

**The Gaylord Coal Company.**

A new air-shaft constituting a second opening to the Red Ash vein was sunk from the Ross seam, a depth of 120 feet, having an area of 10×12 feet. They also made two new planes, one in the Ross and the other in the Red Ash seam. Their lengths are 500 and 400 feet, respectively, on a grade varying from 13 to 18 degrees.

**A. J. Davis.**

At the Warrior Run colliery a new tunnel was driven from the D to E vein, a distance of 120 feet, and another is in progress from the D to B or Red Ash vein.

**W. G. Payne & Co.**

At the East Boston mine of this company, a new air-shaft was sunk convenient to the main workings, a depth of 150 feet, having an area of 10×15 feet, from the surface to the Cooper and Bennett veins, and the fan was removed from the old shaft and placed upon this. The ventilation of the mine has been greatly improved by this change, and is produced at less cost.

**Haddock & Steele.**

This company bought the **Black Diamond** colliery from J. C. Hutchison, and took possession March 1, 1882. Since then they have graded the underground slope, and made considerable improvements in the work.

**The Red Ash Coal Company.**

This company completed their second colliery ready to begin shipping coal on the 1st of March, and mined 69,204 tons of coal by the end of the year. All the coal, yet mined, is above the level of the breaker, and the Ross and Red Ash seams have been cut by a tunnel, through which the coal is brought out. A new slope was sunk, reaching a lift of coal below the level of their No. 1 colliery, from which a considerable quantity of coal can be very conveniently obtained.

**Waddell & Walter.**

This company completed their shaft at the Raubville colliery, and effected their second opening by connecting with the workings of the **Black Diamond** mine. The shaft was 170 feet to the Bennett vein. A new fan was erected to ventilate the workings, a description of which can be seen elsewhere in this report.

**Waddell & Company.**

The Bennett shaft, 10×20 feet, was completed, and cut the Bennett vein at a depth of 320 feet; also an air-shaft for the same mine. The breaker was set in operation in May, 1882, and during the remainder of the year they mined 26,226 tons of coal. This colliery is situated in Plains township, east of Mill Creek. A new fan was erected to ventilate the colliery, having a diameter of 22 feet, which is producing a ventilation of about 80,000 cubic feet per minute.

## General Condition of the Mines.

Eighty-four openings, including the new shafts and slopes in progress of sinking, were in operation in this district during the year 1884. All of these except eleven produced more or less coal for the market. The underground workings are maintained in about the same condition as they were upon my previous report for the year 1883, excepting that a marked improvement was made in some of the mines in which the ventilation was not then satisfactory. A fan was erected in the West End mine, which improved the ventilation very effectively. The workings are now kept clear of smoke, and are much healthier for the workmen therein. Since the present proprietors began operating the **Black Diamond** colliery, in Luzerne borough, the colliery has been very effectively improved, and a new shaft is now being sunk upon which a new fan is to be erected to produce a more effective ventilation. I have complained frequently of the ventilation of this mine, but under the old management the required improvements were continually deferred. Now the improvements in progress will shortly bring the mine to a satisfactory condition.

The Conyngham and Baltimore Slope mines, both of which were seriously damaged by inundation of water the latter part of 1883, have since been restored to their former order. The second openings, and all matters pertaining to the safety of the men employed therein, are satisfactory.

At the Warrior Run colliery the ventilation, for some time past, was rather small, but they have succeeded in increasing its volume to a small extent by enlarging the outlet air-passages. Now it is in a fair condition; still, the margin is small, and they will have to be watchful, or, as the workings advance, it may soon become inadequate again.

The air-ways in every mine, where practicable, should be made of sufficient area to have the cars follow the miners. The old system of wheeling the coal in a wheelbarrow should be abandoned; it is both laborious and expensive, and the miners very reluctantly drive the air-ways wider than is necessary to pass the wheelbarrow, where such system is in vogue. The inevitable consequences of having small air-ways is a small quantity of air for ventilation.

At the Old Slope Franklin colliery a marked increase of ventilation was effected by making a change in the construction of the outlets of the double fan, and also by enlarging the main air-ways in the mine. This mine is now in much safer and better condition generally than it was at the beginning of the year 1884. Other improvements are contemplated, which, if made, will still enhance the safety and producing capacity of this mine.

The mines of the large companies, those of the Lehigh Valley, Lehigh and Wilkes-Barre, Susquehanna Coal Companies, and Delaware and Hudson Canal Companies, are generally in good condition. I find, though, that even in the mines of these companies the ventilation is conducted through the faces of the workings better in the gaseous mines than in the ones producing no gas. The bosses of some of the mines in which no explosive gases

*Black Diamond*

**The Kingston Coal Company.**

The No. 4 shaft, sunk by this company, reached the Red Ash seam at a depth of six hundred and sixteen feet. This opens a very wide extent of territory and is expected to produce a large supply of coal. The second opening will be effected by opening into the workings of the No. 3 shaft of the same company.

**The Franklin Coal Company.**

Important improvements are in progress at the Franklin colliery. A new slope is being driven down across the measures to cut the Ross and Red Ash seams, and it has reached a depth of six hundred and ninety-three feet on a grade of thirty-three degrees. Eventually, when the slope cuts the Red Ash, a new breaker will be erected, from which all the coal of this colliery will thereafter be shipped. The ventilation of the old slope mine was considerably improved last year by enlarging the air-ways and by some modifications in the construction of the fan.

**W. G. Payne & Company.**

The East Boston shafts of this company were extended to lower seams. The main shaft to the Red Ash, a depth of three hundred feet, and the air-shaft to the Ross seam, a depth of two hundred and thirty-four feet. This improvement opens a large area of good coal for this company. The size of the main shaft is 11'×22', and of the air-shaft 10'×18'.

**Haddock & Steel.**

A new air-shaft is in progress at the **Black Diamond** colliery of this company, and it has reached the Cooper seam at a depth of one hundred and fifty-two feet. Its sectional area is 12×12 feet. A tunnel was also driven on a rise of seventeen degrees from the Bennett to the Cooper seam, by which a large piece of good coal is intended to be mined from a point some distance below the old Cooper workings.

**The Red Ash Coal Company.**

The new tunnel reported last year as being driven from the surface to the Red Ash seam by this company is completed. It cuts through the Ross seam at a distance of nine hundred and nineteen feet, where the coal was found to be nine feet thick. The Red Ash was reached at a distance of eleven hundred and ninety-seven feet, and the coal is of excellent quality. This tunnel drains all the workings of this company, and relieves them of the cost of pumping water. The slope was extended to the level of the said tunnel, and opens a new lift, of about five hundred feet in length, in both seams.

**Thomas Waddell.**

The Raubville shaft was extended from the Bennett to the Ross seams, a depth of two hundred feet. They are now driving a second opening.

nace which gave such unsatisfactory results that it had to be dispensed with.

**Black Diamond Colliery.**—This company has sunk their air shaft from the Bennett to the Ross seam, a distance of two hundred and thirty feet. The coal is hoisted from the Ross seam through the air shaft to the Bennett vein and then taken to the foot of the main hoisting shaft to be hoisted to the breaker. They are widening the air shaft from the surface to the Bennett seam, to make the air shaft the main hoisting shaft, and having the shaft they are now hoisting the coal in for the air shaft, which will, in my opinion, be a decided improvement for the safety of the employés under ground, as the breaker is located over the main opening at present.

**Florence Coal Company.**—In the Elmwood shaft of this company a new underground slope was sunk a distance of seven hundred and twenty-five feet. The coal is hoisted to the bottom of shaft by a pair of double engines situated in the mines at head of slope.

#### Coal Breakers Destroyed by Fire.

The Dunn breaker with the surrounding buildings of Jermyn & Co., in Old Forge township, Lackawanna county, were totally destroyed by fire on the night of Tuesday, July 17, 1888. The culm bank had been on fire for some time, and being in close proximity to the breaker, the supposition is that it caught fire from the culm pile. A new breaker has been erected, two hundred feet from the shaft on the site of the old breaker which was erected over the shaft. A new fan of the Murphy pattern, fourteen feet in diameter, is to be erected in place of the one destroyed by the fire.

#### The Burning of the Consolidated Breaker.

On the night of Tuesday, December 11, 1888, the Consolidated breaker of the Hillside Coal and Iron Company, located in Pleasant Valley, was discovered to be on fire, and although strenuous efforts were made to prevent its destruction, in a short time it was completely destroyed. It is not known how the fire originated as there were no stoves or lights in the breaker at the time. A new breaker is now being built on the site of the old one.

additional pumps required to take care of it in the East Boston Bennett seam, indicate a weakness of the pillar.

Fourth. While it is possible that the barrier pillar may stand an indefinite time under the present conditions, the conditions are liable to change by falls similar to those already described by witnesses, and the working of the other seams in the vicinity; therefore, placing additional strain on the pillar which already shows signs of weakness by spalling of its top bench, and although the barrier pillar now stands intact with the water flowing to the **Black Diamond** shaft sump, we recommend the head be reduced 92 feet vertical height below the present overflow and maintained at this level, this being the third level of the Black Diamond slope, before and during the period that men are permitted to work the lower levels in Bennett and Cooper seams, East Boston mines. We also recommend that no pillars be removed unless the balance of water be taken out.

J. H. BOWDEN,  
H. S. REETS,  
K. M. SMITH,  
*Arbitrators.*

DIVISION AND BOUNDARY LINE BETWEEN FIRST AND SECOND ANTHRACITE DISTRICTS.

*To the Board of Examiners for Mine Inspectors Appointed by the Court of Common Pleas of Luzerne county, Pennsylvania, on the 15th day of January, 1890:*

GENTLEMEN: The undersigned, Inspectors of districts Nos. 1 and 2, hereby request you to re-adjust the boundary line between said districts in order that all the coal mined in each of said districts shall be brought out of the openings located in the same districts. We have agreed to the following line of division: Beginning at a point where the line, between lands of the D., L. and W. R. R. Company and Elliott McClure & Co., lessees, intersects the line between Old Forge and Ransom township, thence along line between D., L. and W. R. R. Company and Elliott McClure & Co., lessees, and John Jermyn, lessee, in a southeasterly direction to the center of the Lackawanna river. Thence along said Lackawanna river, between lands of the D., L. and W. R. R. Company and N. Y. and Susquehanna Coal Company, in a northeasterly direction to a corner of Wm. Connell, Sons & Co., N. Y. and Susquehanna Coal Company and D., L. and W. R. R. Company. Thence following line between lands of the Connell & Company, and N. Y. and Susquehanna Coal Company, in a southeasterly and northeasterly direction, through a portion of Lackawanna township, to a corner on the Scranton city line. Thence along said Scranton city line, in a southeasterly direction, to the outcrop of the coal formation. Said boundary line is clearly defined on a map hereto attached and made a part of this petition.

## CONDITIONS OF THE COLLIERIES.

The quantity of coal produced during the year 1890, has increased 562,236 tons over that of the previous year. The breakers were in operation on an average 185.76 days producing a total of 5,229,027 tons of coal. The increase of breaker time over last year being 17.29 days. The ventilation of the mines is greatly improved; by referring to table A, in this report, it will be seen that there is 467 cubic feet of air per minute in the intake to each person employed in the mines. Ten new ventilation fans have been erected to furnish fresh air for the inside workings which are giving general satisfaction as regards ventilation.

In visiting the underground workings, I find that a large number of the miners are indifferent in regard to standing their props and timbers properly for the purpose of securing the roof of their working places.

When it becomes necessary to stand props or timber for safety, it is reasonable to presume that they should be stood in a proper manner; I have repeatedly called the attention of the miners to this loose way of standing their timbers which are generally placed in every conceivable way but the right one, and the excuse has usually been that a shot has placed them in the condition that they were found.

While there may be some truth in regard to the coal flying from a blast displacing some of them, I do not think it is the case with the majority that I find displaced. I have called the attention of the inside bosses to this loose way of standing props and timbers by the miners where they have charge, as it is dangerous and unworkmanlike and shows a bad state of discipline by those bosses whose duty it is to see that the miner stands his timber in a proper manner, and that the roof is secured as the workings advance, as one-half of the fatal accidents this year were caused by falls of roof and coal which occurred at or near the working faces. While the victims themselves are somewhat to blame, are the bosses, where such timbering and loose discipline exists, entirely blameless?

## ARBITRATION.

On April 13, 1889, I received a letter from James B. Davis superintendent for John C. Haddock, which stated that the Bennett Seam in the **Black Diamond** shaft had been abandoned and would be allowed to fill with water. On March 18, 1890, my attention was called to the water in the Bennett slope oozing through the barrier pillar on the East Boston side, I therefore wrote E. F. Payne the following notice:

PITTSBURY, PA., *March 22, 1890.*

E. F. PAYNE, ESQ.,

*Superintendent East Boston Shaft:*

DEAR SIR: I find that the water in the Bennett slope of the **Black Diamond** shaft, operated by J. C. Haddock, has accumulated to such an extent that there is a possibility of the pillar between you and them bursting out by the pressure of water and endangering the lives of the men working on the rock plane in the Cooper Seam of your mines.

Too much credit cannot be given to the officials and men, from the highest to the lowest, whose duty required them to oversee and do the work in repairing the shaft and placing it in working order again. I am happy to state that John B. Law, formerly superintendent of the Pennsylvania Coal Company, having newly been appointed general superintendent of this company's collieries, grasped the situation in a moment, and by giving his orders for the safety of the men, and placing such safeguards around while the repairing was going on, it was done with such rapidity and care that not a single accident occurred.

The shaft resumed operations on November 17, 1892. Almost all of the workmen who were thrown out of employment by the fire, were given work in this company's Ravine shaft.

*The Burning of the Mosier Shaft, Newton Coal Company.*

On Friday, April 8, 1892, the Mosier shaft was destroyed by fire. The cause of the fire could not be ascertained. There was both a day and night watchman employed, whose duty it was to look after this breaker, as the works had been abandoned from July 7, 1891, on account of a general settling of the strata at that time, which caused considerable apprehension in the mind of the Inspector as to the safety in allowing the shaft to continue working, therefore the pumps were taken out and the workings allowed to fill with water.

FILLING BY CULM OF THE COOPER VEIN OF THE EAST BOSTON AND BLACK DIAMOND COLLIERIES.

In September, 1889, a large portion of the old and abandoned workings in the Cooper seam of the East Boston and **Black Diamond** collieries (the former operated by W. G. Payne & Company and latter by J. C. Haddock), began to squeeze along the line of the adjoining property to such an alarming extent that both of these companies proceeded without delay to secure the same by building cogs of timber and standing props to prevent the roof from caving, which fortunately was accomplished after considerable time and expense.

After due deliberation both parties came to the conclusion to fill the old workings with culm, as it would be a more substantial job when done than the propping.

This year both companies commenced filling the old workings with the culm. The East Boston having placed the pipes in position, started flushing the culm into the mines March 21, 1892, and since that time, have satisfactorily filled in four and one-half acres of old workings solid to the roof.

The water used to do the flushing, is pumped from the Bennett seam of same shaft, and is discharged into a barrel connected with culm chute at the breaker which carries the culm down the shaft 170 feet to the vein, by a six inch gas pipe. Continuing from there by the same sized pipe for 400 feet into old workings with a fall of three feet to the

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hundred, there discharging from the pipe and flushing 800 feet of abandoned workings on a grade of from three or four degrees.

In filling in where the pillars are solid, instead of driving cross cuts, holes are drilled through, and then enlarged to six inches by reaming, which works very satisfactorily.

About twenty tons of culm per hour are thus disposed of, requiring 250 gallons of water per minute to flush the same through the pipe.

The filling of the old workings with culm in the **Black Diamond**, is similar to that of the East Boston.

The size of pipe laid in the **Black Diamond** is as follows: 200 feet of six-inch pipe on a nine degree pitch extending from the buckwheat chute in breaker to top of shaft, with 450 feet of four-inch pipe extending down the shaft to Ross seam, then extending 400 feet along the level to top of inside slope, then by 950 feet of four-inch pipe on a six degree pitch down the slope to face of chambers to be filled.

The flushing system of this company is working very satisfactorily also, as they have filled about twelve acres. There is passing along the pipes 815 pounds of culm and 117 gallons of water per minute. In my opinion there are other benefits to be derived from the filling of old or abandoned workings with culm, other than securing the roofs, which in itself amply repays for the time and expense of so doing.

For instance, it precludes all possibility of the mine becoming a magazine for gas and removes all anxiety in that regard from the minds of the persons in charge, while the air which is required to ventilate these portions of the old workings could be conducted in and around the working faces. It would likewise render it impossible for any person to fall into them as is sometimes the case, thereby diminishing the possibility of accident.

To James B. Davis, the general superintendent of the **Black Diamond** colliery, belongs the credit of having originated the plan of filling the old and abandoned workings in this inspection district with culm, and, in my opinion, it will give the most satisfactory results wherever adopted.



gree pitch. A new fan of the Guibal pattern, 20 feet in diameter, has been erected on one compartment of the hoisting shaft to furnish ventilation for both seams. It is run by a horizontal engine, cylinder 16x20 inches, directly connected.

Annora Coal Company.

This company has erected a new Guibal fan 16 feet in diameter on the second opening to the slope, which furnishes the workings with a large quantity of fresh air. It is run by a 28-horse power engine, directly connected to fan shaft. A new shaft, 25x11 feet, was sunk 45 feet to the Marcy vein. It is located on the bottom of the Pittston vein on the strippings of the vein.

W. S. Payne & Co.

At the East Boston Colliery a new Guibal fan, 25 feet in diameter, has been erected as a duplicate in case of an emergency. It is run by a horizontal engine, cylinder 20x36 inches, and exhausts 141,800 cubic feet of air with a water gauge of 2-10 inches running 60 revolutions per minute.

Robertson, Law & Co.

At the Katydid Colliery a new Guibal fan, 12 feet in diameter, has been erected on the second opening to the slope. It is run by a horizontal engine, cylinder 12x12 inches, and exhausts 34,000 cubic feet of air per minute, with a water gauge of 5-10 inch.

Mount Lookout Coal Company.

This company has erected a new Guibal fan, 20 feet in diameter, on their air shaft, as a duplicate to the other, and have them so arranged that by closing one door and opening another, which will only take a few minutes to do, either fan could be run. It is run by a horizontal engine, cylinder 16x30 inches, and directly connected to fan shaft.

John C. Haddock.

At the **Black Diamond Colliery** a new air shaft, 14x12 feet, was sunk from the surface to the Cooper seam. The reason for this shaft having been sunk was that the old air shaft had been retimbered so often inside that the area had become too small to retimber it again in the same way, and to take the old timber out and replace it with new would necessitate the colliery to be shut down for some months, which the officials did not want to do. Therefore, the new one was started, which was quite an undertaking on account of the depth of quicksand to be overcome in that neighborhood. However, they were quite successful with it. The shaft was sunk through the sand 128 feet and 12 feet through shelly slate and coal, 140 feet in all, when, on

the night of October 9, at 12.15 o'clock, the old airshaft collapsed, the timbering having given out. There was 35 feet of rock in the new shaft to be gone through to reach the Cooper seam when this occurred, and 90 feet of an airway to be driven through solid coal to complete the airway for the new shaft. In the morning when the superintendent, James B. Davis, arrived, he concluded to divide the hoisting shaft into two compartments and connect one-half with the fan, temporarily, in order to keep the mine clear of gas. They also put the column pipe of the pump in one-half, in order to keep the water out of the mine. On October 26 they started to hoist coal with one carriage, and continued to do so until the new air shaft was completed and the new fan erected.

The coal was hoisted on one carriage from the red ash to the Bennett seam, then taken off and replaced on the other carriage, to be hoisted up to the breaker. There were hoisted, in this manner, as many as 428 mine cars, although they were handling the cars five times instead of once, as they were doing when they could hoist to the top with both carriages.

On October 18 the foundation of the new fan was started, which contained 150 perches of stone. On this a new fan, 20 feet in diameter, was erected and steam turned on on November 6, 19 days from the time the foundation was started. The fan and building were completed in two days after. A new "Rand" duplex air compressor, 48x20 inches, had just been started to furnish air to run the pumps in the mines when the air shaft caved, which was very fortunate for them, as it helped to ventilate the workings.

The old fan has been put in repair and connected with the new air shaft, to be used as a duplicate in case of an emergency.

I am happy to say that to James B. Davis, superintendent, and the officials and workmen under him, I must give great credit for the amount of work done in such a short time, and the carefulness which was at all times exercised by them to guard against accidents, as not one person employed in or around the shaft was injured while the work was in progress, although this shaft is a very gaseous one and required a constant watch on the part of those having charge to avert an explosion.

#### Change of Operators.

The Pine Ridge Colliery, located at Miners Mills borough, has changed hands. It was operated by the Delaware and Hudson Canal Company until September 30, 1893, when it was surrendered on account of the expiration of their lease, when the Algonquin Coal Company became the operators, who immediately proceeded to do considerable repairing to the shaft before they started to mine and ship coal, which they began doing in the month of December, having worked 13½ days.

#### 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.

10x36 inch, in Bennett vein and pumping through bore hole direct to surface. One small electric pump, 4x5 inch.

Have been driving slopes in Orchard, Bennett and Ross veins.

Are driving rock plane upon 15 degrees from Bennett vein to upper veins, which will cut Cooper, Lance, Orchard and Hillman veins.

#### DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Pettebone Colliery.—The new boiler plant referred to in my last report has been completed and is composed of 10 fore-box locomotive boilers.

Breaker improvements consist of mechanical pickers, elevators, conveyors and spring balance shakers for the preparation and cleaning of coal.

Inside improvements consist of two 7x12 rock tunnels, one driven from the Cooper to the Lance vein, the other was driven through what is known as the Pettebone anticlinal Hillman vein. The condition of haulage roads and return airways has been improved upon.

#### TEMPLE IRON COMPANY

Mount Lookout Colliery.—New boiler house (frame building) 140x40 feet inclosing 8 sets of Sterling boilers and one new rock crusher to crush all the mine rock which is returned and deposited in the mine.

#### CLEAR SPRING COAL COMPANY

Clear Spring Colliery.—Have erected a new washery at this colliery to prepare the marketable coal in their large culm dump. They run all the sedge and refuse from this washery into the mine. The cost of this washery was about \$25,000, and in addition to this the company expended nearly \$3,000 in yard improvements, which include the changing of their tracks, etc., making a total expenditure of about \$28,000.

#### PEOPLE'S BANK, RECEIVER (PLYMOUTH COAL COMPANY.)

**Black Diamond Colliery**—Inside.—Driving one tunnel from Red Ash to Ross veins.

Erected at breaker one set of Emery slate pickers for separating slate from stove coal.

Outside.—Scraper line and rolls for breaking and conveying slate to mines for flushing mines.

Completed 12x72 inch x 18 feet return tubular boilers. These boilers were begun in 1903.

#### DELAWARE AND HUDSON COMPANY

Langeliffe Colliery.—No. 1 slope Checker vein, driven 400 feet to crop. No. 2 slope Red Ash vein driven 500 feet to crop.

## CLEAR SPRING COAL COMPANY

Clear Spring Colliery.—New plane connecting the two splits in the Marcy vein and the installation of one new 325 horse power Sterling boiler.

## DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Pettebone Colliery.—Work of retimbering both shafts has been completed from surface to Red Ash vein. The erection of a brick partition separating hoistway and airway in No. 1 shaft, is now completed. Ventilation has been very materially improved by the installation of this partition.

Two rock tunnels have been driven from Hillman to Kidney vein, south of No. 1 shaft, one for haulage and development purposes, and the other for ventilation and second opening.

This colliery is now in operation after being idle on account of repairs to these shafts since August 16, 1909.

## PLYMOUTH COAL COMPANY

**Black Diamond Colliery.**—One new rock plane 19 degrees pitch, from Cooper vein to Lance vein, on the south, east end, and one new rock tunnel from Cooper vein to Lance vein, on the south, west side of the property. Sinking a slope in Lance vein inside of this tunnel with one pair of 10 by 12 Bangor engines.

## MINE FOREMEN'S EXAMINATIONS

The examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held in Kingston, April 19 and 20th. The Board of Examiners was composed of the following: P. M. Boyle, Inspector, Kingston; James J. McCarthy, Luzerne; Harry Jones, Wyoming, and Edward Carlin, Luzerne.

The following applicants passed a satisfactory examination and were granted certificates:

## Mine Foremen

John R. Owens, Westmoor; William H. Davies, Wyoming; George Davies, West Pittston; William D. Thomas, Edwardsville; Alfred H. Gibbs, Forty Fort; William Rowley, Luzerne; M. J. Cunningham, Wilkes-Barre; John Mellow, Wyoming; David Walsh, Swoyersville; M. J. Brady, Luzerne; George D. Lewis, Forty Fort; John T. Jones, Edwardsville; Jacob F. Miller, Maltby; Anthony Gallagher, Pittston, and Albert Edwin Thomas, Edwardsville.

## Assistant Mine Foremen

William F. Taylor, Wyoming; M. H. Corrigan, Luzerne; Isidore Hochriter, Luzerne; Jacob Rosnick, Jr., Luzerne; John R. Thomas, Luzerne, Michael Kelly, Wyoming; John L. Williams, West Pittston; David Richards, West Pittston; Martin Tigue, Exeter; John Hosey, Forty Fort; James Donaldson, Avoca; William J. Costello, Kingstont; John E. Dworske, Wyoming, and Samuel Booth, Wyoming.

It is lighted by electric lamps, a small engine and dynamo being installed for that purpose. A large water tank has been erected, capacity 50,000 gallons, and connected to the water main. A powerful pump is connected to the tank, and pipes carried to every part of the breaker and annex. This pump is continually under steam, and by simply turning a valve can flood every department of the breaker in a few minutes. A rock slope was driven from the Clark vein to the surface, a distance of 300 feet, on a pitch of 33 degrees. This concentrates the pumping plant at this point and also furnishes an additional second opening.

**Black Diamond Colliery.**—Abandoned January 19, 1911, the coal being exhausted. The breaker was torn down and the machinery removed to other collieries.

#### BREAKERS DESTROYED BY FIRE DURING THE YEAR

The production of coal in the First District for the year 1911 was reduced somewhat, owing to the destruction by fire of three breakers. The Raymond breaker of the Scranton Coal Company, was destroyed by fire January 22, and the colliery—a large producer—was idle until December 4.

The Morss Hill breaker of the Morss Hill Coal Company, was destroyed by fire July 27, which left the colliery idle the balance of the year. The company has not commenced to erect a new breaker to take the place of the one destroyed by fire, but expects to do so in the near future.

The Sunset breaker of the Ainsley Coal Company was destroyed by fire May 17, and no steps have been taken to erect a new one. This colliery is a small operation and did not ship any coal during the year.

The Spring Hill Colliery of the Spring Hill Coal Company shut down the first of January, and later on was leased to Watkins and Sons, who have been doing some developing of the property and operating on a small scale at intervals during the year.

The breaker has been wired and lighted by electricity. A Cross Compound Corliss valve movement Ingersoll-Rand air compressor 20 by 38 by 30 by 33 inches, was installed. A new brick central shipping station was built. A new underground fuel conveyor line was built from breaker to boiler house. An additional track was built for No. 4 loaded and supply. Two new powder houses were constructed.

The system of night schools has been continued during the year, also the school for the instruction of "First Aid to the Injured Corps." The general appearance of the property has been considerably improved during the year, a number of miners' dwelling houses having been enlarged and sanitary sewerage installed.

#### PLYMOUTH COAL COMPANY

**Black Diamond Colliery.**—Inside: Opened Eleven-Foot or Marcy vein in shaft. Built concrete mule stable in Cooper vein, concrete and steel stable in Ross vein and Red Ash vein; also concrete and steel engine room head of Ross slope. Drove a rock tunnel from Cooper vein to Lance vein, 150 feet, and drove a rock slope from Lance vein to Cooper vein 150 feet; also drove a rock tunnel from Red Ash vein to "A" vein 50 feet.

#### DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Pettebone Colliery.—Inside: A rock plane has been driven on a 15 degree pitch from the Hillman to Kidney vein, No. 2 shaft, which is now about completed, and a second opening for the same has been driven to the coal, but connections have not as yet been made. The work of sinking No. 11 slope, from Bennett to Red Ash vein, is under way. The Ross vein in No. 1 and No. 2 shafts has been opened and connected to shaft airway. The work of rebuilding mule barns, pump rooms, engine house, etc., with incombustible material, is under way, and will soon be completed.

#### MINE FOREMEN'S EXAMINATIONS

The examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held at Kingston, April 4 and 5. The Board of Examiners was composed of P. M. Boyle, Mine Inspector, Kingston; James J. McCarthy, Superintendent, Luzerne; Harry Jones, Miner, Wyoming; and Edward Carlin, Miner, Luzerne.

The following applicants passed a satisfactory examination and were granted certificates:

##### Mine Foremen

Michael H. Corgan, Luzerne; William Michael Toner, Plymouth; Frank J. Carter, Nicholas Cooke, Forty Fort; John Lewis Williams, David Richards, David William Owens, West Pittston; John McHugh, Edwardsville.

##### Assistant Mine Foremen

Thomas Francis Levin, Maltby; William L. Geyer, Dorranceton; William Coutts, David Coutts, Forty Fort; Peter Berry, Pringle; Philip Williams, Charles W. Thomas, John Williamson, John M. Williams, Jr., Wyoming.

H section steel columns and concrete. A new mine hospital was constructed in Marcy vein of fireproof material and fully equipped with the necessary appliances. A Jeffrey electric under-cutting machine has been placed in Ross vein, with very satisfactory results. A mule barn, with concrete floors, steel mangers and cast iron feed boxes and water troughs, was constructed in the Marcy vein, to accommodate 32 mules.

Outside: A pair of 14 by 20-inch Vulcan hoisting engines installed on the surface to operate Ross slope inside. The engines replace the Flory engines formerly used, which were inadequate to do the work. A complete telephone system was installed connecting the outside office with all the veins and slopes.

#### PLYMOUTH COAL COMPANY

**Black Diamond Colliery.**—Inside: Built concrete and steel engine room at the head of the slope in Red Ash vein and concrete and steel stable in Red Ash vein. Retimbered Red Ash plane engine house with steel timbers and iron lagging. Built concrete and steel stable in Ross vein; concrete and steel engine room at the head of the slope in Ross vein; concrete and steel pump room in the Bennett vein, and concrete and steel stable in Cooper vein. Installed a 24 by 10 by 24-inch Scranton steam pump in Bennett vein and a 16 by 8 by 18-inch Scranton steam pump in Red Ash slope; also one 5-ton General Electric Company motor with the necessary wiring and bonding to operate it in Bennett vein.

Outside: Installed one General Electric continuous current, 100 K. W. 400 amperes, 250 volt generator, driven by a General Electric 60 cycle 150 horse power 440 volt motor. An electric power house constructed of brick, 26 feet by 14 feet by 12 feet, was also completed. Installed one 500 horse power two-drum water tube Babcock and Wilcox boiler, enclosed in a fireproof brick boiler room with corrugated iron roof and iron doors. Constructed a pump room of concrete and steel with corrugated iron roof and door. Installed one 16 by 8 by 18-inch duplex Scranton steam pump for boiler feed. Installed three Anthracite Spiral slate-picking machines and one Emery slate-picking machine in breaker.

#### DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Pettebone Colliery—Inside: The second opening from Hillman vein to Kidney vein, which was mentioned in last year's report, has been completed. The work of rebuilding mule barns, pump rooms, hoist rooms, etc., with incombustible material, is completed.

#### EAST BOSTON COAL COMPANY

East Boston Colliery.—Inside: The foot of the shaft was made fireproof by the use of concrete and steel supports. The mule barn, hospital and pump room in Red Ash vein were built of concrete with steel supports. The slope engine room was also built of concrete with steel supports. There were 43 sets of steel timber placed in Red Ash and Ross veins to take the place of wood. The Ross slope engine



## KINGSTON COAL COMPANY

Kingston No. 4 Colliery.—No. 1 shaft: One 8-inch hole was drilled from Bennett vein to Ross vein for drainage. A new concrete air bridge was built in the Orchard vein.

No. 4 Shaft: New fireboss station was constructed at foot of shaft. Shaft was driven from Checker vein to Bennett for drainage and flushing. New 8-inch bore hole was drilled from Ross to Red Ash vein for pumping purposes. A concrete re-enforced partition was completed between the downcast and upcast airways in hoisting shaft. A concrete re-enforced building was erected for encasing a new 28-foot Vulcan fan with Corliss engine. This is a duplicate of the building erected in 1914. A new manway has been completed from the Ross tunnel to the foot of the shaft in the Red Ash vein.

## EAST BOSTON COAL COMPANY

East Boston Colliery.—Installed one 21 by 36 inch air compressor, complete. Built fireproof compressor engine house; also fireproof hospital on the surface. Two electric generators were installed for lighting purposes. Tunnels were driven from Bennett vein to Cooper vein and from Eleven Foot vein to Bennett vein. An air shaft was driven from Cooper vein to Bennett vein.

## HADDOCK MINING COMPANY

**Black Diamond Colliery.**—Rock plane was driven from Lance vein to Orchard vein, 208 feet, on 21 degree pitch, equipped with one pair of Flori engines. New fireproof engine room was built at head of Eleven Foot slope for housing 12 by 24 inch Vulcan hoisting engines.

## RAUB COAL COMPANY

Louise Colliery.—Installed 3 electric hoists and 4 electric centrifugal pumps.

## DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Pettebone Colliery.—Breaker was reconstructed and is again in operation. The work of developing thin seams is still underway.

## MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held in Pittston, May 18 and 19. The Board of Examiners was composed of S. J. Jennings, Mine Inspector, Pittston; James J. McCarty, Superintendent, Luzerne; Thomas Grogan, Miner, Luzerne; John Evers, Miner, Luzerne.

The following applicants passed a satisfactory examination and were granted certificates:

Pine Ridge Colliery.—Rock plane to Ross, back basin, 512 feet; air shaft, surface to Ross bed, 66 feet; tunnel, Cooper to 5-foot No. 14 tunnel, 140 feet; tunnel, Cooper to 5-foot, first lift, 84 feet; rock plane, Kidney to Snake Island bed, 530 feet; air shaft, surface to Snake Island bed, 60 feet; replaced eribbing in shaft with concrete; rock plane, Checker, to Five Foot bed, 350 feet.

Baltimore No. 5 Colliery.—Air shaft sunk from surface to Five Foot, 48 feet; Young's slope reopened in Hillman bed.

#### LEHIGH VALLEY COAL COMPANY

Mineral Spring Colliery.—Outside. Twelve old company houses were repaired and painted and one constructed.

A shaft was sunk from the surface to No. 1 drift workings, in the Skidmore vein, for conveying the hoisting rope and to facilitate ventilation of the drift workings.

A wooden engine house was built and an engine installed for hoisting on the new slope now being driven into the basin in the Skidmore vein, No. 1, drift. Addition to shaft engine house. Electric lighting plant installed.

Inside. A 16 inch by 8 inch by 18 inch pump was installed in No. 8 slope.

No. 1 Skidmore drift was reopened, retimbered and the sinking of a new slope into the basin was begun.

#### HADDOCK MINING COMPANY

**Black Diamond Colliery.**—Outside. Installed a compound Ingersoll-Rand 15 inch by 25 inch by 20 inch air compressor driven by a 300 horse power G. E. motor, inclosed in a 25 foot by 52 foot by 12 foot brick building.

Changed breaker drive from steam to one 100 horse power G. E. motor.

Inside. Installed one 1200 gallon centrifugal pump driven by a 150 H. P. motor, Bennett vein to surface.

Installed one 600 gallon centrifugal pump driven by 50 H.P. motor in Bennett vein.

Installed one 600 gallon 10 by 10 triplex Aldrich plunger pump driven by a 100 H.P. motor in Eleven Foot vein.

Installed one 600 gallon centrifugal pump driven by 75 H.P. motor in Red Ash vein.

Changed hoist on Ross slope from steam to 75 H. P. G. E. motor.

Changed hoist on Eleven Foot slope from steam to 75 H. P. G. E. motor.

#### CENTRAL COAL COMPANY

Wyoming Colliery.—Outside. New locomotive house, new office, new stable. An addition and plane added to breaker so that soal is now hoisted and dumped at the top instead of the bottom as previously.

Installed 40 H. P. Lidgerwood electric hoist at breaker plane. Installed one set of crushers and three sets triple deck shakers. Two new fan houses; new engine house; new wash house; locomotive road relaid with 60 pound rails.