

good condition; they have flanges of sufficient strength and dimensions for safety attached to their hoisting drums; they have an adequate brake on the hoisting drum; they have a steam-gauge and safety-valves for safety and to indicate the pressure of steam; the breaker machinery is boxed and fenced off so that operatives are safe.

*Remarks.*—They have furnished a map of the mines; they have second openings for both veins; the Checkered vein is connected with Rock Hill Tunnel workings, and they have a shaft with ladders in from the Pittston vein to the surface; it is located about 1,500 feet south of main shaft; they have a house for men to wash and change in; they have no standing gas or water in the mines; the mining boss is a practical and competent man; he thoroughly understands his business; there are no boys working in the mines under twelve years of age; the engineers seem to be experienced, competent and sober men; the parties having charge know their duty in case of death or serious accident; the shaft landings are protected by safety-gates.

#### ROUGH AND READY SHAFT COLLIERY.

This colliery is located in Pittston township, and situated on the east bank of the Lackawanna river. This mine is operated by the National iron company of Danville. Elijah Evans is superintendent and mining boss.

*Description.*—This shaft is 35 feet from the surface to the Checkered vein; then 7 feet of coal; then 35 feet of rock to the Pittston vein; then 12 feet of coal; then 98 feet of rock to the vein they now propose to work; they had a breaker attached to the shaft tower, but it was burned down during the year; they are not working here at present; they mined only about 5,000 tons of coal during the year 1872, as they have been idle a greater portion of the time; the average thickness of the vein of coal that they propose to work is about 8 feet; the Pittston and Checkered veins are nearly worked out; they are now preparing to build a new breaker and they say that they will get the mines in good working condition.

#### COLUMBIA TUNNEL.

This colliery is located in Pittston township, and situated about  $\frac{1}{2}$  mile south-east of the Lackawanna river. It is operated by Grove Brothers, Danville. Daniel Evans is general superintendent and mine boss, and Evan J. Evans is outside foreman.

*Description.*—The opening to the coal is a tunnel 7 feet wide by 6 feet high and 2,300 feet long to the face in the mine; there is a breaker located about 500 feet from mouth of tunnel; they mine and prepare about 90 tons of coal per day; they employ 10 miners, 10 laborers, 3 drivers, 2 door-boys and 1 company man in the mine; 6 slate pickers, 2 head and plate men, 1 driver, 2 company men, 3 mechanics and 2 bosses outside; in all 42 men and boys; they are working the Pittston vein; average thickness, 8 feet; they work headings 10, air-ways 14, and chambers 24 feet wide; they leave pillars about 14 feet wide to sustain the roof; they leave cross entrances about 20 feet apart for the purpose of ventilation; the roof is fire-clay and slate; the mine is in good working condition.

*Ventilation* is produced by a furnace aided by check-doors; the in-take is located at mouth of tunnel; area 42 feet; the up-cast is located in furnace air-shaft; area 25 feet; the amount of ventilation has been measured and reported; ventilation is good.

*Machinery.*—They use 1 breaker engine of 30-horse power.

*Remarks.*—The mining boss seems to be a practical and competent man; there are no boys working in the mine under 12 years of age.

Of the smaller companies and operators, I have two to report who have replaced furnaces with fans during the year. Messrs. Jones, Simpson & Co., have put in a twelve feet diameter fan at the Pierce colliery, in Archbald borough, and Messrs. William Connell & Co. have replaced their furnace with a fourteen feet diameter fan, which commenced running October 28, 1879. The Butler Coal Company have replaced a six feet diameter Patterson fan with a sixteen feet Guibal fan, and the little one has been removed to the Twin shaft, Pittston Coal Company, and the Hillside Coal and Iron Company have removed their fan from the Powder Mill shaft, in which the coal is exhausted, to a new air shaft sunk for the Spring Brook tunnel.

All the miscellaneous collieries are in a satisfactory condition at present, excepting the following: Jermyn's shaft and slope, Jermyn borough; Eaton colliery, Archbald borough; Filer colliery, Winton borough; Greenwood colliery, Lackawanna township; Hillside colliery, Pleasant Valley borough; **Columbia** mines, Pittston township, and the Beaver mines, Pittston borough. The first three named, the Greenwood, and the two last named, are the only very bad ones, and each of these must receive particular attention during the current year. The larger number of the collieries of the small operators, are in very good condition as to ventilation.

Taking the whole of my district, I think that it can be safely said, that the progress made during the year in bringing the condition of the collieries up to what it should be, is highly encouraging and satisfactory, and the work accomplished can be taken, no doubt, as an assurance that what is still wanting, will be done in due time.

#### Prosecutions for Violations of Law.

It is one of the most unpleasant duties of the position of an inspector, that he feels compelled, in certain instances, to enter criminal proceedings against mine bosses or workingmen, for violations of law. I have often felt that I would prefer to suffer the penalty myself than do this, if I could escape my oath-bound duty by doing so. Whenever I have been forced to prosecute, I have done it "with malice towards none and charity towards all," and have never asked the courts to inflict any but a nominal punishment. But I have been sorely grieved at the course pursued by the operators, superintendents, and workingmen, in defense of the unfortunate parties prosecuted. I do not complain at their availing themselves of all legal and honorable means in defense of the accused, but when they assail the motive of the inspector, and attribute his action to a feeling of spite and a desire for revenge, in retaliation for some real or imaginary wrong they may be conscious of having perpetrated against him, they make the cross a very heavy one to bear. I cannot account for this, only as a verification of the old maxim, that "The guilty fleeth when no one pursueth him." But it grieves me that any one, who claims an intimate acquaintance with me, can imagine it possible for me to be capable of indulging in a low and mean desire for retaliation and revenge; for I thank God that

charged to the account of years in the past, long before Mr. Vandling assumed the control of the mines, and this fact should be credited to him. He has always been found ready to admit the necessity of improving the mines, and has shown a desire to do everything possible for the health and safety of the workmen.

The Pennsylvania Coal Company's collieries stand about as they did one year ago. No material improvement has been effected in any of their old collieries. The new No. 1 Barnum shaft, however, is provided with a fan which will produce ample ventilation for this new colliery, and another fan will be provided for the No. 2 shaft. I am very sorry that I cannot report all the collieries of this company in as good condition as could be wished. John B. Smith, Esquire, the general agent of the company, has always treated me with uniform kindness, and has always professed a desire to improve the condition of the mines under his charge; but the mine superintendents have not seemed so ready to do what is needed. My remarks on the condition of these collieries in my report for 1879, will apply to them still.

The collieries of the smaller companies and operators in the district are in excellent condition as to ventilation, excepting the following: Everhart colliery, Jenkins' township; Beaver colliery, Pittston borough; **Columbia** mines, Pittston township; Hillside colliery, Pleasant Valley borough; Greenwood colliery, Lackawanna township; Elk Hill colliery, Dickson City borough; Filer colliery, Winton borough; Jermyn's shaft and slope, Jermyn borough; Brennan colliery, Fell township; and Forest City colliery, Forest City. Some of these have been improved during the year, but none of them will ever have good ventilation until they are provided with a fan in place of the miserable furnaces now in use in them. The workings are so shallow in these collieries that furnaces cannot ventilate them. None of these can be classed as very bad, excepting the Jermyn shaft and slope and the Brennan colliery.

An air shaft has been sunk for the Hillside colliery, Pleasant Valley, and as soon as connection is made with the workings a fan will be placed on this shaft, which will remove all cause for complaint in this case.

A new fan has been erected by Messrs. Jones, Simpson & Co., at the Eaton colliery, Archbald borough, which was sorely needed. This improvement will place the Eaton colliery in the first class as soon as the air courses are put in proper shape inside.

The main roads and traveling ways have been improved in many of the collieries, but there is a great deal yet to be done before they are all satisfactory in this respect. The importance of having clean and unobstructed roads is not realized by many of the mine bosses, but I am more convinced of it every day, and I am positively certain that many accidents to drivers and runners would be averted if the roads were kept reasonably clear of obstructions. All places where drivers are obliged to hitch and unhitch their mules from cars in motion, such as passing branches, the approaches to the foot of shafts or slopes, and inside at the chambers, should be cleared

### Delaware and Hudson Canal Company.

In the Delaware shaft a tunnel was driven from the top split of the Baltimore to the bottom split, a distance of 105 feet. It is used for transporting coal. Sectional area 7x9 feet.

The Laurel Run Colliery, located in the borough of Parson's, which had been operated by the Delaware and Hudson Canal Company since 1869, passed into the possession of the Laurel Run Coal Company on the 1st day of April, 1895, on account of the expiration of the lease.

### Newton Coal Mining Company.

Three rock tunnels were driven in this company's colliery from the sixth to the fifth seam a distance of 300 feet each, which are used for the transportation of coal.

### Old Forge Coal Mining Company.

An underground slope was sunk in this company's **Columbia** shaft, a distance of 200 feet; sectional area, 84 feet.

In the Phoenix shaft a tunnel was driven through a fault or roll in the Red Ash seam, a distance of 200 feet; area 7x10 feet. A new plane was erected 500 feet in length with gradient of one foot in five.

A new fan 20 feet in diameter was erected at the Columbia shaft to ventilate the workings of the sixth, or Red Ash seam in both of those shafts which are connected with the upcast to fan. While running 60 revolutions, 164,462 cubic feet of air per minute is exhausted.

### Delaware, Lackawanna and Western Railroad Company.

An underground slope was sunk in the Hallstead colliery of this company to a depth of 1,000 feet; 6x12 feet area. A rock tunnel was driven a distance of 398 feet, 6x12 feet which has not tapped the coal at this writing.

In the Pettebone shaft a tunnel was driven 138 feet sectional area, 128 feet. An underground slope was sunk 86 feet on a 25 degree pitch. A new fan 35 feet in diameter, 9 feet face with two inlets enclosed in brick work was put in place. At a speed of 43 revolutions per minute 129,960 cubic feet of air is exhausted with a water gauge of 1 9-10 inches.

### Florence Coal Company, Limited.

At the No. 2 shaft the second opening to the Marcy seam was driven to the surface, a distance of 120 feet.

*Hillside Coal and Iron Company.*

This company has sunk a new shaft 12×26 feet on their land south-east of Avoca. The sinking was started in March, 1892, but not being pressed for coal, it was abandoned until May, when the sinking was commenced in earnest and the shaft sunk to the Red Ash seam, a depth of 168 feet, by September 1st. The second opening has been completed connecting with the workings of the Elmwood shaft of the Florence Coal Company. The coal is taken to the Consolidated breaker by a small locomotive over two miles of road.

*Avoca Coal Company.*

A new fan 12 feet in diameter has been erected on the air shaft of this company, which exhausts 55,000 cubic feet of air with 4 inches water gauge running 120 revolutions per minute, driven by a 20-horse power engine.

*Robertson and Laws Colliery.*

At the Katydid colliery, two new slopes were sunk from the surface on the Stark seam, a distance of 314 feet, area 6×10 feet on a grade of 8 degrees. The coal is taken 24,000 feet to the breaker by a small locomotive.

*Bennett Colliery.*

A shaft 8×10 feet was sunk to the Baltimore seam, a distance of 60 feet, as a means of escape for the men who were taking out the pillars at the farthest part of the workings, in case of a sudden caving of the roof.

*Annora Coal Company.*

A rock tunnel was driven from the upper to the lower split of the Red-Ash seam; area 7×12 feet, a distance of 300 feet. A shaft was also sunk to air the same between the splits, a distance of 20 feet; area 10×12 feet.

*Clear Spring Coal Company.*

A new Guibal fan twenty feet in diameter was erected on the air shaft to ventilate the workings of the Red Ash seam, driven by a vertical engine cylinder 16×30 inches.

*Morning Star Colliery.*

A rock tunnel was driven from the Bennett seam to the Ross, a distance of 275 feet; area, 84 feet. A new fan twelve feet in diameter was erected to ventilate the workings, exhausting 45,000 cubic feet of air per minute, driven by a horizontal engine, cylinder 10×20 inches.

*Old Forge Coal Company, Limited.*

In the **Columbia** shaft a rock tunnel was driven from the third to the fourth vein, a distance of 90 feet. Sectional area, 98 feet. To be used for transportation of coal.

#### Improvements by the Lehigh Valley Coal Company.

At the Oakwood shaft the second opening to the underground slope has been sunk to the red ash seam a distance of 325 feet, with a sectional area of 230 feet.

An underground slope was also sunk in the red ash vein a distance of 614 feet on a grade of four and one-half degrees. This slope opens up a large field of good coal for this colliery.

The Exeter breaker has been remodelled and enlarged and a new tower erected over the hoisting shaft. The shaft has been repaired from the top to the bottom and the inside workings placed in shape for a large transportation of coal. The buildings at the second opening with the shaft have undergone complete repairs.

At the Wyoming Colliery a 15-foot fan was erected on the old opening of the Hillman shaft, which gives very good results; it is run by a horizontal engine 14x24 inch, and driven by belting.

#### Improvements by the Old Forge Coal Mining Company.

The **Columbia** shaft of this company was sunk from the Marcy to the red ash seam, connecting with the workings of their Phoenix shaft and completing the second opening for both shafts.

#### Improvements by the Butler Coal Company, Limited.

A slope was sunk by this company on the outcrop of the Marcy vein to a depth of 200 feet on a grade of 18 degrees, sectional area 84 feet. The coal is taken to the breaker by a small locomotive.

#### Improvements by the Delaware, Lackawanna and Western Railroad Company.

A tunnel was driven in the Hallstead shaft from the second to the third seam, a distance of 656 feet, area 6x12.

#### Improvements by the Algonquin Coal Company.

Two underground slopes were sunk in the Pine Ridge shaft, a distance of 1,100 and 300 feet respectively.

#### Improvements by John C. Haddock.

In the Black Diamond shaft a tunnel was driven from the Bennett to the eleven foot seam, a distance of 200 feet, area 8x12. An inside gravity plane was built a distance of 1,500 feet for transporting coal to foot of shaft.

new column complete, installed in Red ash district. New fire proof pump room built for same.

New safety gates built at Red Ash shaft.

New carpenter-blacksmith shop, 52x56 completed.

### Seneca Colliery

Several other improvements are under way, but as they are not completed you probably will not care for them. They are as follows:

Two tunnels, one 200 the other 300, through fault in property known as "Old Forge 88," in Twin shaft.

Two bore-holes, one 12 inch, the other 14 inch from surface to the Red Ash vein for drainage purposes. It is proposed to pump the water from this vein through these holes and do away with column pipes in shaft.

A shaft has been started to tap the Pittston vein about 500 feet below the Seneca breaker.

### Seneca

Which includes the New or Coxey, the Twin, the **Columbia**, and the Phoenix shafts.

1st. At the Twin shaft the old wood fan-house was replaced by one of corrugated iron. This insures greater safety from fire, for owing to its proximity to the D., L. & W. R. R. danger from this source was always present with the old structure.

2d. The cribbing in the Twin shaft consisted of a single line of 12x12 hemlock timber. Upon this rested the shaft tower, sixty feet in height. The coal cars landed on fans and run off on a trestle twenty-five (25) feet above the ground. The said trestle extends a sufficient distance east of shaft to allow the passage of empty cars which are hauled from the breaker by a 12½ ton locomotive. The cribbing having been in place between nine and ten years began to crush and bulge into the shaft under the weight of the shaft-tower and trestle. Owing to these conditions it was decided to replace the old cribbing with one of concrete, and if possible, without delaying the operation of the shaft. This was successfully accomplished in the following manner.

The inside dimensions of the cribbing (old) was 12x17x35 in depth. In the line of old buntons several hard wood buntons one on another were placed in good hitches cut in the rock at foot of old cribbing. On these buntons rested a line of posts, six in all, which reached to a point above the top of old cribbing. By means of hydraulic jacks the overhead weight was taken off the old cribbing and placed on 12x16x40 oak timber that was put across the shaft, on top of posts,

16—12—1903

Avoca Shaft.—The tracks in the Avoca mine have been narrowed to the gauge of Laws shaft. Rock was taken down on some heading roads to accommodate the Central mine cars. All the coal in the Avoca mine will be footed at Laws shaft and prepared in Central breaker, when operations are resumed.

Old Forge Colliery.—The addition to the washery is nearly complete; jigs to prepare buck, pea and nut coal have been erected and will be in operation in two weeks.

No. 1 shaft was thoroughly repaired during the year; the old wood cribbing was taken out and replaced with concrete; the wood engine house was torn down, and replaced with a brick building; all buntons, guides and brattice work were renewed and the shaft remodeled.

Six, seven and one-half ton cable reel motors have been added to the electrical equipment, as follows: two at No. 2 shaft, two at No. 1 shaft, and two in the Clark Mountain drift. At Old Forge No. 2 shaft a new mine hospital and foreman's office has been built in the Five Foot vein.

The ventilation is being continually improved. A new air shaft to be sunk near the most advanced workings will give another outlet and an abundance of air.

The Old Forge mines are in good condition.

#### LEHIGH VALLEY COAL COMPANY

William A. Colliery.—The company drove a plane in the Red Ash vein, connecting the Lawrence and the William A. mines and installed an oil burning locomotive for inside transportation between Babylon and William A. All the coal from the Lawrence shaft workings and drift workings and also from the Babylon shaft workings and drift workings, is being conducted underground to the foot of William A. shaft and prepared in the William A. breaker.

The condition of the Lehigh Valley collieries in this district is such that a great deal of care is required on the part of the Inspector which is very annoying to the officials in charge.

Seneca Colliery.—The No. 9 slope in the Twin Shaft, Marcy vein, has been driven to the 5th and 6th veins, which are being developed near Scovel Island.

Rapsons tunnel has been driven through the big fault near or on the Phoenix lease, and the Marcy veins are being developed on the west side of this line of disturbance; the new air returns for the **Columbia** shaft workings and the Twin Marcy slope have been completed; a very modern concrete mule barn to accommodate 60 mules has been built, and also a concrete station house inside for the ambulance car. A pump house is being built at the foot of the Marcy vein slope for the installation of some heavy pumping machinery.

In the Pittston vein, the thickness of roof cover is the problem. The workings are parallel to and under the Susquehanna river, and the quantity of sand wash over the vein is a condition sufficiently serious to impress the company with the advisability of keeping the development of this vein isolated from their other workings, and advancing only when a bore-hole, sunk ahead, proves the thick-