a conglomerate of separate anthracite coal companies founded by Leisenring, his sons-in-law Dr. John Shriver Wentz and Mahlon S. Kemmerer, and their families. Anthracite companies included Upper Lehigh Coal, Hazle Brook Coal, Mary-D Coal, Silverbrook Coal, and others. The family went on to own and control bituminous and oil and gas companies, among which are now Westmoreland Coal and Penn Virginia Resources. Upper Lehigh Coal was the first mining venture in which John Leisenring held majority ownership.

The "Leisenring Group" was a circle of relatives and close friends of the allied Leisenring, Bertsch, and Wentz families who played leading roles in the development of the nineteenth century anthracite coal

and iron industries in the anthracite and Lehigh Valley regions. All either had work or marriage ties to the LC&N or Thomas Iron works. Companies controlled by the “Group” had about 15% of anthracite industry production from the 1860s into the 1920s.

Several members of the “Group” are in the 1890 photo in Figure 4. Edward “Ned” Leisenring, John Leisenring’s son and President of the Nescopeec and Upper Lehigh Coal Companies sits on the right. His uncle Daniel Bertsch, first President of Upper Lehigh Coal, next to him; brother-in-law Mahlon Kemmerer, owner of Sandy Run Coal next; Ned’s brother and successor after his death in 1894, John Jr., is standing on the left; and Dr. John S. Wentz standing next to him.



**Figure 4. The “Leisenring Group” 1890. *Kingdom of Coal*, colorized by deepai.org**

For more information about John Leisenring and his family companies, read *In the Kingdom of Coal: An American Family and the Rock That Changed the World*, by Dan Rottenberg, 2003.

Most anthracite towns were just groups of houses near the breaker or shaft and depended on nearby cities for stores and recreation. The village of Upper Lehigh was more of a planned village, laid out in 1865 into regular streets and blocks. The first building constructed was a steam sawmill in the fall of 1865. In 1866, with a convenient supply of local lumber, the company built the first twenty-five of a total of 205 miners’ houses. These were duplex structures equivalent to 410 individual homes. That same year they built a machine shop and a company store. A post office was established in 1867, and in 1869 the Upper Lehigh Hotel opened. The village included the “mansions” of the mine owners; the more comfortable houses of the mine superintendent, chief clerk, foremen, and company men; and the neat miners’ duplexes. All the homes were neatly fenced. It was known as one of the Coal Region’s most beautiful communities.

By 1880, there were three schoolhouses, two churches, a shoemaker, a community hall, a physician, and 1400 inhabitants. A Wilkes-Barre reporter described the village as, “without any exception the finest and most complete I have ever seen in the coal regions. The company houses were painted dark brown, with the windows and doors being white, which imparts to them a bright and cheerful appearance.” All the homes were neatly fenced. Munsell’s *History of Luzerne County* described it as “an exception to the rule in mining towns, as it is a model of neatness, presenting the appearance of a tidy New England village.”

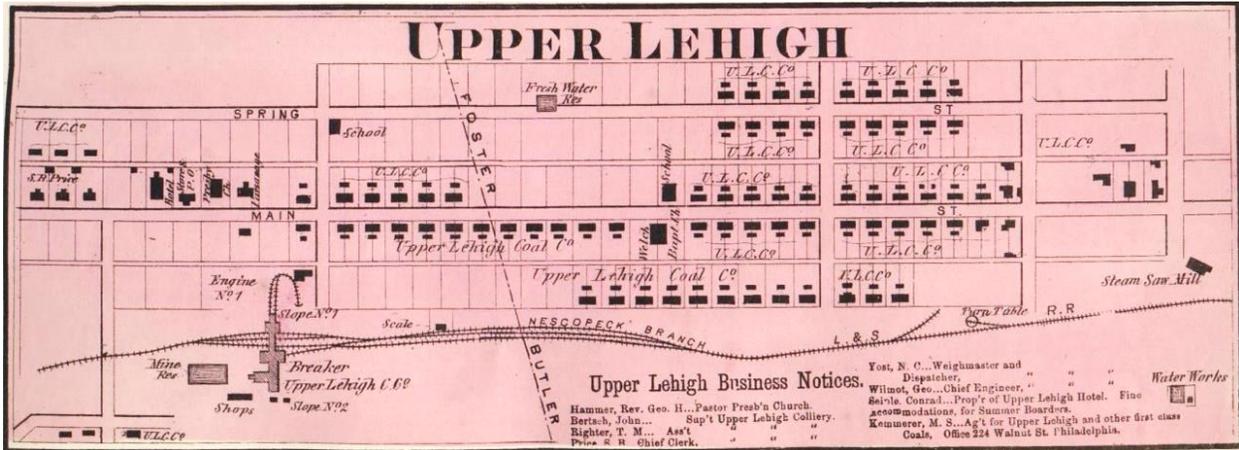


Figure 5. Upper Lehigh, *Atlas of Luzerne County*, by D.G. Beers 1873

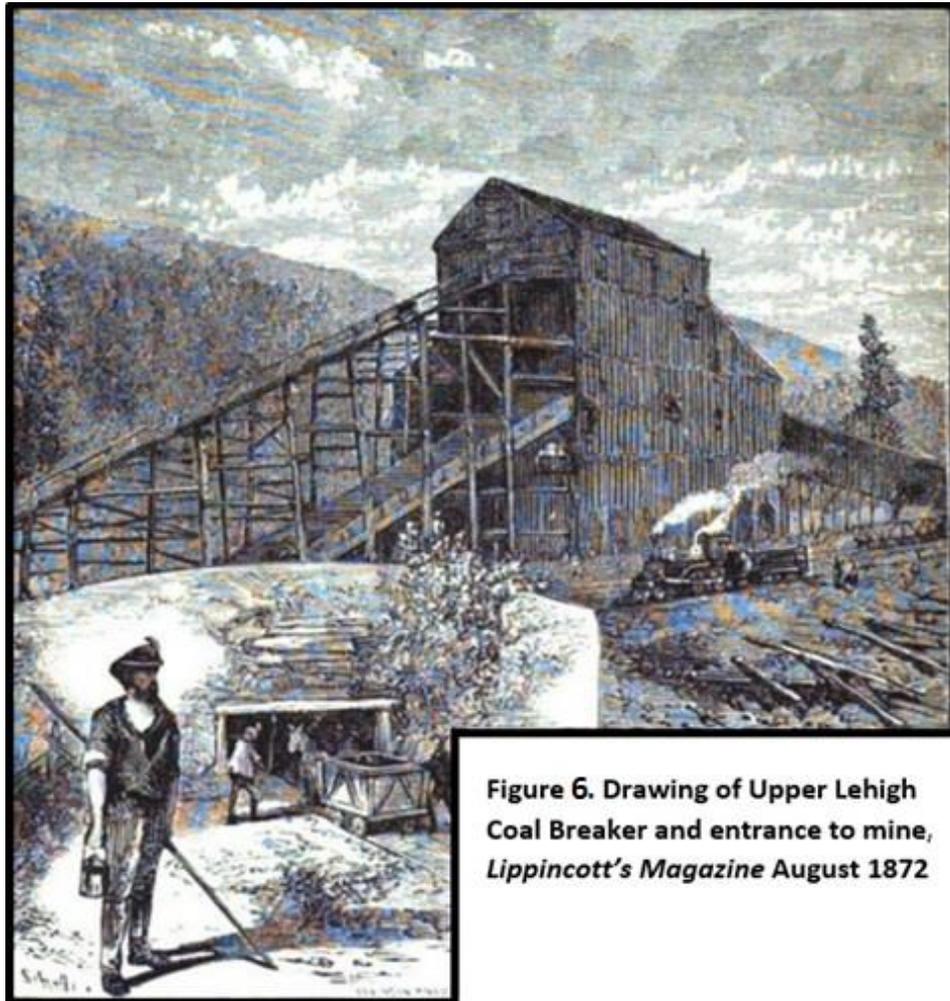
The L&SRR built its Nescopeck Branch line from White Haven west to Upper Lehigh to service the Coal Company. The first shipment of coal was on March 1, 1867. Early on, a single passenger coach arrived at 8:00 pm and carried several bags of mail to be delivered to the company store. Trains later came twice daily from Wilkes Barre and White Haven. Passenger excursions from New York and Philadelphia to Upper Lehigh in the 1870s through the early 1900s brought visitors to Upper Lehigh to enjoy the cool mountain air and sightseeing of the wooded valley vistas.

In 1872, Lippincott's *Monthly Magazine: "A Popular Journal of General Literature"*, described those vistas: *"Upper Lehigh - up among the mountains back of White Haven. New place, just chopped out of the woods: splendid scenery – rocks, ravines, cascades, good hotel...at the end of [the railway] is a coal-breaker, one of the best in the anthracite region."*

In 1875, a Lehigh Valley Railroad tourist publication also promoted the virtues of the area: *"The scenery was wild and rugged. A short walk from the hotel led to the top of Prospect Rock, which hangs over a deep precipice and commands a lovely view of mountain valleys. Facing it, across a narrow but deep gorge, is Cloud Point, the abrupt termination of a singular line of jutting rock which constitutes the backbone of the mountain. Between them lies the gorge called Amber Glen, or Glen Thomas,"* (after David Thomas, the President of the Nescopeck Coal Co.)

It continues, describing the glen as a: *"romantic spot, dark with the shade of tall hemlocks and filled with enormous masses of loose rock, many of them as large as a small house; while between the rocks and round the roots of the hemlocks prattles a beautiful little stream whose tawny waters have given the glen its better name and caused the loveliest bit of the stream to be called Amber Cascade."* The stream and glen are known as "Hell's Kitchen" today and are part of the Beech Mountain Lakes community.

Lippincott's Monthly also noted: *"The Glen has never been 'improved,' even to the extent of a footpath, and the visitor might fancy himself the first that ever entered it if it were it not for the places where a couple of idiots have scrawled their names in white paint."*

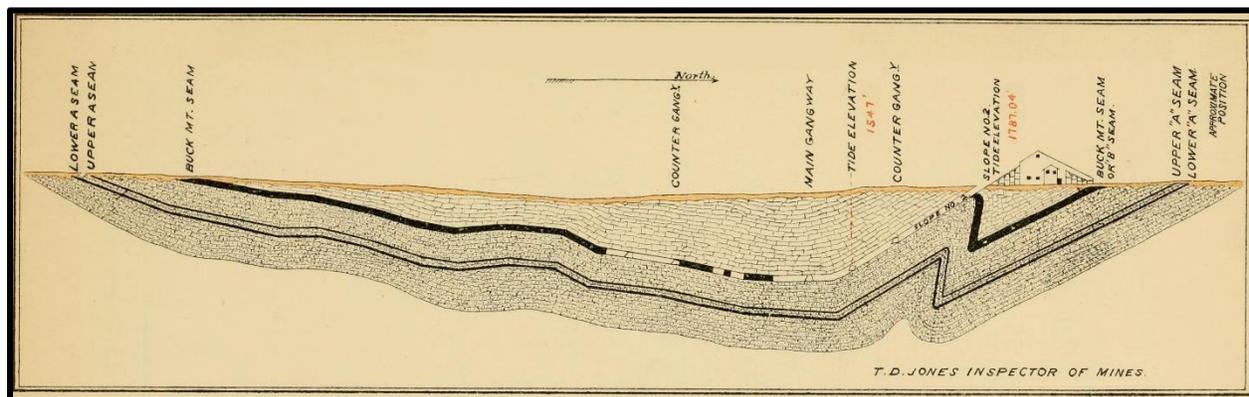


**Figure 6. Drawing of Upper Lehigh Coal Breaker and entrance to mine, Lippincott's Magazine August 1872**

Upper Lehigh Coal Company opened the mines in the summer of 1866. The colliery had two slope openings and a coal breaker. On October 27, 1869, the breaker burnt down, the "work of incendiaries." Newspapers supposed that the breaker fire was at the hands of union organizers or "Molly Maguires." The breaker had been insured for \$30,000 and damages were estimated at \$40,000. Upper Lehigh Breaker No. 2 was built on the footprint of the original and was in operation in 1870. Coal production in 1869 was 77,000 tons, as compared with 139,000 in 1868 and 157,000 in 1870. The 1869 production losses due to the fire were estimated at 27,000 tons. The Colliery was also idle May and June 1869, and for a week before the fire due to organizing efforts of the "Workingmen's Associations of the Anthracite Coal Fields of Pennsylvania," better known as the Workingmen's Benevolent Association or WBA, with those production losses estimated at another 30,000.

Slopes No. 1 and No. 2 and Beaker No. 1 were on the lands of Nescopeck Coal Company. The slopes were on the north side of the coal basin and driven to the south in the Buck Mountain coal vein, which had an average thickness of 12 feet of coal. Slope No. 1 was 320 feet in length and 150 feet vertical, and No. 2 was 330 feet in length, 191 feet vertical deep; with gangways running east-west. The breaker, with

inclined planes on two sides, was at the top of Slope No 2, as shown in the Figure 7 cross-section below, and it prepared the coal from both slopes. Cars were hoisted directly out of No. 2 Slope to the top of breaker on one inclined plane, and mine cars from No. 1 slope were pulled to the breaker and taken up on the opposite side on the other plane. The cars were drawn up the inclines by wire rope nearly two inches in diameter. About 600 cars daily were hoisted by these ropes, lifted more than 150 feet within the breaker inclines alone.



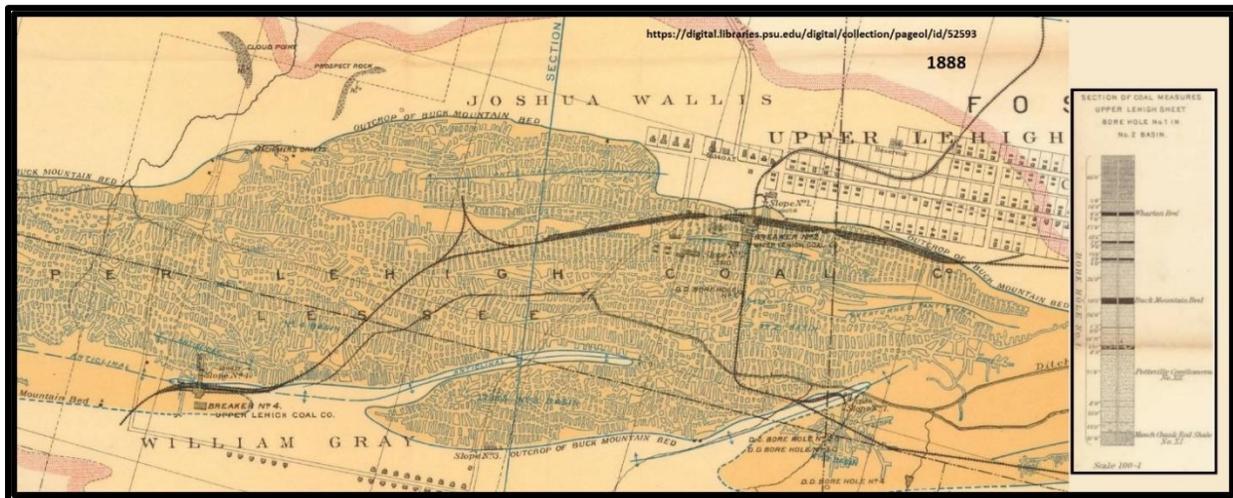
**Figure 7. Section through Slope No.2, Annual Report of Inspectors of Mines, Pennsylvania, 1878**

In 1870, the operation employed a total of 232 workers: 60 miners, 43 inside laborers, 12 boys inside, 73 outside men and 44 breaker boys. The company also employed sixty mules: forty-four inside and sixteen outside. The system of mining was known as “chamber and pillar work”. Coal was mined out of chambers 18 to 30 feet wide, and pillars 12 to 20 feet wide were left between the chambers to support the roof. If there were no rock partings within the seam, the entire thickness of the vein was taken out in one operation. Black powder was loaded into holes made with hand-rotary drills to break the coal from the mining face. Dynamite and “giant powder” use began around 1870, supplied by Paul Oliver’s mills at Laurel Run or Dupont’s mills at Wapwallopen. The blast would bring down the coal in large blocks. Miners used sledges to break the blocks to a size of 20 to 60 pounds, so men could lift them into mine cars which were about five feet high.

Speaking tubes were in use for communication in the mines. Ventilation in the mine was good, using furnaces to ventilate both slopes. Quite literally, the mines had furnaces at the bottom of the slopes that ran like a fireplace and chimney. Each furnace created an updraft, and the warmed air went up the slope (chimney) drawing the mine air out. This draft ventilated the mine, pulling outside air into other mine openings.

On October 28, 1874, a group of prominent mining executives and engineers, at a meeting of the American Institute of Mining Engineers left Hazleton by special Lehigh Valley Railroad train to visit several collieries on the north side of Hazleton including Upper Lehigh. After viewing the collieries of Coxe Brothers & Co., they traveled by carriages to Upper Lehigh. There Daniel Bertsch, Samuel Price, and Thomas M. Righter, mining engineer and assistant superintendent, showed them the colliery, slopes, breaker, and the sights of the village. They then rode to the west, where at Prospect Rock they saw “a wide and magnificent view, ranging many miles in extent, comprising the outcrops of the successive measures of the coal region.” They also visited the No. 3 Slope, miners sinking a new No. 4 Slope in solid rock with Ingersoll power drills, and the locale of the breaker which would be built in 1875. All of these on the leased property of the Coxe Estate, west of Upper Lehigh, the area BAMR reclaimed and called “Hell’s Kitchen.”

That No. 4 Breaker, about 1¼-miles west of No. 2, went into operation in 1875, although it wasn't completed until the spring of 1876. It also was a double-plane breaker, hoisting cars from the No. 4 Slope directly from the mine, and coal from the No. 3 slope hauled ½-mile by a locomotive to the other side of the breaker. This was known as No. 4 Colliery. A group of tenement houses for the miners built near Colliery 4, No. 4 Breaker, and Slopes 3 and 4 are shown on Figure 8 below.



**Figure 8. Upper Lehigh Coal Company mining, Pennsylvania's Second Geological Survey Atlas 1888**

The 1975 report of the state mine inspector remarked, *"They have furnished maps of their workings, made to a scale of 100 feet to an inch. They have a wash house for men to wash themselves. There are no boys under 12 years working inside. They do not allow persons to ride upon loaded cars in the mines. The engineers seem to be experienced, competent and sober men. The mining boss is a practical and competent man. The management of the colliery speaks for itself and is worthy of commendation."*

In the late nineteenth century, the anthracite region had a succession of labor organizing movements that erupted in several labor wars. One of those in 1869 when the No.1 Breaker was burnt, and industry unrest and strikes again in 1871, 1875, 1877, 1887-1888, 1897, 1900, and 1902. A violent affair reached as far as Upper Lehigh again in March 1875, when there were riots in Schuylkill County, Harleigh, Eckley and Buck Mountain. The press reported one 1875 incident as, *"brigands, in number between 200 and 400 men, accoutered with every conceivable kind of weapon,"* obeying a commander. *"Traversing the region, shooting and otherwise maltreating innocent, unoffending people, plundering, firing, disabling, and destroying company property. Many non-union engineers and miners, having incurred the outlaws hate, and fearing a premature and bloody death, have left the country. The Upper Lehigh Coal company's works are entirely crippled, and it will cost, at the lowest estimate, \$25,000 to repair the damage by the Mollies."* This and other 1875 troubles resulted in production halved from 1874 and 1876.

The 1875 *Annual Report of the Secretary of Internal Affairs of the Commonwealth of Pennsylvania* gave account of 498 men and boys employed at Upper Lehigh with wages shown in Figure 9. The company worked only 142 days because of the labor unrest and sold 133,101 Tons, for operating revenue of \$314,119.42 or \$2.3 per ton. A Whitney McCreary & Kemmerer advertising broadside, Figure 10, taken from the *History of Freeland* webpages <http://freelandhistory.com>, used by permission, shows 1875 sales prices at Mauch Chunk.

With minor change between then and today, anthracite was was/is, separated and marketed in distinct sizes. In 1875 Upper Lehigh sold coal as Lump (+6½"), Steamboat (+4 ½"- 6 ½"), Broken (+3 ¼"- 4 ½"), Egg (+2 5/16"- 3 ¼"), Stove (+1 11/16"- 2 5/16"), Chestnut ("Nut" today, +1 5/16"- 1 11/16"), and No 2 Chestnut (Peanut or Pea , +5/8"- 1 5/16"); and in 1877 added Buckwheat (Buck, +7/16"- 5/8") sized coal.

Upper Lehigh Coal Co. Wages Paid 1875				
Classification	No. of men	No. of boys	Wages paid men	Wages paid boys
Miners on contract	113	-	\$2.75	-
Miners on wages	28	-	2.22	-
Outside laborers	86	-	1.50	-
Inside laborers	69	-	1.90	-
Outside mechanics	16	-	2.40	-
Inside mechanics	3	-	2.25	-
Outside mule drivers	4	4	1.75	\$1.15
Inside mule drivers	17	6	1.90	1.25
Dumpers and laders	14	-	1.60	-
Slate pickers	3	66	1.40	0.55
Mining overseers	3	-	4.00	-
Civil engineers	2	-	4.00	-
Door tenders	-	20	-	0.65
Clerks	8	-	3.00	

Figure 9. Wages paid 1875, PA Annual Report

All Orders subject to any change that may be made in prices previous to Shipment of Coal. And all sales subject to usual Conditions.

**WHITNEY, McCREARY & KEMMERER,**  
187 South Second Street,

**UPPER LEHIGH COAL.**  
COUNCIL RIDGE COAL.

Agents for the above celebrated Family Coal. Also, for Coal from all the Mines of the

**LEHIGH AND WILKES BARRE COAL CO.**  
And other first-class LEHIGH and WYOMING COALS; also for

**BITUMINOUS COAL**  
From the best Mines in Pennsylvania, and George's Creek Cumberland.

Philadelphia, October 1st, 1875.

The following prices will be charged at Mauch Chunk, for Coal shipped during the month of October, or until further notice.

	LEHIGH.	WYOMING.
Lump, - -	\$3.25	
Broken, - -	3.50	
Egg, - -	3.60	
Stove, - -	3.85	
Small Stove, (Honey Brook)	3.60	
Chestnut, - -	3.25	
No. 2 Chestnut -	1.50	\$1.75

Railroad Freight to Phillipsburg, - - - - - \$1.15  
" " " " on tide Coal, - - - - - 85

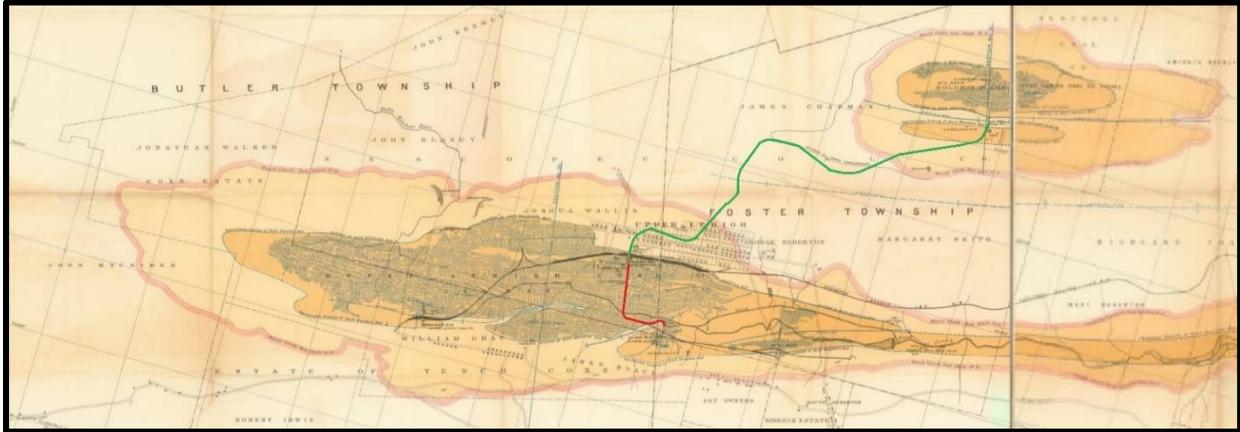
Figure 10. 1875 W-M-K Broadside

The sale Pea and Buck at that time is a curious piece of history, when we realize that sales of these smaller sizes were not common at that time. Those sizes were burnt to raise steam at the colliery or disposed with the other smaller coals as part of the "culm." Successful experiments to burn smaller sizes were made around the mid-1880s by some boiler manufacturers. Prior to 1869, the smallest marketable coal was Nut (plus one inch), that year was the first sales of Pea (plus five-eighths inch). Buck coal (plus half an inch) first appeared separately in rail tariffs in 1878. In the Lehigh Region, only Upper Lehigh and LC&N collieries marketed Pea-coal in 1877.

In the early years of Upper Lehigh, coal sales were made through the LC&N and Samuel Bonnell Jr. of New York City. Whitney, McCreary, & Kemmerer was formed in 1870 by three members of the Leisening Group: William B. Whitney, George D. McCreary, a U.S. Congressman, and Mahlon S. Kemmerer. In about 1876, they became exclusive sales agents when they opened an office in New York City.

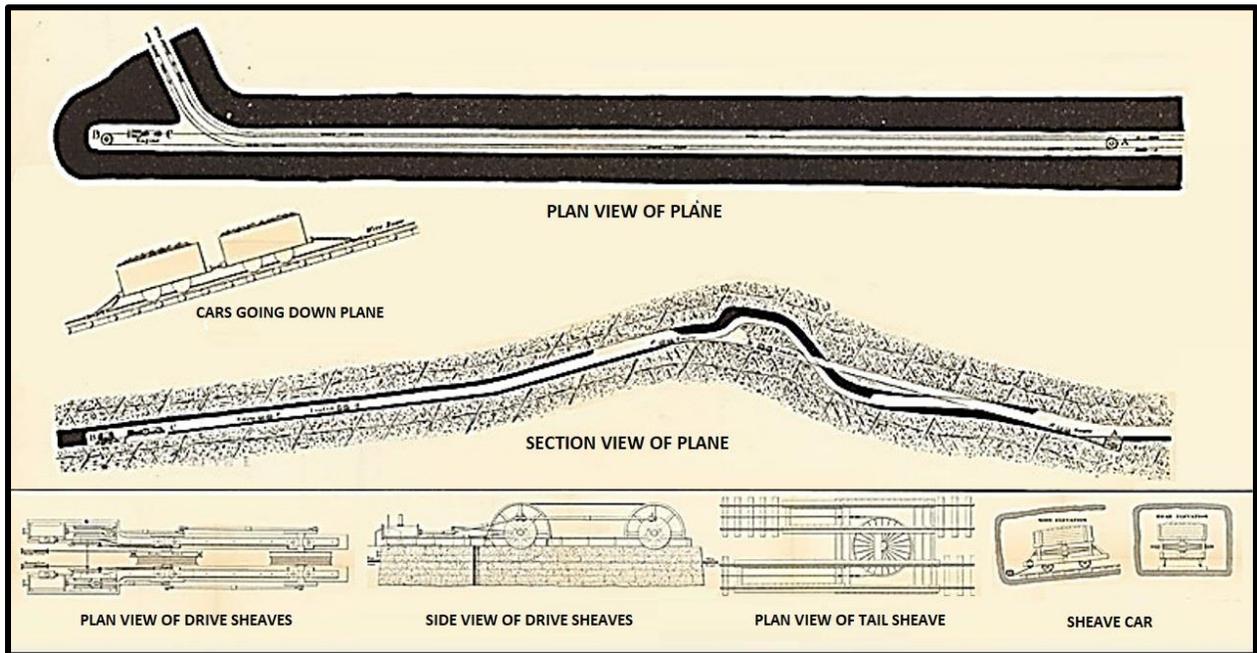
During the period 1879-1882, Upper Lehigh increased production to nearly 400,000 tons per year. A new slope was sunk in the Green Mountain basin, in Foster Township, which was part of the original Nescopock Coal property. Slope No. 5 was a single-track slope driven to the basin and then to the surface on the opposite pitch at the other side of the coal measures, about 1000' south. A new rail line, shown (green line) on Figure 11 below, took the coal to about two miles from the north and east to the No. 2 Colliery.

A Slope No. 6, southwest of Upper Lehigh village in Foster Township, was also dug and connected to the Colliery with about a mile of track, shown (red line) on Figure 11. A new locomotive from David Clark's Lehigh Valley Railroad Car, Engine and Machine Shops in Hazleton began running on the No. 6 rail line in 1883.



**Figure 11. 1888 Map of Upper Lehigh/Pond Hill and Green Mountain Coal Basins, showing No.5 Basin**

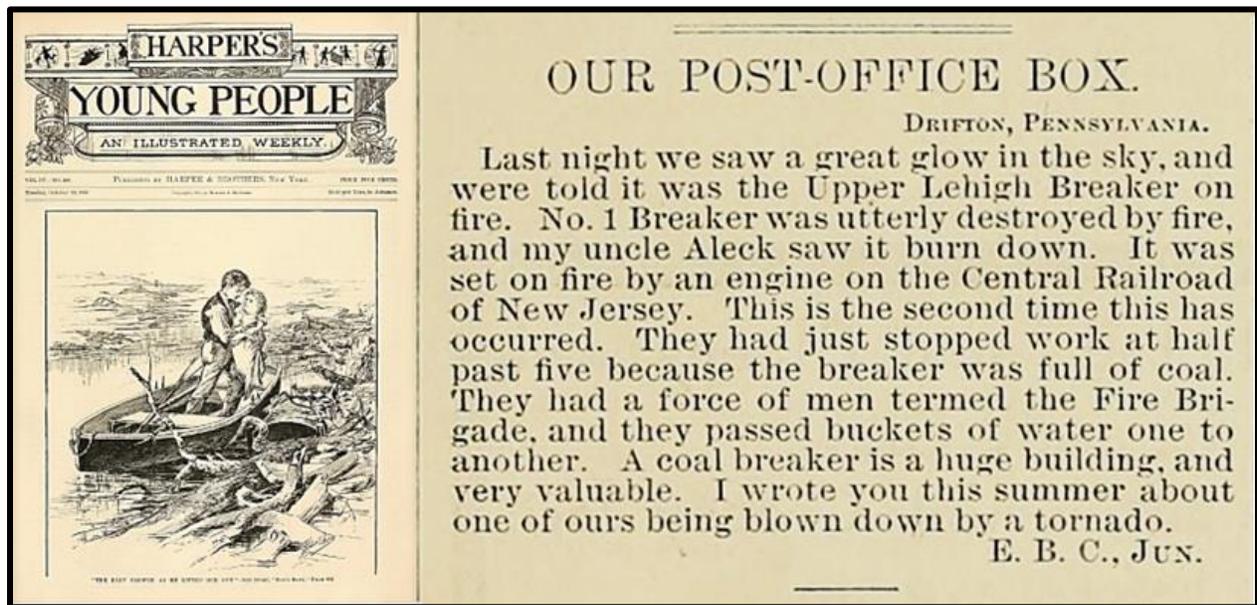
A connection between the two collieries was excavated and use of No 3 Slope was abandoned. Coal from the No. 3 colliery was hauled to No. 2 Breaker via that connection and a new rope haulage system, sometimes known as “engine plane haulage.” Wire rope haulage was the dominant haulage technology for the main haulage ways of underground mines then. Engine Plane was a single continuous-rope haulage system used to move empty cars into and to pull loaded cars from a mine at the same time. One part of the rope winds off a drum as another part winds onto it, allowing cars to go in and cars to come out. Upper Lehigh’s system was about 1000-feet long, with several “switchbacks.” The system increased the mine’s haulage capacity substantially.



**Figure 12. Schematic of Engine Plane Haulage System. From H. M. Chance, 2<sup>nd</sup> Geologic Survey**

At the end of 1882, Upper Lehigh had 546 men and boys working. This included 4 mine bosses, 6 engineers and pumpmen, 121 miners, 115 miners' laborers, 8 road repairmen, 26 drivers and car runners, 15 plane runners, 27 oilers and door-boys, for a total of 322 inside. Outside workers were 224; 8 breaker and screen bosses, 10 hoisting and pumping engineers, 8 firemen, 4 machinists 11 carpenters and blacksmiths, 63 breaker men, 82 slate pickers, 9 teamsters and stable bosses, and 23 superintendents, clerks, and bookkeepers. The collieries worked 87 mules and horses. During 1882 there were 2 fatal accidents, John Randah, Hungarian laborer by fall of coal, and William Ashman, American miner by fall of top-rock, and 8 non-fatal accidents: the best safety record in the Southern District of Luzerne and Carbon Counties.

No. 2 Breaker was destroyed by a fire caused by sparks from a passing locomotive in September 1883. According to the Hazleton Sentinel, *"The spark could have been extinguished by a bucket of water, but in minutes, the flames ran up the plane and into the breaker. Hoses and buckets of water proved to be too little too late."* The breaker, twenty coal cars and a freight depot went up in smoke. It must have been quite a sight, as it was seen from the eleventh floor of the Markle Bank Building, 175 feet above Broad Street in Hazleton and from households all around. Eleven-year-old Eckley B. Coxe Jr., seeing it from his family's home in Drifton three miles to the south, was impressed enough by the sight to write a letter published in *Harper's Young People* magazine, which can be seen in Figure 13.



**Figure 13. Eckley B. Coxe, Jr. Letter, *Harper's Young People* magazine, October 23, 1883**

The incident idled Nos. 1, 3, 5 and 6 Collieries for a brief period, but there was negligible effect on production. Cars were rerouted to No. 4 Breaker, which went on around-the-clock and weekend for the three months that it took to rebuild the No. 2 damage. No. 4 operated 295 days in the year, and No. 2 Breaker resumed operation in March of the next year.

Over seven hundred thousand feet of lumber was used in its reconstruction. The capacity of the new breaker was about fifteen hundred tons per day. There were nine Jigs with engines attached, eight screens, one shaker, four sets of rolls, and one set of crushers in it. A new pair of hoisting engines, and a new breaker engine were also installed.

The reconstruction was necessary to make the coal marketable. Run-of-mine coal contains rock, slate, and “boney,” the latter a dull looking coal with imbedded impurities that burns poorly and creates excessive ash, all of which must be separated from the coal. The anthracite must also be broken and sorted into sizes before it can be marketed. This was and is still accomplished in the centerpiece of the colliery, the coal breaker, shown in Figure 14.

The breaker in this photo was seen from the home of mine foreman Adam Lesser, used by permission of the Greater Hazleton Historical Society. A note says, "*note 'Lokie' in foreground.*" A bit of the "Great Stone Stack" is at the rear of the breaker. It stood close to sixty feet tall. In the middle of the photo is a single plane over which coal cars from the No. 1 Slope, the No. 5 Slope and, after about 1888 the No. 5 strippings, were hoisted into the breaker. On the end not seen was a double-track plane, where coal cars from the No. 2 Slope, and from other slopes and strippings went into the breaker.

After the run-of-mine coal was transported to the top of the breaker and dumped, it passed across gratings of iron bars 4 to 7 inches apart. The lump material that passed over the grate lands on a platform where shale and large pieces of boney were removed by hand by boys and men “picking” the coal. The coal was broken into smaller sizes, passing through pairs of iron rollers with projections, or teeth, revolving together. Large-sized coal passed over incrementally sized grates and smaller sizes passed over incrementally sized metal screens or perforated plates to separate it into market sizes. Fine sized coal, dirt, and silt would pass through all the screens and rejected into culm/refuse piles.



**Figure 14. No. 2 Breaker ca. 1900, Greater Hazleton Historical Society, colorized**

A second cleaning of slate and boney occurred after sizing with the larger sizes, lump, broken, and egg, again being cleaned by hand pickling. Smaller prepared sizes would have been cleaned by “jigging” or “float and sink” machines where the slate and boney were removed by their greater specific gravity. Jigs were open tank filled with water, with a thick bed of coarse heavy particles (ragging) on a perforated screen. The small sized feed poured into the top, water was pulsated up and down (jigging) by pneumatic or mechanical plungers. As the feed moved across the jig bed, the heavier particles (slate and boney)

penetrated through the ragging and screen plate, “sank” in the water and were rejected, and the jigging caused the lighter coal to “float” and washed to product chutes by a crossflow of water.

The cleaned sorted coal would then be sent to “pockets” to be loaded out into rail cars, and the rejected waste slate and boney material would be sent to waste piles or combined with the dirt, silt, and smaller, unmarketable coal into “culm” piles.

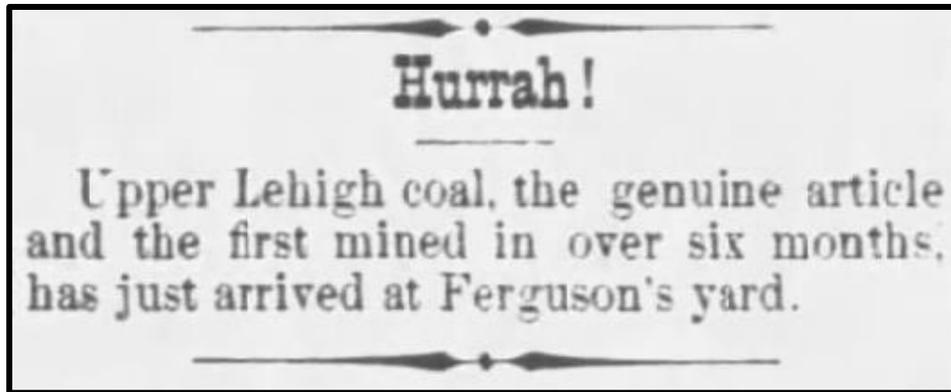
A new mine law was passed by the Pennsylvania Legislature in 1885. Among other things, it required certification of mine foremen; prohibited the employment of women and boys under 12 years of age inside or outside of mines and boys under 14 inside mines; prohibited construction of breakers or other flammable structures over mine shafts; and tried to legislate what mine supplies were to be provided by companies. Upper Lehigh Coal Company set a historic safety standard in 1887 when no fatalities were recorded and duplicated that again in 1888. Despite mine safety laws, Pennsylvania’s anthracite mines claimed 2,703 lives in the decade 1876-1887. The year 1887 was one of the best safety records for the industry up to that time, perhaps because of the 1885 law. In 1887, 316 lives were lost in the industry, one for every 337 men working, one for every 133,000 tons mined. Statistically, Upper Lehigh would have expected more than 2 men to die by those yardsticks.

Twenty years of mining laws and labor organizing had done little to improve the working conditions that were at the base of the industry’s poor safety record. In the anthracite region, unsteady work added to the mine-worker’s burden of accidents, low wages, the cost of mining supplies, and living under regular debt. Anthracite, mainly a domestic fuel, suffered from seasonal variation, and most mines, Upper Lehigh an exception, worked less than eight months out of the year.

Bituminous labor organizers helped Schuylkill miners to start new union in 1884, the Miners and Laborers’ Amalgamated Association. They recruited English, Welsh, and German miners in the Schuylkill and Lehigh regions. Irish miners, however, were more at home in the resurgent and competing Knights of Labor. Overcoming ethnic animosities, the two unions abandoned competition in 1885 and formed a joint committee to coordinate action.

In August 1887, the unions demanded a 5 percent pay increase. The Lehigh Region independent operators led by Ario Pardee, rejected the offer, and rejected the unions. Some 20,000 miners in the Lehigh Region walked out September 10. The Lehigh Region strike involved forty collieries around Hazleton, sixteen in Lansford/Summit Hill and five around Shenandoah. Companies tried to get immigrant workers to return to work, but they held with the union. Non-mining immigrant hires proved to be a mistake. Many miners left the area for jobs with other mining companies that had reached agreement with the union. The strike ended with the union only winning a minor reduction in the cost of mining supplies, and the Upper Lehigh strikers, who had been among the last to walk out, began returning to work in late February 1888.

Newspapers reported, *“At Upper Lehigh the men were quietly going to the office all day yesterday and giving their names as willing to work...This place wore sort of a holiday appearance again, something like the first few weeks of the strike, for each train coming to town brought men back from other region who had heard of the break [in the strike] here and came home to look for their work. The streets were full of people all day and although the results of the strike are not what was anticipated, still everybody seemed to wear a smile.”*



**Figure 15. Ad in *Ocean Grove Record* NJ newspaper**

By this time however, Upper Lehigh Coal was finding it harder to get coal to put through the breakers. As shown on the circa 1888 map in Figure 8, the Buck Mountain seam, the only easily workable seam at Upper Lehigh, had been extensively mined in the Butler Township-Hell's Kitchen area of the Coxe and Nescopeck properties for twenty years. The only coal available was some first mining in Basins 5, 6, and 7; second mining robbing pillars in Basins 1-4; and thinner coal seams above and below the Buck Mountain.

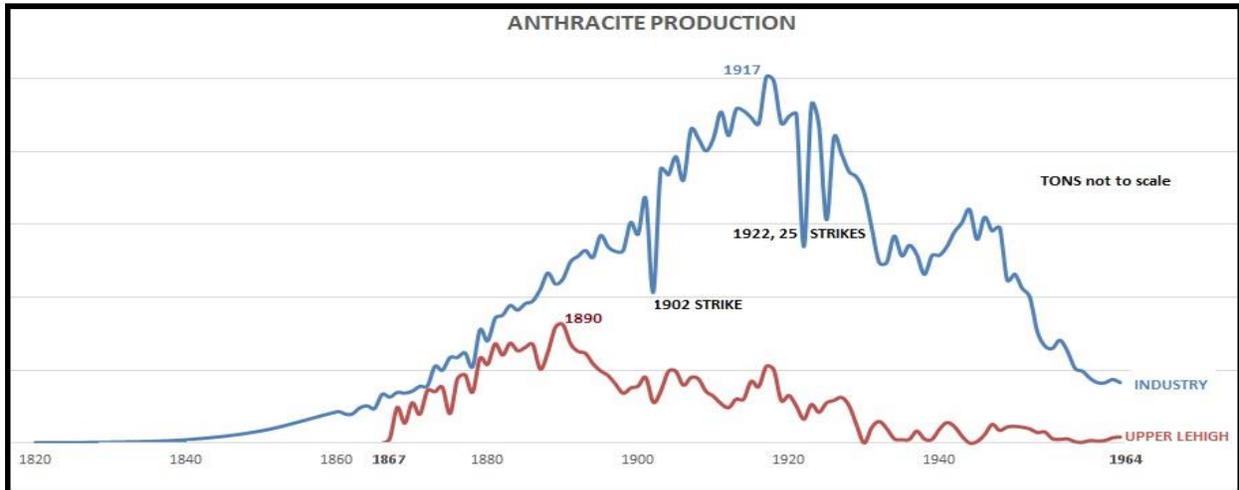
The Hell's Kitchen area contained three coal seams above the Buck Mountain. There was a three-foot bed about sixty feet above the Buck, another three-foot seam 25 feet higher, and 35 feet above that a 4½ to 6-foot-thick Wharton seam. A vertical shaft was sunk 160 feet deep, cutting through those three overlying seams of coal, and trial gangways were driven into each of those three veins. The Company also engaged stripping contractors to remove the Buck Mountain outcrop coal and excavate the light/shallow soil-cover areas over parts of the other three seams.

At the first meeting of the American Institute of Mining Engineers in 1871 and for several years after, a main topic of the technical presentations and discussions was preventing waste in mining. Coal stripping, removing cover material from the coal seam and then digging the coal was a method recommended where equipment could be run economically. An anthracite coal stripping by Calvin Pardee & Co. was begun in 1874 at the Hollywood Colliery north of Hazleton (which had been part of Butler Township until a dozen years before). The stripping at this colliery continued until 1899. The percentage of the coal removed was 98.3 per cent of the original contents of the seam, not leaving the coal pillars needed in underground mines. These results became famous in the industry and starting before 1888, increasing amounts of stripping coal were sent to the Upper Lehigh breakers. The Freeland Tribune reported that on June 8, 1890, a 16-year-old boy, Malcolm McAvoy drowned "*while bathing in an old stripping in Upper Lehigh.*" So, it is likely that stripping in the Hell's Kitchen began before 1888.

These new sources of coal showed immediate results, with Upper Lehigh Coal Company's two highest production years occurring in 1889 – 452,059 tons, and 1890 – 463,628 tons.

The anthracite industry had seen nearly constant year-over-year production gains from its first shipments until 1917, when the industry produced over 100 million tons. The Upper Lehigh Coal Company had "caught the wave" when the industry grew after the Civil War and had seen constant production gains, until 1890. The year 1890 was the high-water mark for mining in Upper Lehigh.

The Upper Lehigh Coal Company was a very profitable business up to 1890. Slope mines in coal seams close to the surface needed only a small capital to prepare for mining, and the only large expenses were for ventilation, pumping, and coal preparation, and the company's miners' productivity was higher than the industry's most years before 1890. The Upper Lehigh Coal Company and Nescopeck Coal paid 30 percent profits on a regular basis. The Leisenring family's sales group also was getting profits from the Upper Lehigh coal. However, the family's modus operandi of taking profits from one operation to open new ones, and the Upper Lehigh's relatively small coal reserve in only one easily minable seam had started to catch up with the operation.



**Figure 16. Upper Lehigh vs. Anthracite Industry production comparison, 1867-1964**

Although the company continued to make improvements and look for new sources of coal, the exhaustion of the Buck Mountain seam in the Hell's Kitchen area continued a downward trend in production. In 1891, most of the underground mined coal was coming from Slope No. 5 in Foster Township, and an attempt was made to mine an upper three-foot seam from the No. 4 slope in Butler Township. A second shaft cutting the three upper seams was sunk south of Slope No. 2 and a new No. 8 Slope was opened at the eastern end of the property, to mine the remainder of the Buck Mountain coal in the basin.

At the No. 2 Colliery a new building was erected with two sets of rolls and screens, conveyors, and elevators, for the rebreaking and sizing of bone coal from the breakers and culm piles to use for boiler coal, and to prepare smaller sizes for markets as they developed. This first washery burnt down in 1894.

Also in 1891-1892, the Company opened a stripping at the west end in No. 9 Basin, and A. E. Dick & Company was contracted for a stripping in the No. 5 basin, expecting to remove more than 100,000 yards of overburden per year. In 1895 the Pennsylvania Geologic Survey reported, "*The Upper Lehigh Coal Co. have practically mined over all their Buck Mountain area and are now getting additional coal by stripping.*" More strippings opened each year and were gradually becoming the dominant method of mining at Upper Lehigh, with some mines operating several steam shovels, while some still dug the surface material by hand. Mining with steam shovels in the 1800s and hand excavation and using these first steam shovels were both very labor intensive. Draglines and shovels were moved on rails but were jacked off its wheels and supported on wooden blocks at each working location for support when digging. Each Upper Lehigh stripping location had between 30 and 100 workers. In 1892 the Company still had 359 men and boys working inside the mines.



**Figure 17. Typical anthracite stripping operations 1890s**

There were two big engineering problems in mining coal underground:

- A system to ventilate the mine and to supply fresh air to the miners.  
A special problem in coal mines was removing explosive methane gas that often occurs in a coal seam. Today electric-powered fans are used to ventilate the mines and dilute and remove the methane. Electricity didn't come to Upper Lehigh until 1896, but the Coal Company had managed ventilation well from the beginning of its mining. They utilized natural ventilation and furnaces at first and added steam-powered fans early on. Upper Lehigh Coal was one of the first users of ventilation fans in the anthracite region with a fan installed in No. 2 Slope in 1872.
- A system to drain water from the mine.  
All mines have water in them. They encounter groundwater and collect precipitation. In many drift mines a slight pitch allows water to discharge by gravity. In slope mines and shafts gravity drainage is impossible, especially at Upper Lehigh where the canoe-shaped coal basin caused water to accumulate at the bottom of the basin. In effect, the mine became a big bathtub with no drain. The water had to be pumped out by steam power and later by electricity. Surface strip pits also had to have water pumped from them as the coal was removed.

At Hell's Kitchen, dewatering was a particular problem. The area was rather level and naturally swampy and diverting the water away from the mines was difficult. In addition, as more slopes and stripping pits were dug the water pumped from one slope or pit often flowed into another or into caved areas near outcrops, needing to be pumped again. An extensive system of man-made earthen channels, ditches, and wooden flumes were constructed and maintained. Water pumped to these features flowed gradually several miles to Pond Run in South Heberton/Freeland. When heavy rains occurred, these ditches often backed up, overflowed, and went back into the slopes.

G.B. Markle & Co. operated mines in Jeddo and Highland and had mines that had flooded in the 1880s in Ebervale and Harleigh when the relocated Black Creek overflowed its banks and entered the mines. In November 1890, Markle's Jeddo Tunnel Company announced that a four-mile rock tunnel would be constructed to drain the mine water to the Butler Valley and the Nescopeck Creek in Butler Township. The Jeddo Tunnel was dug between 1891 and 1894. Charles D. Linskill, editor of the *Wilkes-Barre Telephone* newspaper wrote during the construction in 1894, "*It will lead the water out of several extensive mines and thus save the expense of putting in and using many powerful pumps. It is presumed that inside of six months the Little Nescopeck will be blackened and blasted by the mine water from the deep mines.*" The tunnel began discharging water in March 1895 and the creek turned acid, fish died, and

silt washed into the Nescopeck. (The drainage tunnel today is one of the largest polluters of the Susquehanna River Basin.) Other anthracite operators made plans to build tunnels and quite a few were built, the one-time cost of digging a tunnel was much less than the ongoing cost of operating pumps.

The Hazleton *Plain Speaker* reported in April 1895 that the Upper Lehigh Coal Company had surveyed and begun digging a tunnel that would drain sulfur water from the No. 5 Basin to the Little Bear Creek to the Oley Creek and to the Nescopeck Creek, polluting the steams and ruining the fishing. Freeland and Hazleton residents protested to John Leisenring, Jr. who was in the middle of his term as a member of the U.S. House of Representatives for Pennsylvania's 12th congressional district. The tunnel never was built. Some of Upper Lehigh's mine water today flows eastward through abandoned underground workings until it surfaces in Pond Creek east of the village of Pond Creek, while some can be seen in the ponds of Hell's Kitchen and runs off with surface water overflows.

Despite the deforestation, coal strippings, culm piles and mine dewatering for forty years, a visitor from the Wilkes Barre *Record* again applauded the town's features, *"We find here a very neat, clean mining town...The Temperance Hotel built by the company cannot be surpassed in the State. The house is one of the most popular summer resorts. It is surprising, on one hand, to see so many from New York, Philadelphia, and other cities, come here to the top of the mountain, to a mining region, surrounded by woods. But on the other hand, it is one of the healthiest places in the State. 1,900 feet above tide water, overlooking the beautiful valleys of Nescopeck and Butler. It is entirely free from malaria. Has four trains daily to, and from principal cities (Sundays excepted.) Good trout fishing, beautiful scenery, and pleasant drives."*

On September 10, 1897, a seminal event in American labor history occurred, the Lattimer Massacre. It was part of the anthracite strike of 1897 which occurred mostly in and around Hazleton. The strike had insignificant effect on Upper Lehigh operations, but miners participated in the sympathy strikes that occurred in the second week of September.



Figure 18. "Toward Lattimer." (Unknown).

The *Freeland Tribune* reported on Monday September 13, *"The collieries here shut down this morning. When the employees assembled at the different slopes the indignation at the Lattimer massacre was so great that the men decided unanimously to return home and attend the funerals at Harwood. The Slavonians and Polish employes [sic] heartily endorsed the move and the works came to a sudden stop."*

The *Wilkes-Barre Evening Times* said, *"The turning out of the Upper Lehigh men this morning was not in the nature of a strike, but it was simply thought wise to attend the funerals of the victims of Friday's unfortunate encounter."*

A main cause of the strike had ties to Upper Lehigh Coal, however. The Massacre and strike were almost entirely a result of ethnic discrimination towards eastern European "Slav" immigrant workers by a Welsh superintendent at McAdoo, Gomer E. Jones. Jones had been a mine foreman for the Upper Lehigh Coal Company beginning in 1878

The Company continued to look for more coal sources at Upper Lehigh. Strippings at No. 5 Basin were expanded, moving more than 170,000 cubic yards per year of overburden. About a mile of haul road was built for the strip-mined coal, and a new locomotive was bought because of the additional strip coal being hauled.

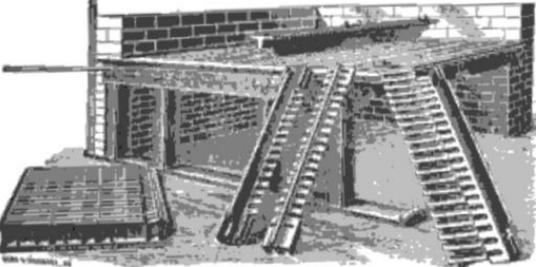
Marketing of smaller sizes Buckwheat No. 1 and No. 2 (rice) was encouraged by reducing prices for the Buck and Rice and working with boiler manufacturers to change their grates and gate sizing, hopefully using the Patent Shaking Grate Bars manufactured by the Leisenring Manufacturing Company of Scranton.

Several of the Leisenring Family members and officials of the Upper Lehigh Coal had formed the Leisenring Manufacturing Company to make the Grate Bars for boilers which allowed using the smaller coal sizes and culm. They were in use at the Upper Lehigh Breaker, at the Alden Colliery and several other collieries in the Lehigh and Lackawanna regions, and at the Hazleton Steam Heat.

xii THE COLLIERY ENGINEER AND METAL MINER. August, 1895

# THE LEISENRING SHAKING GRATE BAR

INSURES THE  
COMPLETE AND ECONOMICAL  
COMBUSTION OF  
**CHEAP FUELS.**  
STRONG, DURABLE, SIMPLE IN  
CONSTRUCTION AND EASY OF ACTION.



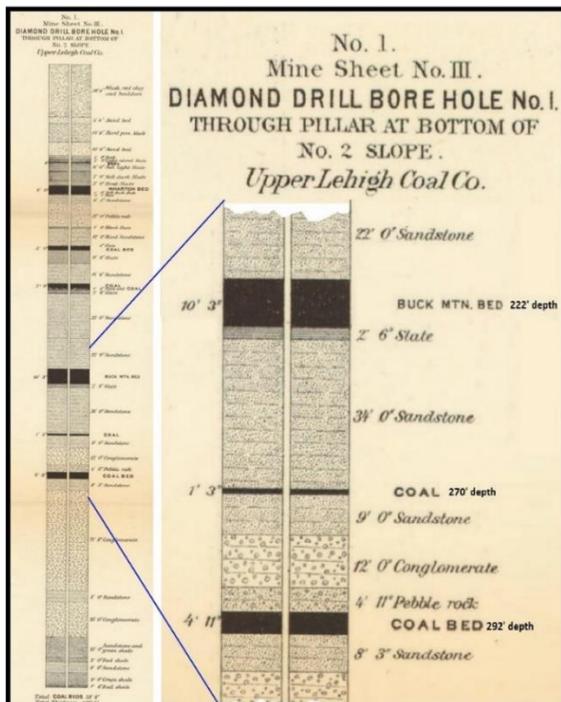
**ANY SIZE COAL MAY BE USED.**

These Grates absolutely prevent waste of fuel. Most convenient Grate on the market. These statements can be verified by the testimony of a score of the largest steam users in the Anthracite regions.

SEND FOR DESCRIPTIVE CIRCULAR. THE LEISENRING MANUFACTURING COMPANY, Commonwealth Building, Scranton, Pa.

Figure 19. Ad for Leisenring Shaking Grate Bars

At the Nescopeck Coal Company Board meeting in January 1896, it was decided to reduce the capital stock from \$600,000 to \$240,000, because of concerns about how much coal was left in the company's lands. They also decided to do other exploration below the Buck Mountain Seam. As seen in the cross-sections in Figures 7 and 8 above and below in Figure 20, there are two small veins of coal below the Buck Mountain. Drill holes that penetrated the entire coal measures had shown that there was a maximum of about 300 feet of coal measures in the Upper Lehigh Basin and that there were two coal beds cut, one 1' 3" thick at 36' below the Buck Mountain bed and the other the Alpha bed 4' 11" thick at 62' below.



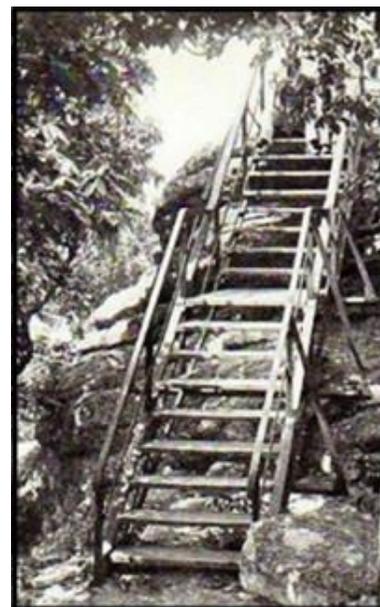
**Figure 20. Bore Hole No. 1. PA Geologic Survey**

In 1897 a core-drill platform was erected to drill a 1,000-foot core hole to find additional coal resources. The company management believed (or likely hoped) that there was more coal “deep”, despite “science” and what 70 years of coal exploration and mining across the Eastern Middle Field had shown. After five months of drilling, the hole had reached over 500 feet and the platform was dismantled and the hole discontinued. *Saward’s Coal and Coal Trade Journal* reported, “Several veins of coal were passed through during its progress. From this hole the company will be able to know of the prospects for the colliery.”

At the 1898 Upper Lehigh/Nescopeck Coal annual meeting, directors Samuel Thomas, John Leisenring, Jr., Robert H. Sayre, George D. McCready, and John S. Wentz further reduced the capital to \$140,000 because, “the coal under the company’s land at Upper Lehigh [was] nearly exhausted.”

An act of capital reduction may be enacted in response to a decline in a company's operating profits or a revenue loss that cannot be recovered from a company's expected future earnings. In some capital reductions, shareholders will receive a cash payment for shares canceled, but in most other situations, there is minimal impact on shareholders. - <https://www.investopedia.com/>

In the late 1890s, there was a lot more to life in Upper Lehigh than mining coal and strikes and worrying about how much coal there was. Like the rest of the country, a bicycle craze took hold. Bicycle outings, trail rides, trips to summer picnics, were the things to do. There was simultaneously an increase in bicycle popularity and a severe economic depression. Bicycles were one of the few areas of the economy where sales were growing; people were buying bicycles "whether they could afford them or not." Although it may be hard to believe that miners were buying bikes, there were certainly a lot of bikers in the area. A bicycle track was put in around the Upper Lehigh ballpark and a driveway was constructed along the mountain ridge north of town. Eckley B. Coxe Jr. engaged engineers and workers from his Cross Creek Coal Company to construct a driveway from his home at Windy Hill Drifton/Freeland to the top of the Butler Mountain and bike paths to Pulpit Rock and Prospect Rock. Iron steps and a guard rail were installed at Pulpit Rock in 1899. Maintenance of the areas around the Coxe Estate scenic vistas had faded with the closing of the Upper Lehigh Hotel in 1897. The Coxe family and Eckley, Jr. resumed that work, installing steps on the Pulpit Rock and “landscaping” for weddings and picnics.



**Figure 21. Pulpit Rock 1910**

One particularly important subject the miners were concerned with was providing for the relief of the widows and orphans of men who were killed in or about the collieries. The 1898 Upper Lehigh Coal Widows and Orphans Fund received praise from the State Mine Inspectors, commending it to “persons interested in mining.” The Company and the employees agreed to contribute to the family of a miner killed or disabled, and there were provisions for paid leave for miners attending funerals.

Benefits like this were rare, and grudgingly granted by companies for the main part, and the United Mine Workers Union began to try to do more to help the anthracite miners. John Mitchell, a bituminous miner from Illinois, was elected president of the UMW in 1898 and in 1900 he tried to bargain with the anthracite coal operators for a settlement that would recognize the union and improve wages, hours, and working conditions in northeastern PA. The anthracite coal operators refused to negotiate, and on September 17, 1900, Mitchell called a strike of the anthracite miners. Practically all the mines, except for some in the Hazleton region, were shut down on the 17<sup>th</sup> or the next few days, and most stayed shut for thirty-six days. A politically arranged settlement granted the anthracite miners a wage increase of about ten percent but did not recognize the UMW. There was no place in the entire anthracite region where the strike was more effective than Upper Lehigh. The entire thirty-six days seemed of little concern to either side. The employers made no effort to break the strike and the employees were taking life easy. About 90% of the workforce was union, and the others who lived in Upper Lehigh worked most days in idle work. The pumps were stopped in No. 3 and No. 4 Slopes and the mines were abandoned.

On the last day of the strike, the miners in the region held an afternoon mass meeting at the Grand Opera House in Freeland, where Mother Jones gave a spirited talk. One of the largest parades ever seen in Freeland took place that evening. There were 2,300 marchers including horsemen, carriages carrying speakers, six bands and drum corps, and eleven unions and breaker boys marching including the Upper Lehigh Union and Breaker Boys. All followed by another rousing talk by Mother Jones.

When the colliery whistle blew Monday, October 29, the Upper Lehigh breakers were filled with nearly 300 happy men and the rattle and roar of the machinery.

John Leisenring, Jr., died in 1901 at the age of 47. Leisenring lived in Upper Lehigh, and was the only resident of that place, and likely Butler Township, to serve in the United States Congress. He was succeeded as President of Upper Lehigh Coal Company by his brother-in-law, J. S. Wentz, who was also President of J. S. Wentz & Co., operators of Hazle Brook, Silver Brook, Maryd, and Midvalley Collieries; Virginia Coal & Iron; and Stonega Coal & Coke.

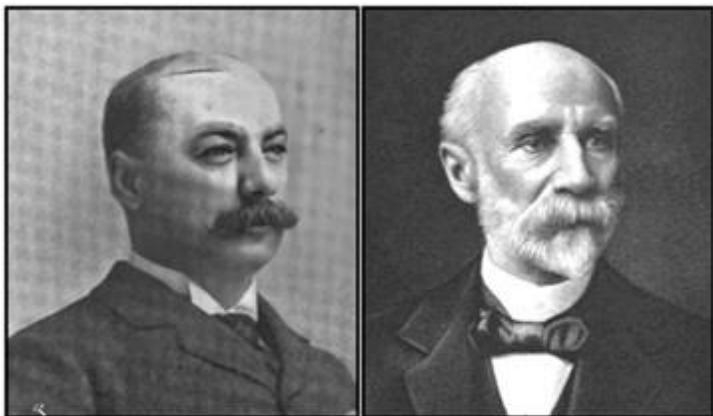


Figure 22. John Leisenring, Jr. and his successor John S. Wentz

During 1901 several large areas near the Breaker subsided as abandoned deep mine workings collapsed and rail tracks had to be relocated. No. 8 Slope was abandoned, with the remaining coal to be stripped. A new slope was opened west of No. 2 Breaker into a basin that couldn't be reached from the old workings. Dick & Montz contactors moved from No. 3 basin to No. 6, where extensive new strippings were begun.

A new steam shovel was delivered and installed at the No. 4 strippings, and a program to substantially increase stripping operations in 1902 was being planned.

The Strike of 1900 was only a runup to what would become known as the Great Anthracite Strike of 1902. The union wanted more pay and shorter hours, the operators grumbled that profits were low, and that outside agitators from the union ruined morale and prevented work from getting done. The owners refused to negotiate with the union, the union appealed to President Roosevelt to use government intervention, and that request caused a backlash by the operators who felt they had been done in during the 1900 strike by government interference. The miners struck on May 12, 1902. There was a slim chance for agreement when union firemen, engineers, and pumpmen stayed on the job, but on June 2, they also walked off the job. There was no summer 1902 stripping season.

During the strike, there were several occasions of non-union workers houses being vandalized, and the Company's properties were fortified and fenced, in several cases blocking roadways. Soldiers were stationed in the fortifications, and they had few incidents. The Company allowed residents of Upper Lehigh to stay in their houses, and they were allowed to pick coal from the culm banks. The colliery worked only 102 days in 1902.

On October 3, 1902, President Theodore Roosevelt met with the union and anthracite operators from the anthracite coalfields to try to settle the strike, then in its 145<sup>th</sup> day. Most of the East Coast depended on anthracite for heating fuel. As winter approached, press and public alarm about fuel shortages and the rising cost of all coal pushed Roosevelt to take an unprecedented action. He became the first president to personally mediate a labor dispute. Roosevelt portrayed himself as the face of the millions affected by the strike and he urged mediation on both parties.

On October 23, 1902, most of the mines started back to work, after Roosevelt's threat to nationalize the mines, and both sides agreed to settle with guidance of an Anthracite Coal Commission. Upper Lehigh miners started back to work earlier. On October 14, the *Hazleton Sentinel* reported, "*The Upper Lehigh Coal Co. has begun operations at their colliery and during the past few days they have hoisted a large amount of coal.*"

The Commission began their hearings later that month, and at the beginning of November took a four-day break to "*further acquaint themselves with the physical features of mining.*" Commissioners arrived in the Hazleton area on Monday November 3, a day before Republicans kept a majority in both chambers of Congress. The first stop on the Commission's tour of the region was at Upper Lehigh, where they toured Prospect Rock, the Breaker and went into a miners house, "*visiting all the rooms*" with Superintendent A. C. Leisenring. Ultimately, the miners won a ten percent pay increase and a nine-hour workday. The United Mine Workers did not win recognition by the mine operators. The commission also did not address the issues of child labor and working conditions.



**Figure 23. Main St. Upper Lehigh looking west ca. 1903 <http://freelandhistory.com> colorized**

In 1900 the U.S. census had listed 14,000 youngsters legally (over 14) at work in Pennsylvania's coal mines. Investigators for the newly formed National Child Labor Committee suggested that in addition, 10,000 children, many only 10 or 11 years old, were illegally employed in the state's mines.

The Legislature of 1903 passed a law making sixteen years the minimum employment age of boys working inside the mines, for both the bituminous and anthracite regions. The officials of the Upper Lehigh Coal Co. made a canvas of their minor employees and enforced the law strictly. Those under 16 or with no proof of age were discharged. The law proved to be most unpopular among the rank and file, and the bituminous workers took it to court, and it was overturned as unconstitutional.

The Legislature of 1905 passed another law making the minimum employment ages of boys inside anthracite mines sixteen years, and outside fourteen. It also insisted on documentary proof of age for working children and set educational standards. This also proved to be unpopular, and still allowed twelve-year-old boys to work in bituminous mines. The State Department of Mines advocated for an employment age of fourteen, with a minimum age of 16 for drivers, 17 for runners, 18 for miners' laborers, and 21 for miners, allowing boys to begin work at fourteen years as door tenders. Although this law was later declared unconstitutional, the NCLC helped pass a similar law in 1909 that passed the court's test.

In 1905, Upper Lehigh Coal employed 97 boys: 11 door boys and helpers, 27 drivers and runners, and 59 slate picker boys.

The mines ran pretty much "as usual" during the first decade of the 20th century after the strike. Breaker No. 2 was upgraded with manganese steel rollers, spiral separators were installed to clean dirt and rock from prepared sizes, and shakers were installed. Pillars were being mined ("robbed") throughout the Buck Mountain seam in the collieries, and tunnels were driven from the slopes to the two lower seams. A second opening for the "Shaft Colliery" was driven as a slope, and a new No. 10 Slope was sunk south of the No. 2 Slope, in the A seam. Tipples were installed at several of the collieries. In 1905 the Company installed its first air compressor, allowing use of pneumatic drills. But the most impact was a further expansion of stripping, by contactors and company workers. Approximately 1500 feet of the south outcrop of the No. 5 basin was stripped, and in 1908 there were five company steam shovels in use, including at least two traction-drive, mobile, "Little Giant" steam shovels.

Vulcan Iron Works Co. of Toledo, Ohio, began building its own line of steam shovels branded with the name "Giant" in 1886. One of the most popular Vulcan steam shovels was the "Little Giant." Usually mounted on traction wheels as shown in the illustration, it was used for generally lighter duties than the larger rail-mounted models. Upper Lehigh got their first "Little Giant" in 1903. It took a sizable crew to keep those shovels running. As well as operator, cranesman and fireman, a two or three-man ground crew looked after the timbers which supported the machine after it set up. In 1911, shovel manufacturer Bucyrus Co. took over manufacturing rights and shovel patents of the Vulcan Steam Shovel Co.

## Shovels and Dredges

"Giant," "Little Giant"  
and Revolving



*We also make*

**Dippers, Dipper Teeth,  
Solid without weld  
60 Carbon Steel**

Also Dipper Bails and Hinges

We also carry in stock and are prepared to furnish parts for any and all makes of Vulcan Shovels and Dredges. We do all kinds of iron and steel forging and boiler work.

**Vulcan Iron Works Company**

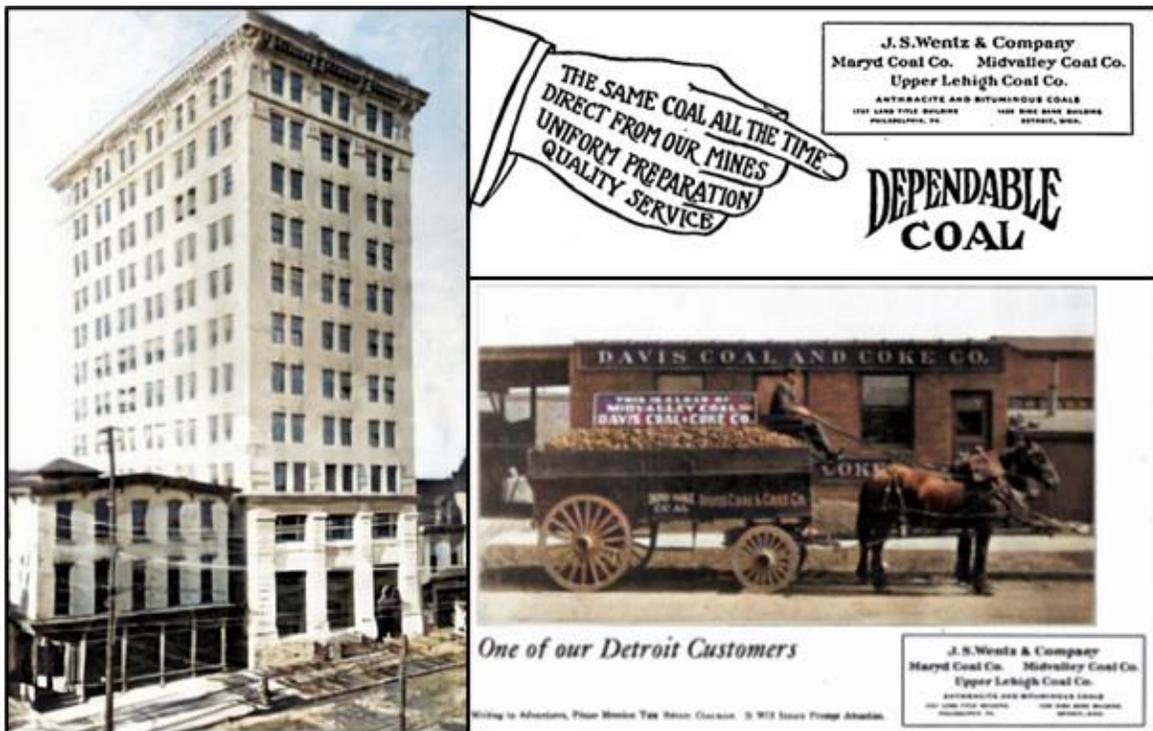
510-522 Water Street
TOLEDO, OHIO

**Figure 24. Ad for Little Giant Shovel, showing crew members**

The Freeland Electric Light Company extended their lights through South Heberton to Upper Lehigh in 1896. However, the Upper Lehigh Coal did not install their first electric equipment until 1907-1908. Freeland power was not suitable to power machinery, and the Company used electric direct current generators. The first electric installation in anthracite coal mines was for electric locomotives by the Pennsylvania Railroad Company at its Lykens Valley Colliery in 1887. Overcoming skepticism, suspicion, and antagonism, electricity had advanced in twenty years. Because of low first cost and expertise, steam power and later compressed air, the adoption of electricity lagged greatly. The costs of long pipelines for steam and air and increasing familiarity ended many of the objections, and Upper Lehigh started to electrify.

In 1911, the Hazleton Standard-Sentinel wrote, *"The town of Upper Lehigh, one of the most prosperous mining hamlets in the hard coal fields, is being gradually deserted. Mining operations there are confined to a very narrow area, chiefly stripping work and the robbing of pillars. The residents, many of whom were born there, are going away one by one and locating elsewhere. The main street in town has many empty houses. The doors and windows are battened up to save them from desolation wrought by the small boy with his sling shot or Flobert rifle. The moving away of so many people from town will be a severe blow to Butler Township, as it means the loss of hundreds of dollars in taxes and once mining ceases, it will mean thousands of dollars less."*

In October 1911, the Company announced a “retrenchment,” with numerous management changes, including the retirement of Superintendent Albert Leisenring. On the first of January 1912, J. S. Wentz & Company assumed control of the Upper Lehigh colliery. Thomas Edward Snyder (1857-1941, born in St. Johns, Butler Township) was general manager of the Wentz’ anthracite collieries. Although Dr. John S. Wentz had been President of the Upper Lehigh Company since 1901, its inclusion in the J. S. Wentz & Company created a change of the organization. Wentz & Co. now had four anthracite collieries: Upper Lehigh and Hazle Brook, in the Lehigh region, and the Maryd and Midvalley, in the Schuylkill region; and three bituminous mining units, one each in West Virginia, Virginia, and Illinois. They were producing and selling five distinct types of coal from four states. They tried and succeeded creating a corporate culture, as they called it, a “personality.”



**Figure 25. J. S. Wentz & Co. office, advertisements, 1915. *Black Diamond, Retail Coalman***

The Markle Bank Building in Hazleton opened in 1910, an 11-story commercial building. It afforded companies the chance of having their entire office staff on one floor, under close supervision. The J. S. Wentz & Company took advantage of this opportunity. T. E. Snyder directed the operations of the Upper Lehigh, Maryd and Mid Valley Coal Companies on the ninth floor.

Wentz & Co. sold each mine’s coal as a separate product. Every coal has some specific feature, and they advertised and sold their coals that way – this was the statement from their ad for Upper Lehigh Coal: “The coal burns clean to a pink ash, ignites readily, giving lasting qualities, which are unexcelled. In places where heavy drafts are the rule, its toughness prevents it burning away as rapidly as the lighter and more free-burning coal.” They also started looking for other uses for anthracite.

The carbon microphone is the direct prototype of today's microphones and was critical in the development of telephony, broadcasting and the recording industries. Later, carbon granules were used between carbon buttons. Carbon microphones were widely used in telephones from 1890 until the 1980s.

Not a big deal, but in 1914 the Western Electric/Bell Telephone bought Thirty tons of Upper Lehigh coal for use as carbon granules in telephones to “help turn voice vibrations into electrical impulses,” mentioned in the Saturday Evening Post advertisement in Figure 26. Thirty tons of anthracite was enough to make 3½ tons of granules, enough to make nine million telephone transmitters.

THE SATURDAY EVENING POST

...too good to burn!

**IT'S COAL** — but a very special kind of hard coal from only *one* vein in the country, hand picked by a trained technician. We will bake it, treat it, make it into tiny but perfect carbon granules and put them inside Bell telephones to help turn voice vibrations into electrical impulses.

**YOU CAN COUNT** on these bits of carbon to last and last . . . and so can your Bell telephone company. This means low upkeep and less cost in the long run, which is the way we want it, too!

**SINCE** Western Electric is the manufacturing unit of the Bell System, our aim is to produce telephone equipment that won't let you down—and to do it so that the price of telephone service may be as low as possible. That's how Western Electric helps to make your Bell service so good and such a good value.

Western Electric  
A UNIT OF THE BELL SYSTEM SINCE 1882

Figure 26. “Turning voice vibrations into electrical impulses” 1954 *Saturday Evening Post*

Wentz & Co. equipped their mines and plants with the newest methods and equipment. Examples of this were purchases of the latest models of Bucyrus steam shovels, inventive equipment like the Saxon Slate Dumper, and the rehabilitating the breakers and washeries with Wilmot Engineering Co. equipment.

## STRIP YOUR COAL WITH BUCYRUS REVOLVING SHOVELS



They will segregate the bottom rock from the coal.

“Top off” the cars, thereby increasing the car capacity 25 per cent. over hand-loaded cars.

Load your coal at about one-half the cost of hand labor.

Dig harder material at less cost than any other revolving shovel built.

**WE CAN PROVE THIS!**

The 14-B shovel illustrated above is owned by the Midvalley Coal Company, Hazleton, Pa. It is loading culm from a stock pile, averaging about 630 cubic yards in nine hours. 14-B and 18-B Bucyrus shovels handling the culm and slate banks in the Anthracite region in Pennsylvania, have increased the output of their owners nearly 100% over hand labor, have decreased the costs about 75% and have prevented labor troubles when work was intermittent. Because of their sturdy construction and high power, they are responding splendidly to calls for sudden and continuous high output.

NEW YORK  
CHICAGO



**BUCYRUS COMPANY**  
SOUTH MILWAUKEE, WIS.



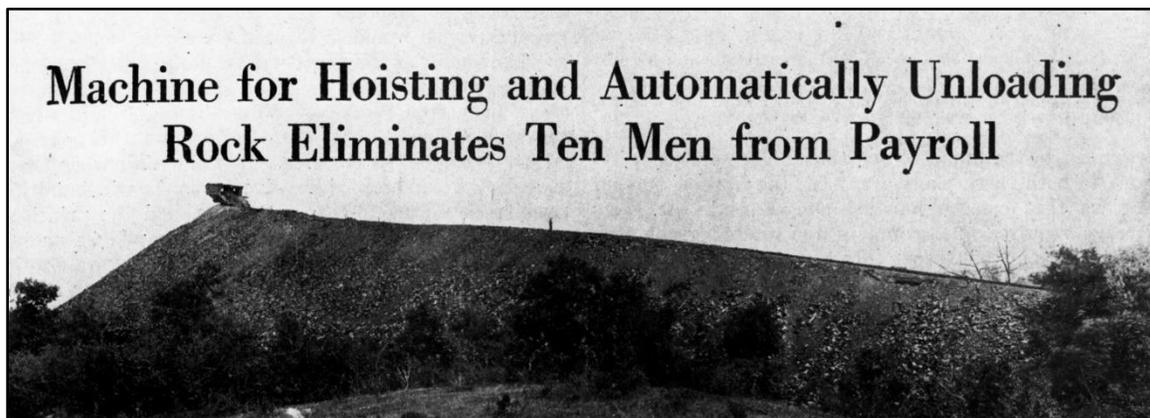
BIRMINGHAM  
DULUTH

R-63-2

**Figure 27. Bucyrus-Erie ad with Midvalley Coal Co. shovel. June 1914 Colliery Engineer**

Bucyrus Company of Milwaukee, Wisconsin had prospered with building heavy rail-mounted steam shovels to build the Panama Canal. In 1910, they purchased the Vulcan Shovel Company, enabling them to enter the small shovel and dragline business, with innovations such as 180-degree swing and crawler machines, introducing the B-14 and B-18 shovels in 1914, when Wentz bought them. These machines used a much smaller crew, and were more versatile than the older models. Anthracite stripping at this time was still limited to propositions with overburden thicknesses less than 50 feet thick.

The Wentz' Upper Lehigh Coal Co. in 1915, was the first anthracite company to purchase and use a Saxon Slate Dumper/Spreader, shown in Figure 28.



**Machine for Hoisting and Automatically Unloading  
Rock Eliminates Ten Men from Payroll**

**Figure 28. Saxon Slate Dumper. Coal Age November 3, 1921**

George Washington Wilmot (1867-1936), born and raised in Upper Lehigh, was the son of one of the original workers at Upper Lehigh Coal Company. He began working at Upper Lehigh as a breaker boy at age 12 in 1879, attended Bloomsburg Normal School, and returned to Upper Lehigh and where he advanced to Master Mechanic. Wilmot studied mining engineering at the International Correspondence School of Scranton, was Assistant Superintendent for five years at Upper Lehigh and Superintendent at Maryd for three years. He founded Wilmot Engineering Company, Hazleton and later White Haven in 1908.

Wilmot designed and built coal breakers and coal cleaning plants; built coal cleaning and preparation equipment such as hydrotators, classifiers, jigs, shakers, bucket elevators; and other mining equipment, much of which utilized a Keystone Rivetless Chain, which was originally patented by James H. Weston of Tamaqua in 1907, and improved by Wilmot in 1913. Wentz and Co. culture demanded that coal preparation equipment that didn't meet the needs of customers was changed, and the company's own sales force marketed that.

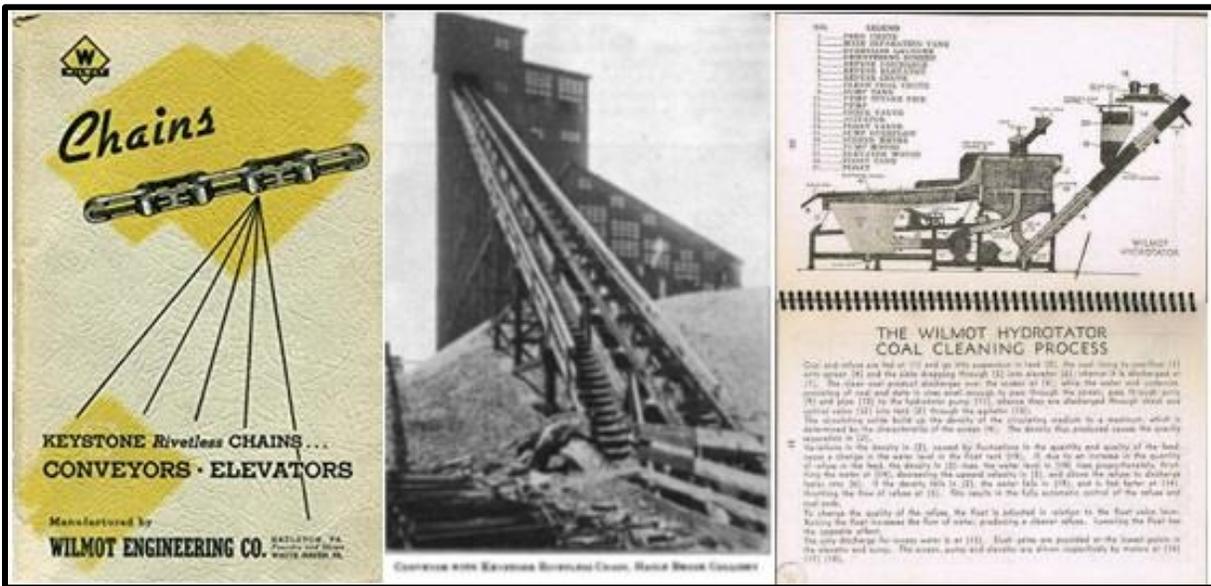


Figure 29. Wilmot Engineering coal preparation equipment. *Wilmot Mining Manual*

The Wentz company towns were run with a paternalistic atmosphere, the company stores better than most, and they encouraged independent merchants to move into towns. The company repaired and repainted most of the homes.

They fostered safety in the mines. In 1913 there were no deaths at the Upper Lehigh collieries, and in 1914 Wentz-related mines held their first annual First-Aid competition. Upper Lehigh won the first-place silver cup for the first year.

The silver cup was retired and presented to the colliery office if that colliery's team won three years in a row. Somewhere there are at least two silver cups with "Upper Lehigh Coal" inscribed on them, because their teams won 1914-1915-1916 and 1917-1918-1919! They did well in 20-21 but was no cup for 20-21-22 because of the 1922 strike, but more about that later. A photo of the 1914 Upper Lehigh "Inside" team that won the cup s shown in Figure 30 below.



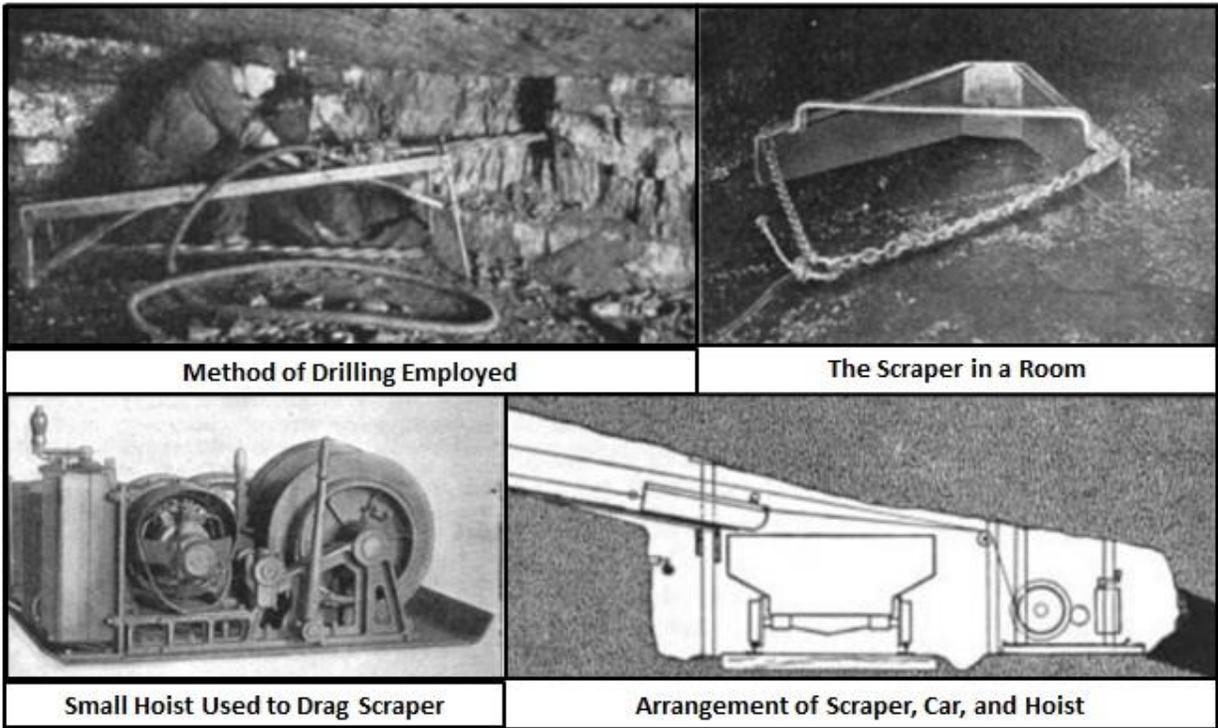
**Figure 30. Upper Lehigh Inside first-aid team. *Colliery Engineer* November 1914, colorized**

By 1918, the mining at Upper Lehigh was mostly carried out by stripping, pillar robbing in the Buck Mountain vein, and beginning thin-lower-seam underground mining. The thin seams mined varied from 16 to 48 inches thick, with pitches (a geologist's word for slopes) that were flat to 20°. In anthracite, mining with greater than a 20° pitch was easy and not a big problem, because the coal slid down the mining chamber after it was blasted loose. There was no need to try to shovel coal into the "buggies" used to take it from the mine, it would drop into them. In thin seams two men can't work well together. Upper Lehigh adapted a scraper mining system to these conditions, mining an average thickness of 36 inches.

Air-powered jackhammers were mounted on a light-metal runway with four legs, making the work easier for the driller who sometimes had to lie on his stomach with no foothold while doing his work. Besides making the drilling less laborious, this method also eliminated the need for a helper, in most cases.

The scrapers were steel, open on top and bottom, about 48 inches wide, and held about 8 cubic feet of coal when full. An arched bar kept the sides open, and the scraper's height was 16 inches, allowing operation in an 18-inch coal seam. The scraper had a chain bridle with the pulling rope attached, and the back of it had a ring to attach a tail rope. Pulling the scraper over the buggie car emptied the scraper.

In 1918, eight scraper 5-hp hoist engines were in use. When they first used scrapers in 1916 the engines were air-driven, but they later were exchanged to 440-volt electric power. The cars in the lower-right drawing in Figure 31 were 42 inches high, able to hold between 45 and 92 cubic feet of coal. Managers from many other collieries inspected the scraper method and adopted it as a revolutionary system.



**Figure 31. Upper Lehigh Scraper Mining. *Coal Age*, August 15, 1918**

The anthracite mines made few improvements during World War I because of shortages of supplies, equipment, and workers. Even the President of J. S. Wentz & Co., Daniel Bertsch Wentz, was overseas, as a Colonel in the U.S. Expeditionary Forces. However, in 1918, Wentz & Co. constructed a new all-electric breaker, shown below in Figure 32. The company had to get government waivers to thwart lumber shipment embargos to allow it to build the new plant and was forced to reuse old equipment because of shortages. Wentz & Co. hired J. C. Maguire, former construction engineer for Wilmot Engineering, and contracted Wheeler & Reilly, a company that built numerous coal breakers between 1900-1934, to erect the breaker. The new breaker was smaller than the one it replaced but had a higher capacity. Thirty workers were replaced by the new breaker, including seven firemen and twelve slate pickers. Apparently, the plant installed automatic/mechanical slate picking equipment that had been available for several years, which used combinations of shaking, vibrating, and/or spinning motion to separate slate from coal by differences in their geometrical shapes or by difference in their breakability.

Effingham Perot Humphrey, an Upper Lehigh resident who was Superintendent of the Wentz' Hazle Brook Colliery, had excellent credentials for engineering and supervising the construction. He had worked for and with Paul Sterling, the chief mechanical engineer of the Lehigh Valley Coal Company, who later would be eulogized as "Designer of Breakers." Humphrey had charge of the erection of the new Drifton breakers for LVCC and would be the General Manager of the Wentz Company's anthracite operations in 1921. He later, in 1951, became president of the Leisenring/Wentz Westmoreland Coal Company.



**Figure 32. Upper Lehigh Breaker ca. 1921, *The Explosives Engineer* June 1926, colorized**

During this same period Upper Lehigh Coal also installed electric pumps and hoists, and a new gasoline-powered locomotive. In 1920, perhaps because of the lack of activity on the Hell's Kitchen area, trappers and hunters reported that deer had returned to the area around Prospect Rock. Old hunters told the press that this was the first appearance in those parts in more than sixty years. Pennsylvania Power and Light constructed a high-tension line from Freeland into the Butler Valley next to the Pulpit Rock.

By the 1920s, the anthracite coal market was on its downward slide. Its dominance in the eastern fuel market began to crumble. Oil, gas, electricity, and soft coal competition ate into that and most other markets. One thing it certainly didn't need was labor disputes that created new opportunities for the other fuels.

The 1902-1903 Anthracite Strike Commission awarded the contract miners an increase of ten percent and reduced the working time of the company men from ten to nine hours-a-day. The next decade was rather uneventful in the history of the anthracite union, and certainly for the Upper Lehigh miners, who generally continued working while enjoying the benefits of the Union's work stoppages in other regions or parts of the industry. In 1906 and 1912 there were five-week strikes, which ended with agreements to extend the Anthracite Strike Commission and gave the miners and daymen added wage increases. In 1916 another four-year agreement was entered into and the working time for most of the daymen reduced to eight hours and an increase in wages.

The pressure of World War I superseded that agreement with a series of supplementary agreements giving the miners still further increases. The final supplementary agreement was in September 1919, but the unhappiness of the ordinary people became increasingly clear as 85,000 miners, mostly in the Northern Field, struck. Despite efforts by UMW leaders to bring an end to the strike, it continued for nearly a month, and was finally settled by a commission appointed by President Wilson, which awarded the miners increases and continued the rest of the contract until April 1, 1922. The anthracite operators recognized the UMW as a bargaining body. The 1902-1920 increases, amounting to about 215 percent in total, brought wages to the amounts shown in Figure 33:

<b>Average Wages Paid Daymen for an 8 Hr. Day in 1920</b>			
<b>Outside</b>		<b>Inside</b>	
<b>Blacksmith</b>	<b>\$5.35</b>	<b>Bratticeman</b>	<b>\$5.19</b>
<b>Carpenter</b>	<b>5.27</b>	<b>Doortender</b>	<b>3.18</b>
<b>Engineer</b>	<b>4.98</b>	<b>Driver</b>	<b>4.67</b>
<b>Fireman</b>	<b>4.79</b>	<b>Pumpman</b>	<b>5.10</b>
<b>Stableman</b>	<b>4.28</b>	<b>Timberman</b>	<b>5.89</b>
<b>Laborer</b>	<b>4.26</b>	<b>Laborer</b>	<b>4.92</b>
<b>Miscellaneous</b>	<b>4.38</b>	<b>Miscellaneous</b>	<b>4.96</b>

**Figure 33. Anthracite Mineworker Wages 1920. *The Coal Industry*, A. T. Shurick, 1924**

Negotiations for a new contract began on March 15, 1922, and quickly reached an immediate impasse. Operators asked for a 21½ percent decrease in wages and the Union asked for a 20 percent increase. Bituminous negotiations going on at the same time also deadlocked. On April 1, the first simultaneous strike of the two U.S. coal industries took place, and 600,000 men and boys, including about 250 at Upper Lehigh, walked off the job. On July 1 the stoppage became a formal strike when 99%% of the voting members of the anthracite union approved it. A 163-day strike ended September 2. It basically resulted in no change, with the same agreement extended to October 1, 1923. Another strike in 1923 was settled by the intervention of Governor Pinchot, who awarded the miners a general increase of ten percent.

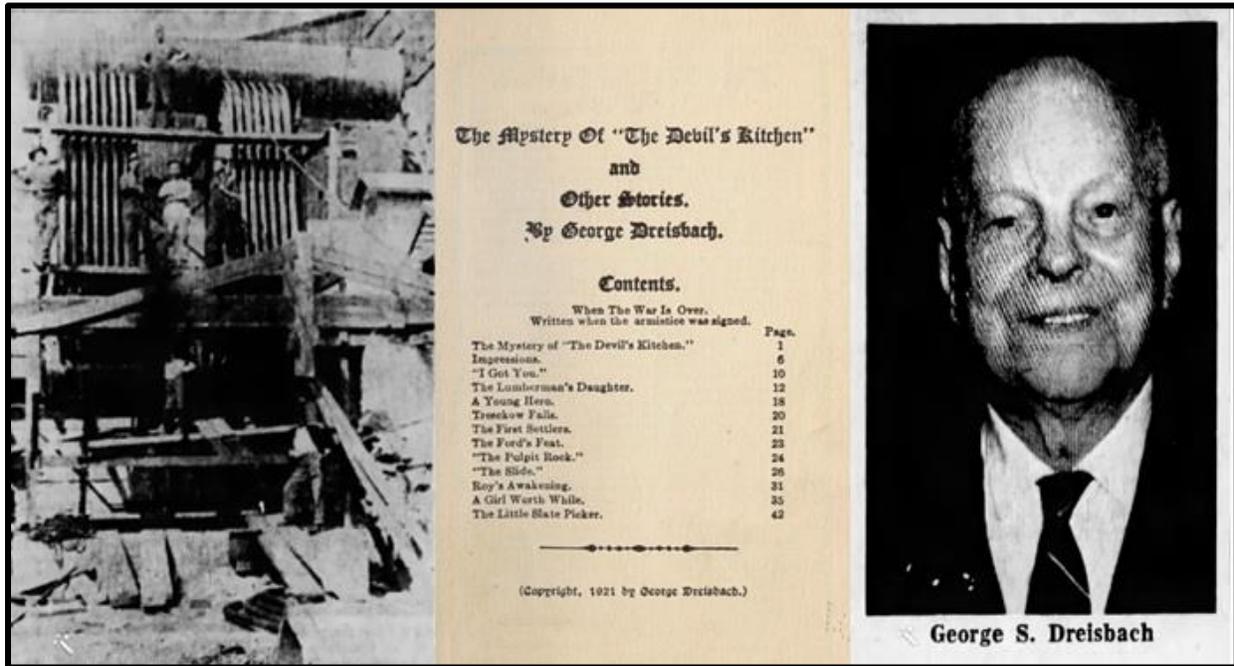
An acute hard coal shortage resulted from the strike. During the winter of 1922-23 a Federal Fuel Distributor was appointed to ration anthracite, prorating it to the various states at a level of 40 percent below the previous year, and urging the use of other fuels. Hardly what the industry that had been seeing losses of markets needed.

The partnership of J. S. Wentz & Co. became the Hazle Brook Coal Company in December and all the Wentz' anthracite mining companies including Upper Lehigh merged into Hazle Brook in February 1923. In January 1924, Wentz' bought the General Coal Company of Philadelphia, and General Coal marketed all of the Wentz Company anthracite and bituminous coal.

While all this was happening, a young man, who would later become known as a historian of Freeland and Upper Lehigh, was writing and self-publishing a book, *The Mystery of the 'Devil's Kitchen' and other stories*. His stories are what got us interested in Upper Lehigh. George Stephen Dreisbach (1886-1967) was born in East Butler, near St. Johns, and his family moved to Upper Lehigh when he was six. George was a slate picker at Upper Lehigh in about 1898, and later worked there as a jig runner, a fireman, a pump runner, stationary engineer, and locomotive engineer. George is on the right and also pictured in the tubular boiler installation photo, ca. 1906 in Figure 34 below.

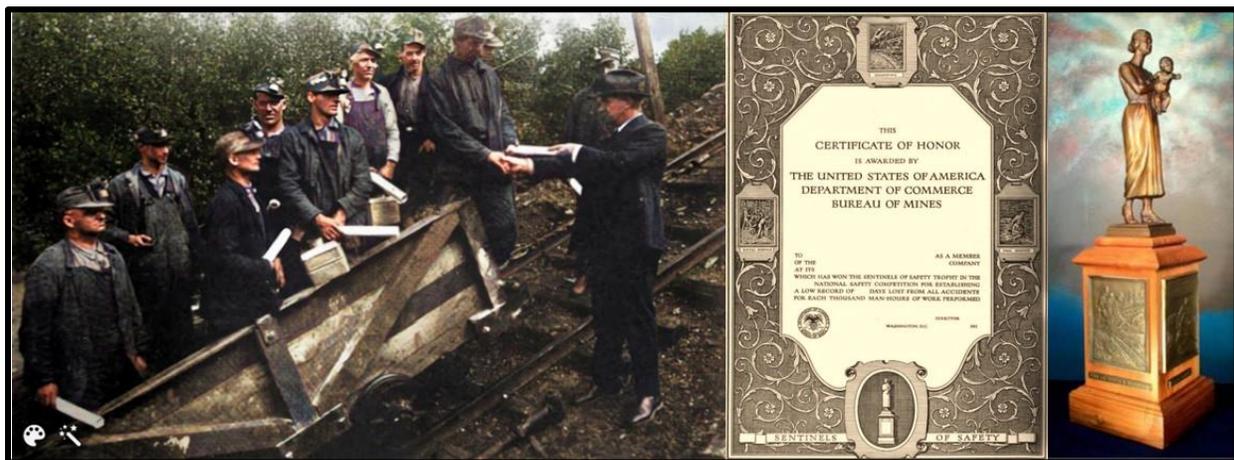
Dreisbach was living in Philadelphia and talking about the Legends of Upper Lehigh and Luzerne County. The book is available as a reprint from Walmart or Amazon or can be downloaded from the Library of Congress as a pdf online at [www.loc.gov/resource/dcmsiabooks.mysteryofthedeivi00drei/](http://www.loc.gov/resource/dcmsiabooks.mysteryofthedeivi00drei/). It has 13 fictionalized short stories, including ones about Pulpit Rock, Prospect Rock, Devil's [Hell's] Kitchen, and the Slide, all sights that still can be visited (albeit they are on private property), and a story about "the

Little Slate Picker.” During the 1950s and 1960s, and especially during the Hazleton Standard-Speaker centennial year 1966, many of Dreisbach’s memories about Upper Lehigh were published.



**Figure 34. UL Boiler ca.1906 / *The Devils Kitchen* 1921 / George S. Dreisbach, ca.1967**

In 1921 Pennsylvania Power & Light purchased a right-of-way for the powerline from Freeland to the Butler Valley that runs past the Pulpit Rock, and ran a new service to the coal company, allowing for expanded use of electricity for pumping and processing operations. In 1923, Upper Lehigh Supply, the old “company store” closed.



**Figure 35. Miners receiving certificates, blank certificate, Sentinels of Safety trophy**

“Sentinels of Safety,” bronze trophies, are received annually by the nation’s safest mines. Then-Commerce Secretary Herbert Hoover started the awards in 1925 and remain the nation’s most prestigious awards recognizing mining safety. The coal mine having the best record in 1925 was the Upper Lehigh Colliery of the Hazle Brook Coal Co. In addition to the colliery receiving the trophy, each employee received a certificate of honor signed by the director of the U.S. Bureau of Mines. The trophy and certificates were

awarded in 1926. Figure 35 shows Mine Superintendent Dal W. Muir handing a certificate to John Potschner, 58, who had worked at the colliery for 45 years.

The colliery had worked 458,488 manhours with 11 accidents and 122 lost days. Edward B. Leisenring, Jr. wrote a thank you to Herbert Hoover. In the letter, Leisenring wrote, *"Due to the location of the mining town, and due to its high standards of living, a very large proportion of the families living in our town have been there for several generations. To this we very largely attribute the safety record which we have been so fortunate to attain."* Upper Lehigh received an Honorable Mention in each of the next three years of the Sentinels competition.

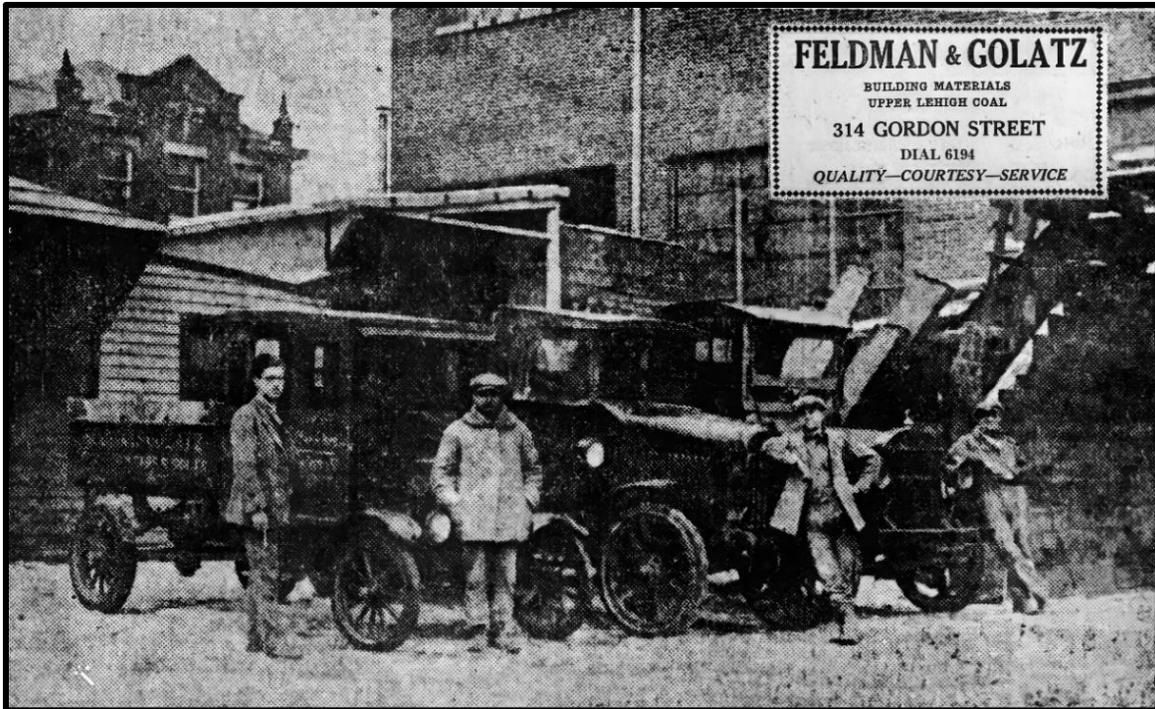
In September 1925, the third hard coal strike in four years halted work in the anthracite fields of northeastern Pennsylvania. In this strike, as in the other two, the union sought an increase in wages, better working conditions, a checkoff and full recognition of the union, and better living conditions. The operators resisted the demands of the miners for wages, hours, and working conditions that would increase the cost of production, called for increased efficiency of the workforce, and attacked checkoffs, deductions of union dues from a worker's paycheck by the employers.

The long strike dragged on through the winter. The mining regions were hard hit, and soup kitchens were running in Scranton, Wilkes-Barre, Hazleton, and other anthracite cities. One reporter noted that "the Eastern cities are enshrouded in an unaccustomed pall of soft coal smoke." On February 12, 1926, the miners and operators announced an agreement. Coming at the end of 165 days of strike, the contract, like the earlier "settlements" was an underwhelming document. The most difficult issues had been the UMW's demand for the checkoff and the anthracite operators' insistence upon binding arbitration. The final agreement hardly mentioned these issues. It pledged both miners and owners to "cooperation and efficiency."

Miners went back to work Thursday, February 18. The Hazleton Plain Speaker wrote, *"Wives of anthracite workers polished up the dinner pails for the resumption of operations...Demand for bread and bananas is expected to increase with the collieries going again. Bananas are one of the dainties that generally go in the miner's dinner."*

The economy of the entire region depended upon hard coal mining, but the labor troubles of the 1920's together with the inevitable use of substitute fuels were destroying it. A survey taken in New York in 1923 revealed that fuel oil was annually displacing approximately 200,000 tons of hard coal in that city, and the situation was even worse in the New England markets.

Feldman & Golatz, a coal dealer with the largest yard in Allentown, had laid in an extra stock of Upper Lehigh coal in the summer of 1925, taking advantage of a summer stocking plan that the Hazle Brook Coal Company offered. That still ran out and they substituted coke and low volatile bituminous, that were lower priced, during the "suspension." Many customers didn't go back. Feldman & Golatz remained faithful dealers of Upper Lehigh Coal even after the Upper Lehigh Coal Company dissolved.



**Figure 36. Feldman & Golatz Ad, 1925.**

As Upper Lehigh's search for more coal sources continued, the company turned increasingly to the culm and silt banks that had been rejected as waste in the breakers of the past. The term culm evolved in its meaning since the beginning of anthracite mining. In the early days of the industry practically all the coal was prepared dry. The fine-sized material, as well as the sizes which were not marketable at that time, were deposited along with the waste material in huge banks on the breaker property. These banks contained from 50 to 80 per cent coal. Over the years, smaller sized coals found more markets, and starting around 1906, parts of the culm banks were being fed back into the breaker for reprocessing.

In 1908 a "small breaker" had been built as a "re-cracker" or washery for processing culm and slate bank material that was dug from the piles at No. 4 Colliery, and in 1910 a washery was built near the No. 2 breaker to take in those culm piles. In 1926, the Hazle Brook Coal Company employed a force of men to bring in the rest of the No. 4 culm banks to the No. 2 breaker.

This plant handled a mixture of fresh-mined and bank coal. The daily production was about six hundred tons of prepared coal and 150 to 200 tons of silt. The silt was being loaded into railway cars for shipment to New Jersey Zinc in Palmerton, for boiler and process fuel, and to make coal briquets for market. The shipped silt passed through a shaker screen and dewatered in a settling tank. The overflow water and slime went down the creek and created a silt deposit about a mile below the breaker. A large swamp about two miles east of Upper Lehigh acted as a settling basin, and little silt reached as far as Zehner, midway between Upper Lehigh and White Haven.

Before customers were found, silt from the plant had been put into silting dams or banks. Silt banks were built up by using boards to build dams and backing up successive higher board dams silt dam had been built up 20 or 30 feet. The material from the old dams and from the creek deposit, estimated at 150,000 Tons in 1928, were also being shipped to New Jersey Zinc.

On January 30, 1927, one hundred and two Upper Lehigh colliery miners had a narrow escape from death when the No. 19 Slope flooded. Foreman George Mealing called the men out of the mine when a cave-in occurred causing a stream to flow into the mine. The exit was made in an orderly manner, with about thirty exiting from the abandoned No.6 Slope and the others by the No. 19 Slope. When all the men had gathered outside, two men from Freeland, William Recomsky and his helper Milton Weeks, were not there. Fred Yannes and William Yannes went back in and helped them escape past a derailed mine car. Two mules were also missing behind the cave, but rescuers recovered them after the water had been pumped from the slope.

Also in 1927, new owners demolished the Upper Lehigh Hotel for architectural salvage and a *Pathoscope* newsreel movie was shot, featuring miners at Upper Lehigh and the Hazle Brook Coal companies first aid meet at Hazle Park. We have not been able to find a recording of the film.

The years 1928 and 1929 were pivotal for the Upper Lehigh Colliery. Hazle Brook Coal Company was merged into Jeddo-Highland; coal sales were being managed by General Coal, another company recently purchased by Jeddo; company stripping operations were ended, and all the strippings were given to various contractors; and company houses were put up for sale in 1928. In 1929 all operations were suspended; company house sales were completed; facilities were disassembled and transferred or scrapped; and at the end of the year the New Upper Lehigh Coal Company was chartered.

THE EVENING NEWS, WILKES-BARRE, PA., THURSDAY, MARCH 21, 1929		
<b>DEEDS RECORDED</b>		
<p>Nescopeck Coal Co., to Thomas Edwards, property in Upper Lehigh for \$332.50.</p> <p>Nescopeck Coal Co., to Monroe Learn, property in Upper Lehigh for \$1,187.50.</p> <p>Nescopeck Coal Co., to William Gerlach, property in Upper Lehigh for \$285.</p> <p>Nescopeck Coal Co., to John Hinkle, property in Upper Lehigh for \$285.</p> <p>Nescopeck Coal Co., to Walter Smith, property in Upper Lehigh for \$332.50.</p> <p>Nescopeck Coal Co., to John Playcan, property in Upper Lehigh for \$308.75.</p> <p>Nescopeck Coal Co., to Fred Pe-</p>	<p>truska, property in Upper Lehigh for \$190.</p> <p>Mareno Rossl of Freeland, to Mareno Ross of same place, property in Freeland for \$4,000.</p> <p>Nescopeck Coal Co., to William Dippe, property in Upper Lehigh for \$403.75.</p> <p>Nescopeck Coal Co., to Mrs. Andrew Kasper, property in Upper Lehigh for \$285.</p> <p>Nescopeck Coal Co., to Mike Brenitsky, property in Upper Lehigh for \$190.</p> <p>Nescopeck Coal Co., to Annie Keers, property in Upper Lehigh for \$285.</p> <p>Nescopeck Coal Co., to Joseph Gasper, property in Upper Lehigh for \$308.75.</p> <p>Nescopeck Coal Co., to John Matbe, Sr., property in Upper Lehigh for \$332.50.</p> <p>Nescopeck Coal Co., to Joseph</p>	<p>Gasper, property in Upper Lehigh for \$332.50.</p> <p>Nescopeck Coal Co. to Joseph Wargo, property in Upper Lehigh for \$285.</p> <p>Nescopeck Coal Co., to Andrew Tancin, property in Upper Lehigh for \$285.</p> <p>Nescopeck Coal Co., to Otto Lesser, property in Upper Lehigh for \$332.50.</p> <p>Nescopeck Coal Co., to Julia Lehan, property in Upper Lehigh for \$213.75.</p> <p>Nescopeck Coal Co., to John M. Breznicky, property in Upper Lehigh for \$213.75.</p> <p>Nescopeck Coal Co., to Steve Horworth, property in Upper Lehigh for \$213.75.</p> <p>Nescopeck Coal Co., to John Tancin, property in Upper Lehigh for \$285.</p>

Figure 37. Nescopeck Coal Company Deeds Recorded. March 21, 1929

The Jeddo-Highland Coal Company was founded in 1858 when George B. Markle & Co. opened coal mines on property leased from the Union Improvement Company. The company became "Jeddo-Highland" in 1921. Jeddo President Donald Markle and Edward B. Leisenring, Jr. announced the consolidation of Jeddo-Highland and Hazle Brook in May 1928. Jeddo made a substantial purchase of Hazle Brook stock, taking the Leisenring Group out of the anthracite business.

Shortly after the consolidation, the Company offered the houses to the people living in them, and by the end of January 1929 all the citizens of Upper Lehigh, except for two, owned or had options on the houses, and the land under and around them. The second shift mining operations were suspended in early 1928, and the R. E. Dick Company moved out of their stripping operations saying that "the place could no longer

be worked profitably.” In November company stripping operations were closed, with the shovels and other equipment removed and transferred to other Jeddo operations. Stripping agreements were awarded to several local contractors.

In March 1929, the colliery garage and mule stables burned, the company automobiles and ambulance were removed with no damage, and 40 mules were saved, with *“great difficulty, as they fought the miners.”* Several stripping contractors who were hired in the fall of 1928 abandoned their operations in April. Mining at the No 19 Slope was suspended in June; and the No.8 Shaft, where extensive robbing operations were ongoing was partly destroyed and caved in in July 1929. An inspection was held in late July 1929 by Jeddo officials, including Daniel Wentz, Jr. and T. E. Snyder, Vice President of Jeddo’s Hazle Brook Properties, and Wednesday afternoon, July 31, mining operations were suspended indefinitely. Within a week, machinery was removed and sent to Westwood, Midvalley, and other operations; mules, outbuildings, and older equipment were sold; stock was removed from the company store, and it was leased to a local; and the breaker was razed. The Scranton Times reported Saturday August 10, *“OLD MINE ABANDONED. Workers at the Upper Lehigh Coal company colliery received the last pay yesterday. After being worked for three generations there is no more coal left in the tract.”*

The 1930s proved to be tough times for coal at Upper Lehigh. Several local people thought there was still money to be made in the coal business. Edward Williams and John Krause continued stripping on their Upper Lehigh contract until it expired and then made an agreement to open a stripping on the Coxe Estate lands west of town. They built a small breaker at No. 4 and made their first shipment in October 1930. They ran it for two years.

At the end of the 1929, a group of Freeland men, Cornelius A. Dougherty, Charles L. Reilly, and Patrick H. V. Dunphy, formed the New Upper Lehigh Coal Company, purchased the property from Nescopeck Coal, and began preparation for starting operations. New Upper Lehigh also built a small breaker at No. 1, on the site of the garage and mule stable fire, and its first shipment of coal was made June 20, 1930. They ran off and on, in slope, stripping and bank mining until 1935. In 1935, the New Upper Lehigh Co. was unable to meet mortgage payments to the Sun Coal Company and declared bankruptcy. The New Upper Lehigh Coal Co. operated again in 1937 in receivership, after a nearly two-year suspension in 1935-1936.

There were at least two unsuccessful sheriff sales, and several court cases, including one that was highlighted by courtroom fisticuffs between Reilly and the plaintiff’s lawyer. The details of the trials and tribulations of the New Upper Lehigh are really complicated, and hard for us to understand, harder to describe, and likely not very interesting to the reader.

In 1933, George Hess of Drums and Dr. E. R. Kemp of Wilkes Barre took over the John Krouse No. 4 Basin stripping arrangement, remodeled the breaker and operated for a year. The Freeland Coal Company worked the No. 4 site in 1934-1935. The Franklin Red Ash Coal Company operated, probably on the No 4. Stripping, in 1930-1939; and Soma Coal, under a J. Amos of Syracuse, operated No. 2, No 6., and stripping contractors operated for part of a year in 1939. During this nine-year span, total production was 323 thousand tons, less than 1½-times the Upper Lehigh Coal Company average annual production during 1865-1929.

There were numerous occasions of “bootleg miners” being arrested for mining on the Coxe Estate and New Upper Lehigh coal lands during the decade also. Bootleg mining is unlawful coal mining. Most bootleg mines were small mines dug hidden from view or in remote locations which were dug by a handful of men who trespassed on coal company-owned land. Quite a few men were arrested digging in the No

5 Basin, and many more chased off, most of them by John F. McGuire, a Freeland private detective. The term “bootleg miner” originated around the 1920s, when the anthracite industry collapsed, and tens of thousands of miners were out of work. Unemployed miners dug their own coalholes, even setting up bootleg breakers and trucking operations. A 1938 Pennsylvania study reported there were at least 1,965 bootleg holes, operated by over 7,000 bootleg miners, producing 2,400,000 tons of coal per year.

At Upper Lehigh there not only were bootleg miners, but there were also another kind of bootleggers working in the mines. On the morning of December 13, 1934, Federal and State liquor control agents raided an illicit alcohol still operating underground at the abandoned No. 3 strippings and No. 4 Slope at Upper Lehigh, on Coxe Estate land.

When the raiding party arrived, two 30-foot boilers in a newly constructed building were operating. Agents followed steam pipes several hundred feet until they went underground near a 4-foot square area where the snow as melted. In that area they found a camouflaged trapdoor. Entering the trapdoor and descending thirty feet, they entered a cement block room, 25'x 75' x 30' high; with two 30,000-gallon vats and one 10,000-gallon vat containing about 50,000 gallons of mash; three smaller vats, containing 3,000 gallons of molasses; and a storage tank containing 3,000 gallons of alcohol. The underground tunnel led up to electric light and steam generating plants, a “cooker,” five 5,000-gallon storage tanks, and a 40-foot-high copper condensing chamber near the slope opening. Agents said that when they opened the trapdoor bells began to ring and the men who were working there were able to escape up the slope. No small containers were found, and it was supposed that the product was being shipped out in tanks hidden in coal trucks.

Further investigation found a gasoline-powered pump bringing water from a mine reservoir a half-mile away from the still. The press discovered that the men working there had been punching time clocks and it was supposed that the people involved were “*from New York.*” Reports said that “*seven men had checked out of a Hazleton hotel after the raid.*” A steam shovel was used to dig out the building, tanks, and equipment; the concrete and steel building and metal tanks were disassembled, and the equipment loaded on trucks and hauled “*to an unannounced location.*” The molasses, mash, and alcohol were dumped into ditches near the plant and the Hazleton Standard-Sentinel reported that, “*local automobile owners... sought utensils to scoop up the liquid, and at least salvage enough to give their radiators an anti-freeze supply. Tears welled up in their eyes...but they claimed it was only their cars they were thinking of.*”

Fourteen men and a woman involved in the affair were sentenced in 1937, twelve men had pleaded guilty and two were found guilty in a trial. Two Freeland men were fined \$100 and sentenced to a year and a day in prison. A New York man was sentenced to 18 months concurrent with another bootleg conviction, and his brother was fined \$150 and given three years' probation. The other ten men, all from Freeland and surrounding **areas? Towns?** and had been workmen at the still were given suspended sentences and 18-months' probation. The local woman was convicted and sentenced to two years' probation, and four local men were acquitted. Obviously, the supposition that people involved were from New York was “valid.”

In August 1938, Soma Coal acquired a lease on the New Upper Lehigh Coal Co. property and did extensive repair work on the No. 2 Breaker, recalling union maintenance and repair men. Pennsylvania Power & Light installed large transformers at the site to allow expanded use of electricity. Contractors repaired several slopes and opened new ones, and others began stripping contracts. After recalling 100 workers, and restarting the breaker in October 1938, the mine went on strike in December because Soma did not

pay the miners. Soma operated for several months in 1939. In March 1939, the Hazleton Standard-Speaker reported, *“For the first time in many months officials of the Jersey Central R. R. Co. delivered a trip of cars to the No. 2 Breaker yesterday morning, where an idle period has been in evidence for some months.”* However not long after this, Soma Anthracite failed, with the receiver leasing the operation to Sandy Run.

In 1939-1942, the New Franklin Coal Company ran a strip mine operation at the No. 4 basin on Coxe Estate lands. Shipments of silt were still being made to New Jersey Zinc. The Sandy Run Breaker, built in 1876 by M. S. Kemmerer & Company, burnt in May 1938. Louis J. Fox had purchased the Sandy Run Colliery from Kemmerer about 1930 and founded the Sandy Run Miners & Producers Company. Fox and his son Sol attempted to make a deal with Soma to send their coal to the Upper Lehigh Breaker in 1938 but were unsuccessful. After the failure of Soma in 1939, the New Upper Lehigh receiver leased the breaker and coal lands to Sandy Run Miners & Producers and both operations opened in the fall of 1939. The Sandy Run Miners & Producers operated the breaker until October of 1964, when it was abandoned. Maximum annual shipment during this period was 79,500 tons. Coal from the Sandy Run colliery, culm banks, and strippings; and culm banks and strippings in Upper Lehigh were used to feed the plant during that time.

On September 11, 1942, the assets of the New Upper Lehigh Coal Company were sold at a Sheriff’s sale to the Sun Coal Company, which held a mortgage. The assets consisted of 3627 acres, more or less, “improved with a frame coal breaker covered with corrugated sheet iron and the machinery and equipment for operating a coal breaker therein and connected therewith, a wooden platform for emptying railroad cars, a stone and wooden garage and supply building, a concrete one-story blacksmith shop, a one-story frame office building, one retail scale, one frame boiler house with a 150-h.p. Keeler boiler, and whatever coal on the premises in place, and other buildings and growing trees.”

Sandy Run Miners & Producers operated the breaker until October 1964, when the plant was shut down and abandoned. Maximum annual shipping during the 1942-1964 period was 79,500 tons. Coal from the Sandy Run Colliery culm banks and strippings, and Upper Lehigh culm banks and strippings fed the plant.



A fire, caused by welding sparks, broke out in the Upper Lehigh Breaker in June 1947, causing extensive damage. The top of the breaker, housing a cone cleaner and several large motors was burned away. Water from a washery sump was pumped more than 400 feet to the breaker and fire fighters pumped it more than 50 feet into the air. The operation was idle for two months while repairs were made.

**Figure 38. 1947 breaker fire, (Hazleton) Standard Speaker**

In 1948-1949, as the post-war demand for anthracite continued to decline, engineers the U.S. Bureau of Mines Anthracite Flood-Prevention Section assessed the future of the industry, with a study of the and inundated reserves of the Eastern Middle Anthracite Field. Upper Lehigh was included in the study, although it was noted that little or no reserves remained there. The study identified four abandoned mine water pools existed in the Upper Lehigh area, all discharging to the surface at their east end, with mine water all going into the Pond Creek. Each mine water pool had a surface expression in at least one strip pit. Most of the rainfall on the mining sites drained to those strip pits or other entrances to the mine pool, such that the bulk of the water falling went to Pond Creek. The total volume of mine water in the pools

was estimated at 700 million gallons. The report listed contaminating influences as “*carbonaceous material in spoil bank, run-off from spoil bank drains into pit; anthracite and other carbonaceous material exposed in walls, ends or bottom of pool.*” They did not take chemical analyses of the water.

Subsequent U. S. Bureau of Mines investigations of anthracite field mine water discharges in 1975 and 1991 made less than rigorous studies, grab samples at the discharges in 1975 and a “no flow” report in 1991. The 1975 report was 6149 gallons per minute, 4.-5.6 pH, less than 1 milligram per liter iron, and 40 milligrams per liter sulfate. The Pennsylvania Department of Environmental Protection 2008 Pond Creek and Sandy Run TMDL (Total Maximum Daily Loads) Report for stream segments impaired by acid drainage from abandoned coal mines utilized samples from 1996, 1998, 2002, 2004, 2006, and 2008. Results for the Pond Creek “PC4 – AMD source discharging to Pond Creek” and “PC5 – Pond Creek below AMD discharge” are shown below in Figure 39. Despite the low pH of the water, the mine drainage effects on the steam are not severe because of the low metals concentrations.

	PC4 – AMD source discharging to Pond Creek	PC5 – Pond Creek below AMD discharge
Flow (gpm)	2490	5743
pH	4.1 – 5.2	4.1 – 6.2
Aluminum (mg/l)	0.34	0.42
Iron (mg/l)	0.33	0.15
Manganese (mg/l)	0.41	0.44
Acidity (mg/l)	17.03	15.46
Alkalinity (mg/l)	8.80	8.74

**Figure 39. Pond Creek Water Analyses. PA DEP 2008 TMDL**

The first rail shipment of coal from Upper Lehigh was made March 1, 1867. Ninety years later, July 1, 1957, the last three railcars left the breaker. For many of the ninety years, trains pulled out of Upper Lehigh at 8 and 11 a.m. and 3:30 and 7 p.m. each day, but in 1957 the Central RR of New Jersey abandoned the Upper Lehigh spur line because of lack of traffic. Total shipments by Sandy Run Miners & Producers Co. from the Upper Lehigh Breaker in 1956 had been 13,830 tons, not all by rail; and the three cars were part of 16,202 tons shipped in 1957.



**Figure 40. Upper Lehigh CRRNJ rails and trestle 1959. (Hazleton) Standard Speaker**

Contractors removed rails between Upper Lehigh and White Haven and the railroad trestle at the east end of Upper Lehigh in 1959. Coal ballast from below sections of the rail line was sent to the breaker for recleaning. Coal stripping of the area below the removed trestle, digging out the “barrier pillar,” the unmined block or rib of coal and rock left unworked between two collieries or mines to keep water from migrating from one to the other, between Upper Lehigh No. 8 and Jeddo-Highland No.6 began in 1961. Mining there by the New Franklin Coal Company necessitated the relocation of the sewage ditch from Upper Lehigh to the Pond Creek. The coal company dug the ditch for the Freeland borough. After the removal of that pillar, smaller pillars between the various old Upper Lehigh slopes in the No. 6 - No. 8 basins were mined by New Franklin. In 1963 New Franklin Coal purchased properties in Butler Township from the Daniel M. Coxe Estate.



**Figure 41. “Stripping at Freeland” *Fairchild’s*. Likely BE 1150 operated by New Franklin ca. 1961**

Sandy Run Miners & Producers closed and abandoned the Upper Lehigh Breaker October 2, 1964.

The Pennsylvania Legislature passed the Project 70 Land Acquisition and Borrowing Act on June 22, 1964, P.L. 131 (72 P.S. § 3946 et seq.). The Act was designed to enable the acquisition of public lands for public parks, reservoirs, and other recreation, conservation, and historical preservation purposes by use of bonds issued by the State. After this, several people in the Freeland area started a “Pulpit Rock for Everyone Forever” movement.

In the late 1960s, the Pulpit Rock for Everyone suggested that the State, Luzerne County, or Butler Township acquire the western end of the Green Mountain overlooking the Butler, Conyngham, and Oley Valleys and establish a public recreation area that contained the “nearly 360° scenic views” from the vantage points on the mountains cliffs. George Dreisbach, who drew the sketch in Figure 42, cited the potential attractions:

- “A marked spot would be the place where we [Dreisbach and Elmer Drasher] saw Sophia Coxe, the ‘Angel of the Anthracite’ sitting and reading under the trees near Pulpit Rock.”
- The ‘Pulpit Rock,’ with steps, erected by Coxe Brothers Company workmen, up to the American Flag on the fourteen-foot pole cemented into a hole on its top.
- The ‘Slide’ where a large mass of rock slid down the mountainside towards where Angela Park was.

- The Prospect Rock' where Dreisbach and friends would go after church to spend time watching the "lighted cars of the Wilkes Barre and Hazleton Railroad speeding along the mountain and disappearing through Nescopeck Pass."

The trail connecting these features around the crest of Green Mountain didn't happen then, but the sights are still there on private property. In 2020, a solar power development company that advanced plans for a solar farm on reclaimed strip mind land there discussed the potential of developing a trail around the crest.

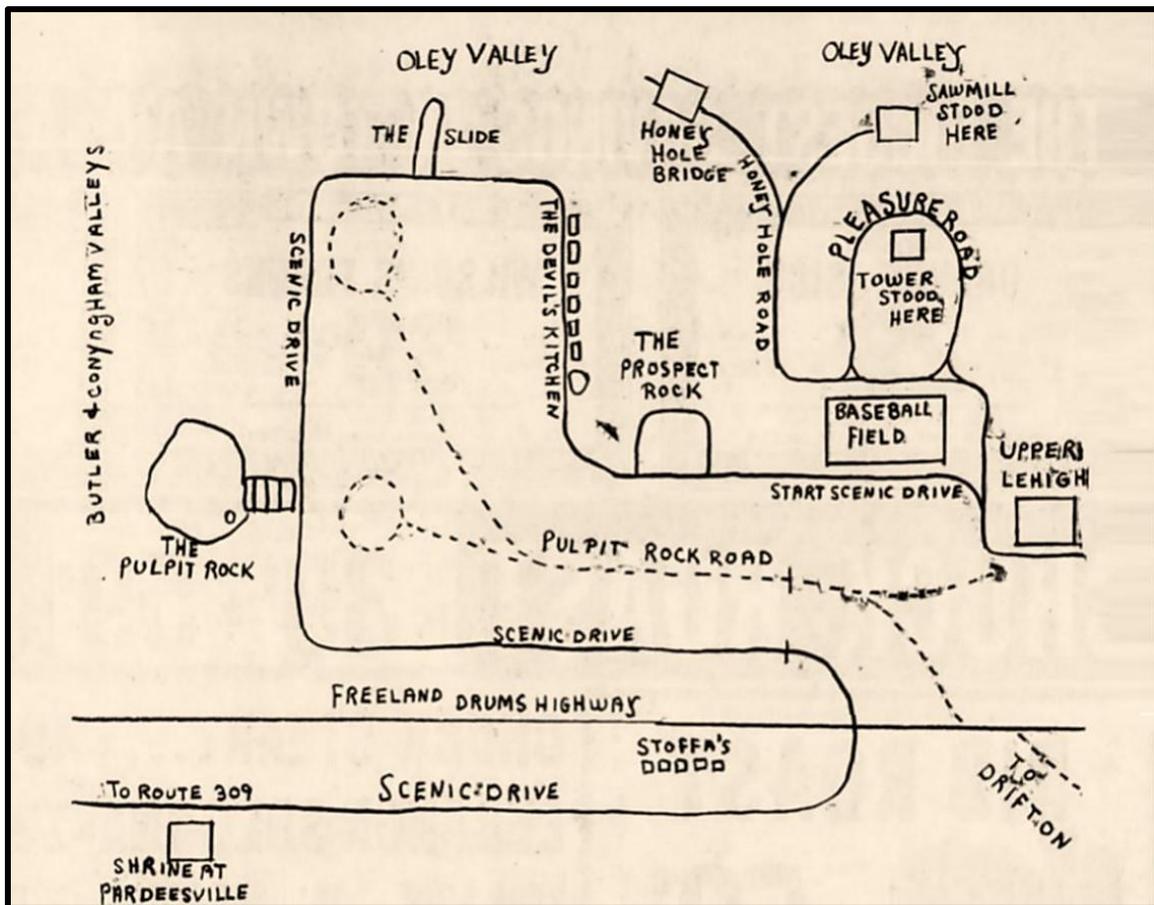
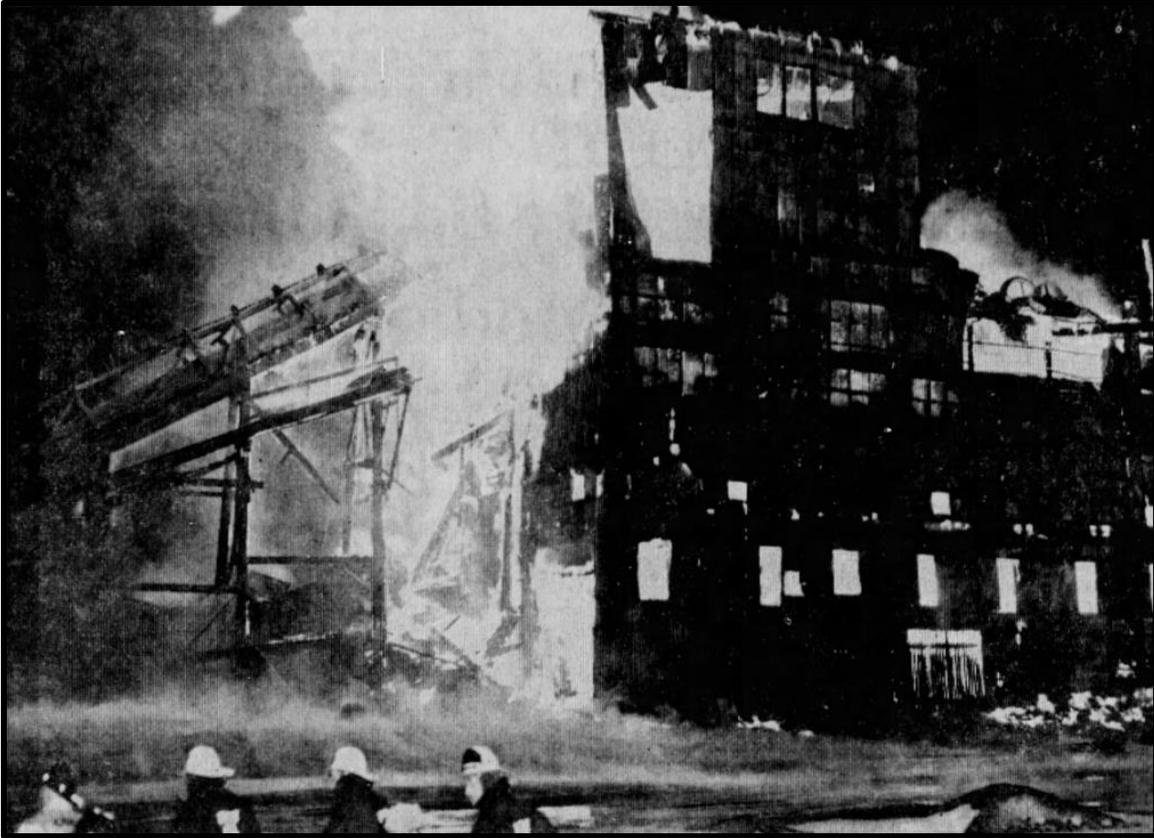


Figure 42. Upper Lehigh Scenic Drive 1967 (Hazleton) Standard Speaker

The Upper Lehigh breakers didn't last to be seen on a drive or a trail. #2 Breaker was destroyed by fire on January 23, 1968. The fire was discovered at 10:45 p.m. and when firemen from Freeland arrived, flames were roaring skyward from the top of the 90-foot wooden structure. This version of the Upper Lehigh Breaker, then owned by Pagnotti Enterprises, had been built in 1933 by Charles Reilly and the New Upper Lehigh Coal Company.

The Upper Lehigh No 4. Breaker was also destroyed by fire, on July 27, 1970. The breaker was in the stripping-filled wooded section of Butler Township west of the village of Upper Lehigh in the Hell's Kitchen area. The structure, which was in a deteriorated state, nearly a pile of timbers and sheet metal, had been built on the footprint of the old No. 4 Breaker in 1930 and last used in 1933 by John Krause. The breaker was on property that Pagnotti Enterprises had purchased several years before.



**Figure 43. 1968 Upper Lehigh No. 2 Breaker fire. (Hazleton) Standard Speaker**

Two additional fires occurred in October 1970 on the Pagnotti properties at Upper Lehigh. In the early morning of October 9, an oil and grease storage shed at the No 2 Breaker site was leveled in a spectacular blaze, and while Freeland and Butler firefighters were working on it, they observed a flash between Upper Lehigh and Freeland, that they discovered as a tires and scrap autos burning in a strip pit.

Pennsylvania's earliest laws regulating the environmental effects of coal mining were enacted in 1913, but its first comprehensive attempt to control surface mining was passed in 1945. The 1945 Surface Mining Conservation and Reclamation Act and its anthracite partner, the Anthracite Strip Mining and Conservation Act of 1947 were not highly effective, but they and the 1937 Clean Streams Law are the basis for the modern state and federal environmental regulations covering surface coal mining. The 1945/1947 laws and their counterparts in other Appalachian states required little more than returning some dirt to be thrown back into completed strip pits and having some Scouts plant some Christmas trees.

The Anthracite Surface Mine Law was amended in 1963, requiring proper restoration of land affected by anthracite strip mining. The law required the coal operator to backfill all pits to approximate original contour or, in the case of exceptionally deep pits, the amount of backfill required was determined by a Land Restoration Board. The Land Restoration Board also had the duty to issue surface mine licenses and permits. The law also established a Bureau of Anthracite Conservation and Reclamation with a staff to administer the law.

It appears that the first Upper Lehigh permit under the new law was the Pagnotti Enterprises' Lehigh Valley Anthracite's "deep stripping" in the No. 4 North Basin in 1968. This operation, lasting 2-3 years, appears to have been the last strip mining that took place in Butler Township.

In 1968, Pennsylvania passed the Land and Water Conservation and Reclamation Act. It was the first law in the nation to address the reclamation of previously mined and abandoned mine land. Pennsylvania voters approved a \$500 million environmental bond issue. A portion of the bond funds, "Operation Scarlift," was to be spent for the elimination of stream pollution from abandoned coal operations, air pollution from burning coal refuse banks, alleviation of subsidence from abandoned mining operations, elimination of underground mine fires, and backfilling abandoned mine pits. In Upper Lehigh, one pit in the "Hell's Kitchen" area was backfilled under "Grant A49" at a cost of \$3,900.

A principal component of Operation Scarlift was identification and monitoring of acid mine drainage discharges from abandoned deep mines throughout Pennsylvania. Numerous mine drainage watershed studies were produced by both government staff and private consultants between 1968 and 1982. Scarlift SL174, Jeddo Tunnel Pollution Abatement study was funded for \$130,000 but was terminated after spending just \$12,440. The Jeddo Tunnel is a mine drainage rock tunnel system completed in 1894 and that serves as a gravity drain for a 33 square mile area under and around the City of Hazleton, but not Upper Lehigh. At an average discharge rate of over 29 thousand gallons per minute, its total daily discharge into the Little Nescopeck Creek in Butler Township is 44 million gallons per day.

In 1977 the Pennsylvania All Surface Mining Act (an amendment to PL 1198 of 1945 Bituminous Strip Mining Act) was enacted to provide stringent mining and reclamation requirements for all surface mining in the Commonwealth (anthracite and bituminous coal, stone, gravel, clay, etc.). This legislation was hailed nationally as a model surface mining law and served as an example for the federal Surface Mining Control and Reclamation Act (SMCRA) of 1977.

SMCRA was adopted because the states had inadequately regulated the environmental effects of coal mining. SMCRA established minimum requirements for the U.S. States' and Tribes' coal mining operations and created the Office of Surface Mining (OSMRE) within the Department of the Interior to promulgate regulations and oversee the new regulatory program. SMCRA allows states to regulate the environmental effects of coal mining if they administer a regulatory program according to federal standards. Pennsylvania demonstrated its ability to administer SMRCA requirements and gained primacy of the program from the Federal government in 1982, and in 1986 initiated a novel permitting program for areas with preexisting acid mine drainage discharges.

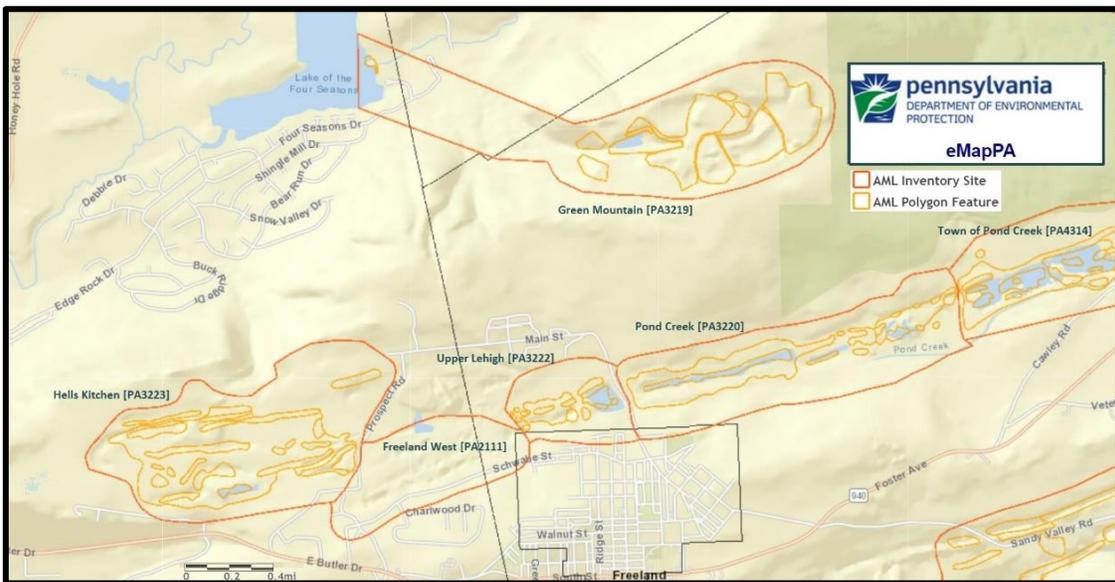
In the Upper Lehigh area, Pagnotti Enterprises had two permits from 1966, received two new Pennsylvania Surface Mine Permits (PA SMP) in 1986, and have maintained and renewed both as required by PADEP. PA SMP No. 40663034 (National Pollutant Discharge Elimination System (NPDES) Permit No. PA0225215), also known as Pagnotti Enterprises Upper Lehigh No. 5 Basin/ Lehigh 5 Mine is an active permit in Foster Township, affecting approximately 347.0 acres. The pre-1986 Mine Drainage Permit was 6474SM1. Under both permits, no discharge from the mine is allowed into any receiving stream, any water in the mining area goes into an underground pool created by flooded, abandoned deep mine workings. Prior to mining, the natural flows of storm water would have been into the Oley Creek, Nescopeck Creek or Pond Creek.

To keep the permits active under PADEP regulations, mining or mining-related activity or coal production must occur annually. In 2021, Upper Lehigh No. 5 Basin had three men working a total of 748 man-hours, and Upper Lehigh No. 6 Basin had two men working 155 man-hours and producing 253 tons of coal.



**Figure 44. Pagnotti Upper Lehigh Surface Mine Permits, Hazleton Standard Speaker 04/04/2015**

While SMCRA regulates active coal mines, it also has a program encouraging reclamation of abandoned mine lands. An Abandoned Mine Land (AML) fund was created to pay for the cleanup of mine lands that were mined before the 1977 passage of the statute but incompetently reclaimed. That fund is financed by an excise tax on coal mined in the United States. PADEP BAMR administers the Pennsylvania’s AML program to address the highest priority problems resulting from coal mining that occurred prior to the passage of SMCRA. BAMR receives annual grants from AML fund through the OSMRE. Legacy AML “problems” include health and safety hazards and environmental degradation. The AML program gives priority to health and safety hazards such as mine subsidence, hazardous mine openings, coal refuse piles, and dangerous highwalls. OSMRE and BAMR maintain an inventory of AML sites as shown on Figure 45.



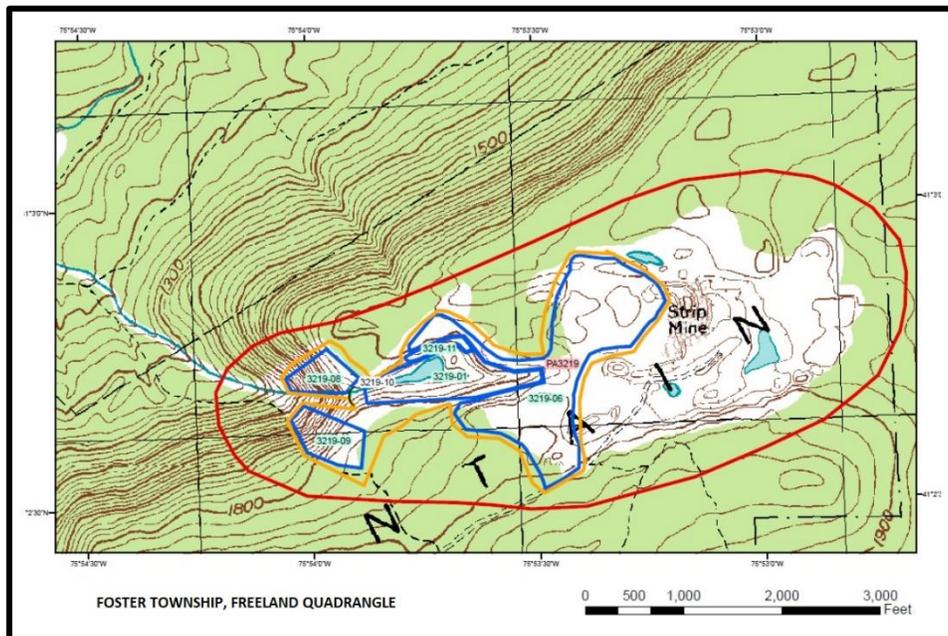
**Figure 45. Abandoned Mine Features, Upper Lehigh Area, PADEP**

The state has completed three large AML projects have been done in Upper Lehigh, two in Foster and one in Butler Township.



**Figure 46. Upper Lehigh OSM 40(3222)101.1 Reclamation Project Before/After, PADEP**

The “Upper Lehigh OSM 40(3222)101.1” AML Reclamation Project was done in 1996-1997 on a 64-acre site outlined by State Route 2019/Main Street Upper Lehigh, and Schwabe Street Freeland, and shown on Figure 45. The area contained twelve abandoned strip pits with more than 3000 feet of highwall, seven of the pits were water-filled, one underground mine slope, and three large spoil banks. In 1992 a young boy from Freeland drowned in one of the water-filled abandoned mine pits, shown in Figure 46 (before), when he fell in and was not able to climb out on the steep sides. The Upper Lehigh AML Project was presented the 1997 Appalachian and National Abandoned Mine Reclamation Award for excellence in reclamation by the Department of Interior, OSMRE.



**Figure 47. Green Mountain OSM 40(3219)101.1 AML Reclamation Project, PADEP**

The second Foster Township project was “Green Mountain OSM40(3219)101.1,” addressing legacy problems in the No. 5 Basin resulting from legacy mining which occurred before 1963. This project eliminated public health and safety hazards by backfilling a strip pit and grading four dangerous piles and embankments. The project work also reduced a significant erosion problem from the area that was known

as the “Wash” (Figure 48) and affected a stream which feeds Oley Creek and Beech Mountain Lake. 1,053,680 cubic yards of on-site material was re-graded over the 63-acre area, shown in Figure 47.



**Figure 48. The “Wash” at Green Mountain AML Project, PADEP**

The third project, in Butler Township, was the “Hell’s Kitchen OSM 40(3223)101.1” AML Reclamation Project. The work was completed in 2000 at a cost of \$1,594,287.63 and affected 241.4 acres including 24.5 acres of new, constructed wetlands, Figure 49 (after). Hazards eliminated were nine high priority pits, three of which were water-filled; ten low priority pits, a high priority spoil pile and silt pond, and a slope opening which was abated using a bat gate, which can be seen today.



**Figure 49. Hell’s Kitchen AML Project before/after, PADEP**

Trespassing began when the mining activity on the 3500 acres of the Upper Lehigh coal properties started to decline. Although most of the innocent trespass was tolerated by the various owners, it was a great venue for hikers and hunters, mushroom and berry pickers, leaf peepers and scouts. Others began using the land as their own, in ways that were not welcomed by the landowners. Bootleg mining, bootleg stills, swimmers in the flooded strip pits, and firebugs all have been mentioned earlier.

More recently illegal dumping, ATV riders, and snowmobile use have exacerbated the landowners’ concerns. While illegal dumping happens in both rural and urban areas, it is most likely to occur in remote and secluded places, rural areas where few people live, and the roads are less traveled. It is a Coal-Region tradition to load your trash, remodeling debris, and old appliances in the pickup and haul it to the “strippings.” Illegally dumped trash and tires pose an abundance of health and safety hazards. Scrap tires pose many risks. They not only provide a prime breeding ground for mosquitoes, but they can also leach

toxic chemicals that contaminate soil and water causing serious harm to humans, wildlife, and the environment. Scrap tires burn easily and are hard to extinguish, they have started refuse and mine fires.



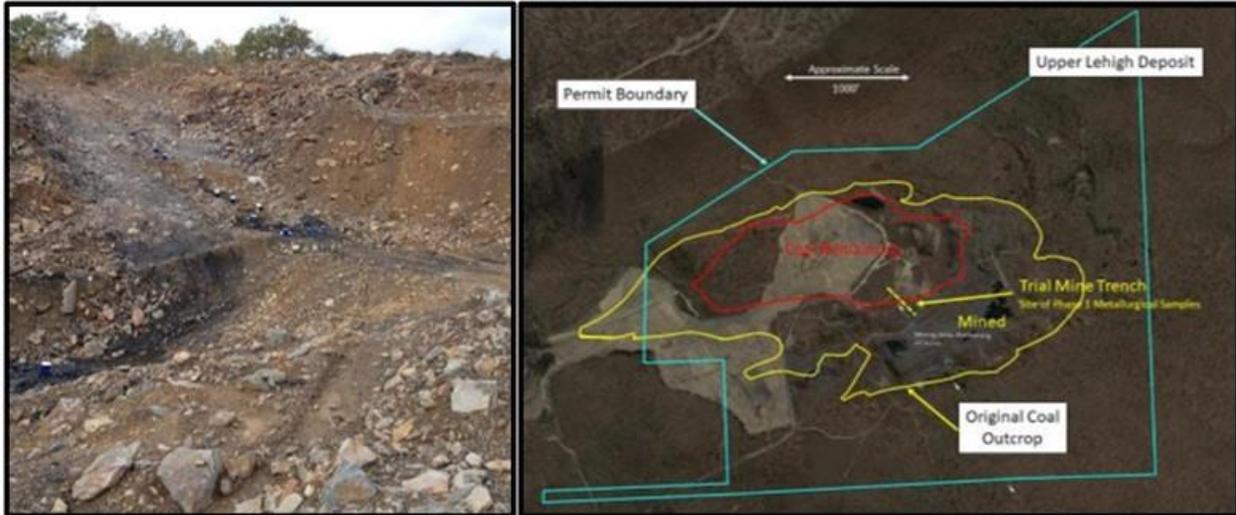
**Figure 50. Contractor blocking coal road to discourage dumping. Standard Speaker Jan. 17, 2007**

Property damage, fires, and off-road accidents continue to occur on private property around Upper Lehigh. More than a dozen dump, tire, and building fires have burned since the 1960s breaker fires. To control and extinguish a tire and trash fire in a strip pit in 2005, a contractor dug a 100-foot-long and 30-foot-deep trench, and more than one hundred volunteer fire-fighters worked for days, using more than 40,000 gallons of water. The Jeddo Coal Company has and continues to post and control access to their mining sites and its other mine lands.

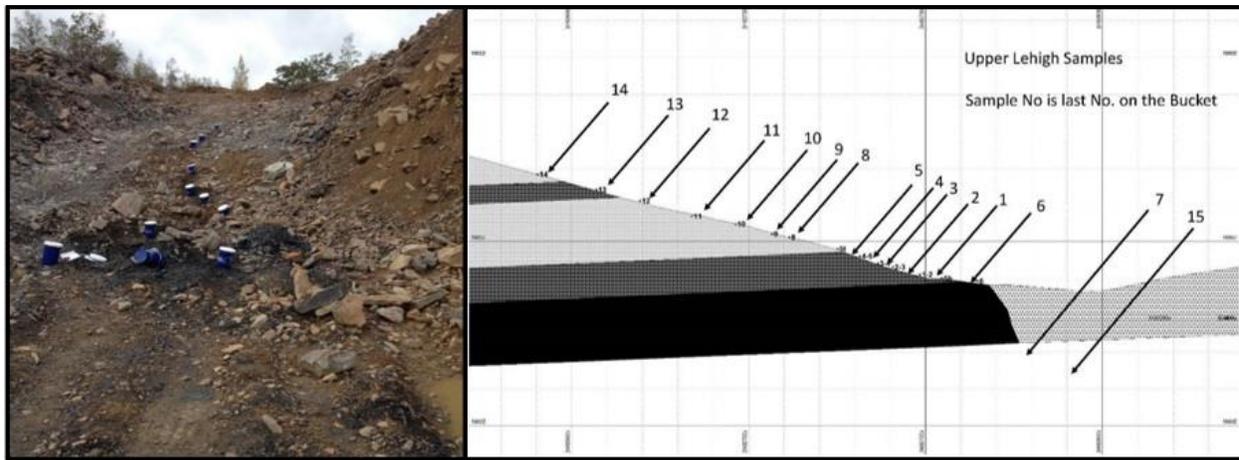
In 2017 the Jeddo Coal Company, Inventure Renewables Inc, and partners received a U.S. Department of Energy grant to explore the Upper Lehigh No.5 Basin for rare earth elements (REE). REE are a set of seventeen metallic elements that include the fifteen lanthanides on the periodic table plus scandium and yttrium. Rare earth elements are an essential part of many high-tech devices - a U.S. Geological Survey news release "Going Critical" explained: "*Rare-earth elements (REE) are necessary components of more than 200 products across a wide range of applications, especially high-tech consumer products, such as cellular telephones, computer hard drives, electric and hybrid vehicles, and flat-screen monitors and televisions. Significant defense applications include electronic displays, guidance systems, lasers, and radar and sonar systems. Although the amount of REE used in a product may not be a significant part of that product by weight, value, or volume, the REE can be necessary for the device to function. For example, magnets made of REE often represent only a small fraction of the total weight, but without them, the spindle motors and voice coils of desktops and laptops would not be possible.*"

The objective of this project was to locate coal overburden material that had REEs at concentrations of 300 parts per million (ppm) or higher. Along with REEs they evaluated the economics of the recovery of other metals of interest along with the REEs. Although the primary site was at the Upper Lehigh Mine, several other Jeddo Coal and other Pagnotti properties also were examined. The trial mine cut at the Upper Lehigh No. 5 as shown on Fig. 48 was sampled and those samples analyzed. The Upper Lehigh results were lower in REE than expected. The results ranged from 211- 293 ppm REE, below the goal of a

minimum of 300 ppm. Samples from other prospects were higher but still borderline as far as the 300-ppm goal.



**Figure 51. REE sampling trench and map showing its location. DOE FOA-0001627, 2019**



**Figure 52. REE field samples and locations on cross section. DOE FOA-0001627, 2019**

Results of the project indicated that recovering REEs alone from these feedstocks is not economically viable. It also suggested that metallic minerals in the materials tested, most notably aluminum, might be economically recoverable in an operation with REEs as byproducts. It appears that Upper Lehigh is NOT the answer to the Nation’s REE shortage and is not likely there will be a new Upper Lehigh mining industry.

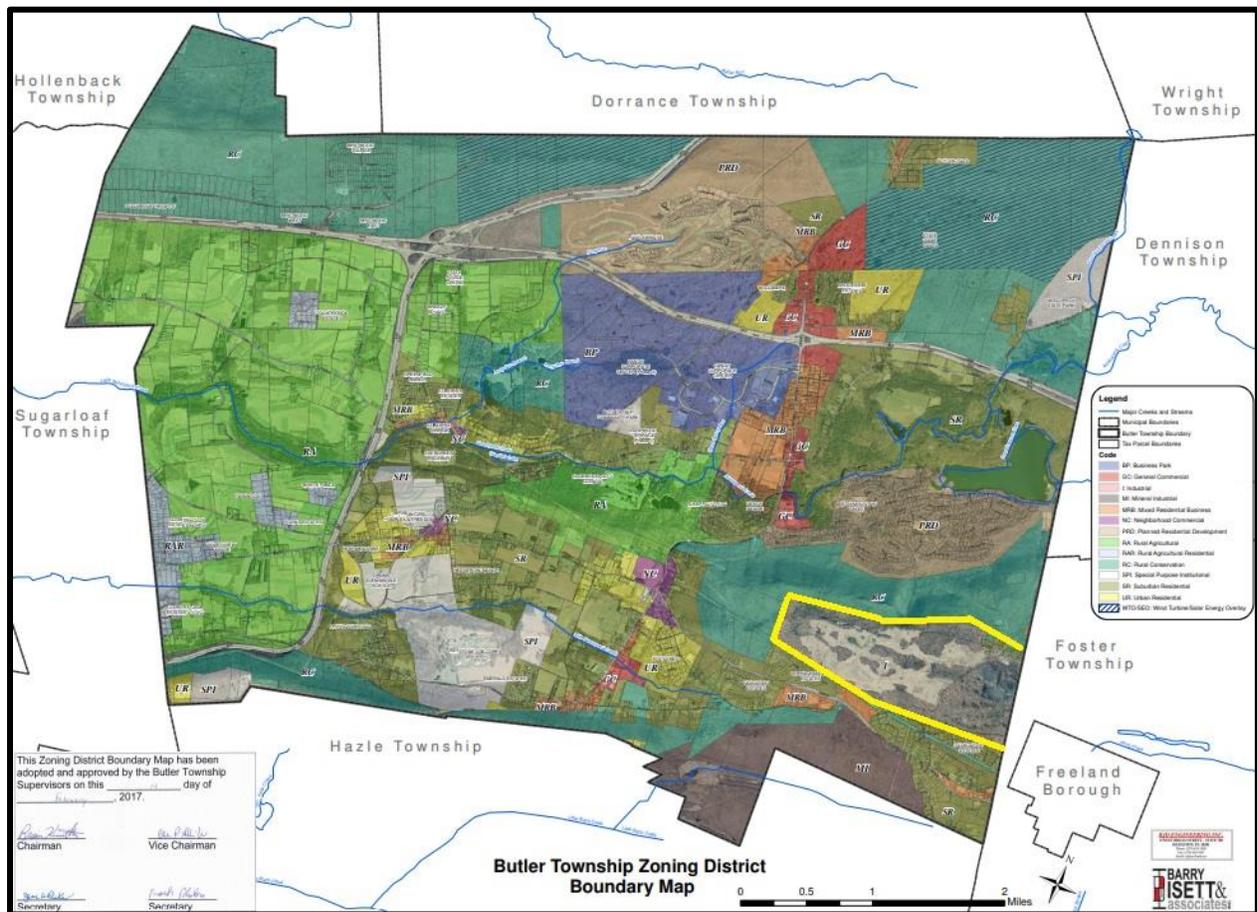
As mentioned earlier, there is an active surface mine permit in Butler Township and anthracite mining continues in the Upper Lehigh area, although not in Butler Township. In 2021, two employees worked 155 hours at the Jeddo Highland SMP 40663033 Lehigh 6 Mine, producing 253 tons, and three employees worked 784 hours, producing 1526 tons at the Pagnotti Enterprises SMP 40663034 Lehigh 5 Mine.

The bulk of the Upper Lehigh mining area remains as partially reclaimed abandoned mine land. Butler Township’s 2014 Zoning Ordinance created the Hell’s Kitchen as an Industrial-Zoned area. The purpose of the Industrial Zoning District is to provide for light industrial uses and related activities on larger parcels of land in areas of the Township accessible to the regional highway network while contributing to the economic base of the Township, but not interfering with non-similar uses, or causing adverse

environmental impacts. The Zoning Ordinance Industrial District specifies a number each of “Permitted” and “Special Exemption” uses.

According to the Township Ordinance, “Permitted Uses” are permitted by right within that zoning district, not requiring Zoning Hearing Board approval, but only a determination by the Zoning Officer. These include Industrial Equipment Sales, Rentals and Service; Light Industrial; Machine Shop; Truck Service Center, Repair and Storage; and Warehouse and Distribution.

“Special Exception Uses” require Zoning Hearing Board approval. The Zoning Hearing Board will either approve or deny a special exception use in accordance with the provisions of the Zoning Ordinance and applicable state law. These are: Airport or Heliport; Asphalt, Batch or Concrete Plant; Construction/Demolition Waste Landfill; Cogeneration Facilities; Electricity Generating Plant; Heavy Industrial; Incineration Plant; Industrial Park; Junk or Salvage Yard; and Mineral Extraction.



**Figure 53. Butler Township Luzerne County Zoning Map 2017, Upper Lehigh AML highlighted yellow**

During a recent zoning variance hearing for the “Heavy Industrial” zone in Figure 53 (far right/bottom), the Glen O. Hawbaker Company was attempting to get a variance to put an Asphalt Plant in that zone, rather than in the “Industrial Zone” at Hells Kitchen. Their people remarked, “We don’t think it (Hell’s Kitchen) is a good spot to put an industrial plant where you have to drive through a residential district ... We don’t think it’s a good fit.” They stated that they thought that they could get the special exemption

use for the asphalt plant, but “Each day 328 dump trucks would travel along Prospect Road to and from the asphalt plant if it were built in the current light industrial zone. 82 trucks would deliver stone at night to the plant, leave empty and then return in daylight to carry away asphalt.”

A 2020 Amendment established the area as a Solar Energy Overlay District. The purpose of this overlay district is to:

*“A. Promote the safe, effective, and efficient use of solar energy in order to reduce the consumption of fossil fuels in producing electricity.*

*B. Preserve and protect public health, safety, welfare, and quality of life by minimizing the potential adverse impacts of a Solar Energy System.*

*C. To establish standards and procedures by which the siting, design, engineering, installation, operation, and maintenance of a Solar Energy System shall be governed.”*

The Solar Energy Overlay requires any Major Energy System applicant to get a Special Exemption from the Zoning Board and have their plans approved by the Township Planning Commission and the Township Supervisors. Plans for a solar farm were submitted by Piedmont Land Holdings and reviewed in 2020. The application was subsequently withdrawn.

I started working on this history of mining in Butler Township after reading a Hazleton Standard Speaker September 2021 story “Open to Sources,” where Kent Jackson wrote that **the** Dr. Frank Polidora and the other Butler Township Supervisors were asking for help compiling a robust history of the Township. I am a mining engineer who lives in the Township and was involved with an abandoned mine reclamation project in the Foster Township portion of Upper Lehigh before I retired from the Pennsylvania Bureau of Abandoned Mines. I also have a keen interest in anthracite mining history and work part time for an engineering and environmental consultant which has Piedmont Land Holdings as a client.

I envisioned a story here that would end with the legacy coal mine area at the Hell’s Kitchen area bringing back the energy business in Butler Township to the place that started it, restoring the scenic viewing sites on a trail around a solar farm, and telling the start of that new story. Apparently, as I wrote above, that doesn’t seem to be a likely ending. So, I will just end this by thanking the Butler Township Supervisors for challenging me to do the work. I also want to thank some sources of information and help proofing what I’ve written.

The website *History of Freeland, Pa* <http://freelandhistory.com> and Charlotte Tancin, who administers it; the Greater Hazleton Historical Society and Museum and its Facebook page, and the Pennsylvania Department of Environmental Resources website all were sources of information and illustrations. I will also name some of the people who did proof readings and gave suggestions and encouragement: Pat, my wife of 56 years; Cal Herring, from Freeland and Jim LaRegina, who suggested that I add geology to this, but Pat agreed with Sheldon from the “Big Bang” TV show that geology is boring.

Thanks for reading.

Mike Korb