

**The General Condition of the Mines.**

During the year 1883, several new collieries began to operate in this district, swelling the list to an appreciable degree, and increasing the inspection work in the same proportion. The Clear Spring colliery began to send coal through the breaker January 3; the Alden colliery began January 18; the Hanover March 10; the Fuller colliery the last week in August; the Schooley breaker started September 3, and the Hillman vein breaker September 28. Beside these, the new breaker at the Lance colliery started to ship coal June 30, and the new breaker at the Stanton mine September 1. Thus eight new breakers are added to the list of this district for 1883. These new collieries are all equipped with the latest improved colliery-plant, and each is starting the operation of mining in good condition.

The ventilation of the Lance, Stanton, and Fuller collieries is largely in excess of the need of the present workings, and evidently it will continue so for some time. The ventilating systems of the other new collieries have not been completely established yet, but I expect it will be efficient when the contemplated work is accomplished.

In the old collieries, the good condition reported last year is generally maintained. A few instances exist where there is sufficient ground to complain, but even in these a slow progress is being made, and I am promised that a more satisfactory condition will soon be effected.

With the large amount of coal mined at present, the workings underground spread out rapidly, requiring extraordinary care in the manipulation of the air-currents to supply an efficient quantity of ventilation at the face of the workings. This is done remarkably well, considering the difficulties of the work.

Some difficulty is experienced in maintaining an effective discipline, from which laxity accidents frequently arise, causing injuries to the workmen which might easily be avoided provided the discipline was more effective.

**Events Causing Fire-Damp to Accumulate in Collieries.**

Great danger exists when a large body of fire-damp accumulates in a coal-mine, and this danger had to be contended with at three of the collieries of this district for several months in 1883. During the first part of January the pillars of a large extent of workings in the Baltimore slope were crushing and showing the usual signs of an approaching cave, and about five o'clock, A. M., January 25, the expected cave transpired, breaking the strata clear through to the surface, and damaging a number of houses. While the pillars were being crushed, all the hitherto occluded gases were suddenly relieved and evolved into the cavities of the mine, causing the atmosphere of a large area of workings to become explosive. At the same time, from the same cause, the second opening of the Conyng-ham shaft was deranged and made for a while unavailable as an escape for the latter colliery's workmen in case of emergency. The ventilation of this mine was also affected, so that a large section of the workings became

**Dintony & Co.**

The air-shaft at the Schooley colliery of this company was completed to the Pittston seam, at a depth of three hundred and twelve feet. Its sectional area is one hundred and forty square feet. It was connected to the workings by June 1, 1884, since which time the colliery has been working upon its full capacity. A fan was erected at the main shaft, the diameter of which is eighteen feet, and it produces a ventilation of about seventy-five thousand cubic feet per minute. They have had more than ordinary trouble in opening this colliery, but the work has been successfully accomplished, and the mine is now in a fair condition.

**The West End Coal Company.**

The East End colliery of this company began to produce coal for the market in the month of March, 1884, and has been in operation since that time. Their openings are all above water-level, having driven a tunnel to the seams. At the West End colliery an air-shaft was sunk to improve the ventilation. Its sectional area is one hundred square feet, and depth eighty feet. At the old tunnel a sixteen-foot fan was erected, which has improved the ventilation very materially.

**The Hanover Coal Company.**

This company sunk a shaft on their premises during the year 1884. Its size is  $11\frac{1}{2} \times 20$  feet, and its depth from surface to the Ross seam, which is mined at present, is one hundred and ninety-four feet. This, with other improvements effected at this colliery, has increased its capacity for producing coal and for giving employment to persons in and about the mine. Other improvements are in contemplation, which will be effected during the year 1885.

**The Alden Coal Company.**

The tunnel at the Alden colliery was extended to the Ross seam, having passed through three workable seams including the Ross. The latter is 6 ft. 2 in. thick, and it was reached at a distance of one thousand seven hundred and sixty-four feet from the entrance of the tunnel. The Bennett vein was cut at a distance of two hundred and sixty-three feet, the Twin vein at three hundred and fifty-eight feet, and the Ross at one thousand seven hundred and sixty-four as stated. The first is 4 ft. 6 in. thick, the second 5 ft. and the third 6 ft. 2 in. The tunnel is driven on the level of the breaker, and the coal is brought out by mules.

**The Hillman Vein Coal Company.**

A tunnel was driven at the Hillman Vein shaft from the Three-foot seam to the Hillman, cutting the latter at a much lower elevation than it was at the shaft. Its sectional area is  $8 \times 14$  feet, and its length is four hundred feet. This opens a fair lift of good coal at a point convenient to the shaft. They sunk a slope also to the South basin, from which they are now obtaining a large portion of their production of coal.

**Lehigh and Wilkes-Barre Coal Company.**

At the Empire colliery of this company a new fan was erected on the No. 2 shaft, which is 24 feet diameter, and produces a ventilation of 145,000 cubic feet of air per minute, running 70 revolutions per minute. A tunnel was also driven, for the purpose of ventilation and haulage, from the bottom to the top split of the Baltimore seam. It is 100 feet long and has a sectional area of 84 square feet. The South Wilkes-Barre shaft is continually sinking, and is now at a depth of 500 feet. The arrangement of the head of this shaft is very good; is heated by steam so that no ice forms in winter, and is thus kept in much safer condition than if ice was formed.

**Delaware and Hudson Canal Company.**

One of the new shafts at the Baltimore slope is sunk from the surface to the Red Ash seam, where it is found at a depth of 400 feet. The coal is fair and about 10 feet thick. They are now driving toward the other shaft, which will soon be sunk to the same vein, and by which a second opening will be effected.

**Susquehanna Coal Company.**

A number of improvements, such as tunnels and planes, were made in the mines of this company. In No. 4 slope two planes were made; one is 500 feet long, and the other 800 feet. These will facilitate the haulage of coal, and also enable them to mine coal which could not be reached otherwise. The slope was also extended a distance of 1,060 feet.

In the No. 1 slope a tunnel was driven from the Red Ash to the Ross and Twin veins. It is  $9 \times 14$  feet area, and has a length of 1,150 feet.

**Kingston Coal Company.**

At the No. 4 shaft, this company erected a new breaker, which is nearly completed. It is a very large structure, built with a view of preparing the coal of the Ross and Red Ash seams. It will be heated throughout by steam, a new feature in coal-breakers, and for this purpose seven thousand feet of wrought-iron pipe were used in making the heating apparatus. It will be ready to ship coal early in 1886.

A new fan was erected on the No. 4 shaft. It is 24 feet diameter and running 60 revolutions per minute, gives a water gauge pressure of 1.10 inches and 14,000 cubic feet of air. The engine is horizontal, direct-acting, and the cylinder is 18-inch diameter.

**Hillman Vein Coal Company.**

At the Hillman shaft of this company a new upcast was made having an area of 150 square feet, and a new 24-foot fan was erected upon it. This fan, running 75 revolutions per minute, produces a pressure equal to 1.75 inches water-gauge and a ventilation of 180,000 cubic feet per minute of air. The engine is  $15 \times 24$  inches and is direct acting. They are driving

*Hillman Vein Coal Company.*

At the Hillman Vein colliery two tunnels were driven to the Abbott seam. One was an extension from the Kidney to the Abbott, 7'x12' area and 325' in length, driven for the purpose of hauling the coal through; the other was driven to effect a second opening from the Hillman to the Abbott seam and to constitute a return air-way. It is 7'x10' area and 150' long.

## NEW VENTILATING MACHINES ERECTED DURING 1889.

At the No. 5 shaft, South Wilkes-Barre, of the Lehigh and Wilkes-Barre Coal Company, a new fan of the Capell double-power type was erected. The inventor G. M. Capell claims that this machine is superior to all well-known fans. This is the first to our knowledge that has been erected in this country and we are not prepared to state how it compares with the fans generally in use in this district, as we have not yet had an opportunity to make the necessary tests for that purpose. It is a peculiarly constructed machine, differing considerably from the pattern of the fans generally used. It is constructed very strongly, and adapted to run at a very high speed. It is 12' wide and 12½' diameter; has an inlet for the air on each side, but it is divided by a disc at the center of the blades, so as to form a partition from the fan shaft to the blade-tips. The air is delivered from the blades into a wide expanding chimney. The accompanying cut will show the construction lines of the machine, and may assist the reader to understand how it is made. If circumstances permit, we shall report its work in the future.

At the Dorrence colliery, Lehigh Valley Coal Company, a new Guibal fan, 30' diameter, was erected in the air shaft. It is 10' wide and has one inlet 15' diameter. This makes a second 30' fan at this colliery. The engine cylinder is 30"x60", connected directly to the crank of the fan.

At the Warrior Run colliery a new fan was erected on the air-shaft. Its diameter is 15', face 7', and running eighty revolutions per minute exhausts 79,000 cubic feet of air. This has improved the ventilation of this mine considerably, and the location of the fan is favorable for circulating the air through the face of the workings.

At the No. 2 Baltimore shaft, Delaware and Hudson Canal Company, a 20' fan was erected and enclosed with brick work. This is a new mine and the fan provides ample ventilation without running it at its maximum speed.

At the No. 2 shaft, Plymouth, of the Delaware and Hudson Canal Company, a new fan was erected in place of an old one. It is 17½' feet in diameter, of modified Guibal type, and it is doing very satisfactory work.

## NEW BREAKERS IN COURSE OF ERECTION.

At the No. 2 shaft, Wilkes-Barre, the Delaware and Hudson Canal Company is building a new breaker. It is expected to be completed by

100,000 cubic feet per minute, the quantity of gas issuing was sufficient to make the whole current explosive, and it was maintained in that condition during a period of from three to four weeks. During this time the mine was kept idle, and no one was permitted to enter with any light but that of a safety lamp.

*Cave at the Hillman Vein Colliery.*

In this mine the Hillman seam is worked right over the section which caved in the Hollenback mine. The distance between the Baltimore and Hillman seam is about 300'. At about 8 o'clock A. M., June 12, the officials of the colliery having already been apprised of the existence of a "squeeze" in Hollenback mine beneath them, were on the alert, watching for its effects, they noticed the pillars suddenly beginning to crack and crumble and at once sent the workingmen out. At about 12 o'clock it fell in, closing the most of their workings. A large quantity of explosive gas simultaneously appeared, and mixed with the air, charging it so that the whole became explosive and continued so for several days. Explosive gases escaped from crevices on the surface at several points and caused some alarm among the inhabitants lest accumulations would take place in the cellars of their houses, but care was taken to caution them against taking lights into the cellars until it was ascertained that no danger existed.

No naked lights were used in this mine until the workings and airways were re-opened and the ventilation restored so that no dangerous bodies of fire-damp existed therein.

*Cave at the Boston Mine.*

In the month of April a small section of the workings of this mine in both the Bennett and Cooper seams caved very suddenly at a point where the pillars were large and regular in thickness. It did not damage the mine-workings much except that it permitted a large volume of water to flow in and flood a large portion of the workings. The surface over this point consisted of a depth of coarse, sandy gravel, but no body of water was known to exist there. However, the large volume which found its way into the mine through this cave, proved that an accumulation existed somewhere beneath the gravel, and it is supposed that the hydrostatic pressure developed by this water was the originator of the squeeze and the cave-in. No fire-damp appeared in this case.

*Cave at Nos. 2, 3 and 5 Collieries at Plymouth.*

These three mines worked different seams, over or above each other. In No. 5 colliery, the Bennett and Cooper seams were mined. In No. 2, the Five-foot and Hillman were mined, and in the No. 3 the Five-foot and Cooper seams were mined. The three were old collieries having very extensive workings, all nearly exhausted of coal. For a few days

combustible and fire is not likely to occur. This was a desirable improvement, and has added much to the security of the property in that part of the mine.

*Lehigh Valley Coal Company.*

At the Franklin colliery a new breaker which had been in course of erection during the last year, has been completed and was started to prepare coal for market in June, 1890. It is located at a more convenient point to the slopes than the old one, and is a much better structure, being equipped with what is now considered the best machinery for preparing and cleaning the coal. The old one was abandoned, having given good service for a long period, but it was now in such a dilapidated state that it could not be further repaired.

The air shaft mentioned in my last report has been completed, having penetrated the Red Ash seam at a depth of 425 feet, and is now connected to make a second opening for the Rock Slope workings. A new fan, 20 feet in diameter, was also erected on this shaft which is furnishing a ventilation of 65,000 cubic feet of air per minute when running 50 revolutions per minute. This is considered ample for the present.

COLLIERIES DAMAGED BY A CYCLONE.

A terrible cyclone passed over the city of Wilkes-Barre, at about 5.45 p. m., August 19, 1890, and wrecked two hundred buildings and two coal breakers. Seventeen persons were killed or died in a short time from injuries received, and two hundred other persons were more or less injured. The entire loss was estimated to be about half a million dollars.

Two breakers were in the path of the cyclone and were badly damaged, but, fortunately, although several persons were imperilled, all escaped without injury. The Hollenback breaker was struck and the tower over the shaft was driven fully six feet out of line. The roof was taken off the fan engine; all the breaker windows were broken, and the building was twisted out of place at several points. They had considerable trouble to bring the workmen up from the Red Ash seam as they had to be hoisted up the shaft as far as the Baltimore seam. The second opening to the former was not driven yet. And, notwithstanding they were in a perilous situation, they were brought out safely and without injury.

The **Hillman Vein** Colliery fared worse than the Hollenback. The tower supporting the sheaves or pulleys over the shaft was blown to the ground, leaving the cages fall down the shaft. The steam pipes of the fan were broken, causing the fan to stop, and, to make matters still worse, it happened that a fire was burning in one of the most gaseous gangways of the mine at the time. Although the fan had stopped, efforts were made to extinguish the fire until the danger became too

*Improvements by the Hanover Coal Company.*

A new underground slope was sunk a distance of 960', extending from the west shaft gangway to work the coal lying to the dip from the shaft in the Red Ash seam. A new fan was also erected to improve the ventilation. This is 16' diameter and exhausts 65,000 cubic feet of air per minute when running 50 revolutions.

*Improvements by the West End Coal Company.*

A new underground slope was sunk in the Conyngham drift a distance of 600', and a new gravity plane was made on surface near the old drift to lower the coal from an opening made to work the coal near the north outcrop.

*Improvements by the Newport Coal Company.*

The No. 1 slope was extended to the basin, which point was reached at a distance of 550'; all on the Ross seam. A new drift was opened also on the Red Ash seam. It was in a distance of 1,524' at the end of the year.

*Improvements by the Hillman Vein Coal Company.*

Two rock tunnels were driven by this company from the Hillman to the Kidney seam at different levels. Their lengths are 112' and 170' and the size of each is 7'×12'.

*Improvements by A. J. Davis & Co.*

At the Warrior Run colliery both underground slopes were extended. The Red Ash, which is the main slope, was extended a distance of 600' below the lowest working lift, and the Front slope was extended a distance of 300', and the sinking is continued in both.

## RECORDING INSTRUMENTS ON VENTILATORS.

All the mines of this district are ventilated by exhaust fans. Section seventeen, article ten, of the mine law requires that "All ventilators used at mines shall be provided with recording instruments by which the speed of the ventilators or the ventilating pressure shall be registered for each hour, and such data shall be preserved at the colliery for future reference for a period of three months." Nearly all the fans of this district have been provided with instruments as required. There are three types of instruments in use, viz: The Bartle speed recorder, Sharar's speed and time recorder, and Williams' self-recording pressure meter and pressure alarm for mine ventilators. The latter is a new instrument and has a number of excelling points. The ventilation of a mine is produced by a difference of pressure produced in the fan or ventilator, and this difference of pressure varies with the speed of the ventilator. It varies also when affected by high winds and storms. This instrument makes a record of all these variations and also by closing an electric circuit

*Improvements by the Lehigh Valley Coal Company.*

At the Franklin colliery a new tunnel has been driven from the Bottom Split of the Red Ash to the top split, a length of 210 feet, and a sectional area of  $7 \times 12$  feet.

*Improvements by the Alden Coal Company.*

In the Red Ash seam of the Alden mine, a tunnel was driven across an anticlinal to the basin north of the present workings. It has an area of 90 square feet and is 1,400 feet in length. This is expected to open an extensive area of a good quality of coal.

*Improvements by the Parrish Coal Company.*

The underground slope of the Baltimore seam in the Parrish colliery has been extended a length of 1,450 feet making it a total length at present of 2,150 feet. It has a grade of about  $6\frac{1}{2}$  degrees and a sectional area of  $7 \times 12$  feet.

*Improvements by the Hillman Vein Coal Company.*

This company has driven two tunnels, one from the Hillman to the Kidney seam, and the other from the Hillman to the Abbott seam. The former is 170 feet in length and the latter 337 feet. The sectional area of each is  $7 \times 12$  feet.

*Improvements by A. J. Davis.*

At the Warrior Run colliery, a new pair of first motion hoisting engines have been erected. The cylinders are  $30 \times 48$  inches, and the Cone Drum is large enough to carry 2,500 feet of 1.5 inch rope. This was procured to take the place of a single geared engine and is an effective improvement. A short tunnel was also driven from the B to the C vein, a length of 120 feet, having an area of 90 square feet.

*Improvements by the Newport Coal Company.*

At the Lee colliery two new drifts were opened to the Red Ash seam, and a new slope was driven to a length of 546 feet. It has a varied pitch, the steepest being 70 degrees.

## NEW SHAFTS IN PROGRESS OF SINKING.

The Maxwell shaft No. 20, of the Lehigh and Wilke-Barre Coal Company, after being sunk to the rock, was walled with excellent mason work up to the surface. The size of the shaft inside of the walling is  $54 \times 12$  feet, and at the end of the year 1892 it was at a depth of 134 feet. Workings are being opened ready in the Jersey mine to run coal for this shaft, and the construction of a breaker is in progress.

The Delaware, Lackawanna and Western Railroad Company is sinking three new shafts in Hanover township. The first is named Bliss,



William H. Sayre, second vice president, South Bethlehem, Pa.

John R. Fanshawe, secretary, Philadelphia.

John B. Garrett, treasurer, Philadelphia.

Israel W. Morris, general land agent, Philadelphia.

W. A. Lathrop, general superintendent, Wilkes-Barre, Pa.

Directors, Robert H. Sayre, George H. Myers, Joseph Wharton, Thomas McKean, Beauvéau Borie, John B. Garrett, Wm. L. Conyng- ham, James I. Blakslee, C. O. Skeer, Charles Hartshorne, W. A. Ing- ham, John R. Fell.

#### Collieries of the Miscellaneous Coal Companies.

Beside the collieries commented on in the foregoing articles, there were twelve collieries operated by smaller companies in the Fourth district. These together produced 1,296,722 tons of coal and shipped to market 1,192,806 tons, in an average of 129.76 days of work. They employed 3,890 persons and mined 185,246 tons of coal per life lost. Three of the seven fatal accidents took place in the **Hillman vein** colliery, two in the West End, and one each in the Alden and Dod- son collieries. The Nos. 1 and 2 collieries of the Red Ash Coal Com- pany, the Parrish and Buttonwood, of the Parrish Coal Company, and the Maffet, Warrior Run, Lee and Chauncey, did not have one fatal accident.

These mines are all in safe condition and efficiently ventilated. More or less firedamp is emitted in each, but not in such quantities as we find in the deeper mines. They are working closer to the out- crops where the roof is generally better than in the deeper portions of the basin.

The names of the collieries and of the officers are as follows:

#### Nos. 1 and 2 Red Ash Coal Company.

M. B. Williams, general superintendent, Wilkes-Barre, Pa.

P. H. Ganahan, assistant general superintendent, Wilkes-Barre, Pa.

Daniel J. James, mine foreman No. 1 Red Ash.

Joseph Hopie, outside foreman No. 1 Red Ash.

Timothy Theopilus, mine foreman No. 2 Red Ash.

John Herriotts, outside foreman No. 2 Red Ash.

#### Officers of the Parrish Coal Company.

H. H. Ashley, general superintendent, Plymouth, Pa.

Thomas R. Evans, general mine foreman, Plymouth, Pa.

Parrish colliery, Henry G. Wililams, inside foreman, Plymouth, Pa.

Parrish colliery, Thaddeus Eddy, outside foreman, Plymouth, Pa.

Buttonwood colliery, Wm. T. Pritchard, inside foreman.

Buttonwood colliery, Merrit Frederick, outside foreman.

Three fatal and 31 non-fatal accidents took place in the mines and 8 fatal and 20 non-fatal on the surface. These occurred in divers ways which could not be classed with the others. Some struck themselves while using axes. Some were struck by pieces of ice falling down the shafts from the sides. Some were caught in machinery, etc.

This class of accidents can be reduced only by a rigid discipline on the part of officials, and a greater care for their own safety by the men themselves.

#### Fires in Mines.

The year 1900 was remarkably free from mine fires of any magnitude. The Empire mine fire, reported last year, and the Maxwell mine fire are still sealed in, so that they cannot be examined, but there is no discernible evidence of the existence of fire in either mine.

#### Abandonment of the Hillman Vein Colliery.

The coal of the Hillman Vein colliery of the Hillman Vein Coal Company having become exhausted, the mine was abandoned on August 16, 1900. This colliery started to prepare and ship coal on September 28, 1883, and produced, including the coal used at the colliery for steam purposes, 1,244,972 tons. The Hillman, Kidney and Abbott seams were mined out.

The size of the hoisting shaft was 16x11 feet, sunk to the Five Foot seam, a depth of 280 feet.

#### The Dodson Colliery of the Plymouth Coal Company.

The damage done to this colliery by the burning of the breaker July 13, 1899, has been nearly all repaired. Nearly every yard of the gangways and airways was closed by falls of roof caused by destructive explosions of gas and the flooding of the workings with water. The airways having been closed the workings were filled with explosive gases, and it has been a slow and tedious work to reopen the mine, but, by working entirely with safety lamps the work was accomplished without accident. A new breaker is being constructed which will be ready to prepare coal about the middle of March, 1901.

#### Examination of Mine Foremen.

The annual examination of applicants for certificates of qualification for mine foreman and assistant mine foreman was held in this district on the 14th, 15th and 16th of June, 1900, at the council room, city hall, Wilkes-Barre. —

As to the roads and drainage, I can say that there is a great difference at the different collieries.

The Lehigh and Wilkes-Barre Coal Company keep their gangway roads in good order and properly drained at all of their collieries.

The Susquehanna Coal Company also keep their new gangways in good condition, but some of the old ones are in poor condition, through no fault of the foremen in charge at present, as these gangways were driven years ago and being dry at the time no provision was made for their drainage. Having become wet from the inside workings, they are hard to keep in good condition.

The Delaware, Lackawanna and Western Railroad Company also keep their roads and drainage in first class condition.

The Delaware and Hudson Company also keep their roads and drainage in first class condition.

The Warrior Run Mining Company keeps its roads and drainage in good condition.

The Alden Coal Company has good roads and drainage.

The Red Ash Coal Company has good roads and drainage.

The Pittston Coal Mining Company does not have very good roads and drainage, but is slowly improving them.

## IMPROVEMENTS

### WILKES-BARRE AND SCRANTON COAL AND IRON COMPANY

This company has erected a new breaker on the original site of the old **Hillman vein** breaker in the city of Wilkes-Barre and has been preparing and storing coal for over three months.

This is the breaker that Mine Inspector E. E. Reynolds, my predecessor, thought should not be built, because it was being built over the shaft. He began equity proceedings to restrain the company, but the court of Luzerne county decided against him and the company was allowed to construct the breaker which was finished in September, 1904.

I took up the matter with the Chief of the Department of Mines and he advised me to have Mine Inspectors D. T. Davis and P. M. Boyle visit the colliery with me and make an inspection, and then make such recommendations to the company as would insure the greatest possible safety to the inside workmen in case of fire at the breaker.

In accordance with instructions, Inspectors Davis, Boyle and myself visited the Hillman Vein Colliery on December 19, 1904, and after making an inspection of the premises, we recommended the following:

First: That the persons in charge on both day and night shift be properly instructed, in case of fire in the breaker and smoke from

the fire entering the mine, to stop the fan so that the smoke would not be drawn into the mine and smother the workmen.

Second: That the company build two hanging doors, one at each landing in the shaft that could be closed in the event of fire in the breaker, and that the proper persons in charge, both on day and night shift, be fully instructed how and when to close them.

Third: That the manways leading to the two small shafts on second outlets be put and kept in good order at all times and fit for men to travel in, and that large painted signs be put up at different points along the manways for the purpose of showing the workmen the proper route to take to get out quickly.

Fourth: That the company build two iron doors at the mouth of the shaft that could be closed in the event of fire in the breaker. These doors to be so arranged as to prevent any material from falling down the shaft in the event of fire in the breaker.

I am pleased to state that the company has completely followed the recommendations made, and I believe the workmen at this mine are protected as fully against fire as is possible under the existing circumstances.

#### LEHIGH AND WILKES-BARRE COAL COMPANY

##### Hollenback No. 2 Colliery

Outside.—Supply store, barn and carriage house and railroad No. 3 slope to breaker.

Inside.—No. 9 tunnel extended to the Ross, 70 yards; No. 13 tunnel Hillman to Kidney, 82 yards; No. 14 tunnel Hillman to Kidney, 93 yards; No. 15 tunnel Hillman to Kidney, 97 yards; No. 16 tunnel Hillman to Stanton, 52 yards; No. 17 tunnel Red Ash to Top Red Ash 49 yards.

##### South Wilkes-Barre No. 5 Colliery

Outside.—1,000 H. P. water tube boiler; Duplex air compressor, simple steam, compound air.

Inside.—Compound condensing pump and pump room; No. 1 air shaft extended to Baltimore 107 yards; Rock plane airway Kidney to Abbott for No. 11 tunnel, return 44 yards; No. 12 tunnel Baltimore to Five Foot, 62 yards; three-inch drainage bore hole No. 8 slope to No. 9 slope.

##### Stanton No. 7 Colliery

Outside.—500 H. P. water tube boiler; colliery supply store; railroad No. 4 slope to breaker; 24x48 inch hoisting engine No. 4 slope.

Inside.—Air shaft surface to Abbott; No. 10 tunnel Skidmore to Ross, 80 yards; 3 inch drainage bore hole No. 4 slope to No. 8 plane.

Dorrance Colliery.—Outside: The dust collector at the breaker was remodeled. A new addition to the compressor house for the dynamo was built and a new drum on the Red Ash shaft engine installed. A series of test holes for proving the rock cover in the river bed was drilled.

In the breaker a complete fire alarm system was installed.

Inside: Concrete steel roof supports were continued at the Hillman Foot of Shaft, and grading the head of No. 24 slope in the Red Ash vein was practically completed. A new electric hoist and "I" beam roof supports were installed. Electric haulage was installed in the Hillman vein No. 21 slope district, using one motor. In the Red Ash vein the electric haulage was extended and a new motor installed. Three new planes were graded in the Upper veins on the east side of the shaft and two electric hoists were installed.

Diamond drill proving of the fault in No. 6 Extension slope was continued. A new tunnel to shorten haulage in the Bennett and Cooper veins was started and Nos. 13 and 23 slopes in the Red Ash vein were extended.

Franklin Colliery.—Outside: Extensive improvement to the breaker were made, practically rebuilding same. A new engine house was built for No. 10 slope. Diamond drill provings for the Five Foot sump veins in the Gin and Brown Slope basins were carried on. A second opening shaft to the Snake Island vein was sunk and concreted.

Preparations were made to silt the Bowkley vein, and about 1,000 feet of wooden silt line laid. A complete fire alarm system was installed in breaker, and to the equipment was added 100 new standard steel under-frame cars.

Inside: In the Bottom Ash vein a new slant slope was started to develop the northern section of the property. A new slope in the Skidmore vein was also driven in No. 4 tunnel workings. Diamond drill provings for the Ross vein in No. 4 tunnel were carried on. Silting was continued in the rock slope district. A new manway for No. 9 slope in the Top Red Ash vein was completed. In these workings No. 26 tunnel with a length of 230 and 290 feet respectively was driven from the Bottom Five Foot to the Hillman and Bowkley veins in the Long Slope workings. Work on the new concrete barn in the Rock Slope was started. It is the intention to install on No. 25 tunnel level a new 12 by 32 by 36 Scranton pump.

Warrior Run Colliery.—Inside: A new second opening plane from "B" to "C" veins in the robbing section was started, and also the reopening of lifts off No. 1 slope. Good progress was made pumping water from No. 2 slope, which has been flooded on account of fire.

Outside: A new slope was sunk from the surface to the Hillman vein and 100 feet of concrete roof supports installed. A trestle, dump and siding from Lehigh Valley Railroad were constructed and an engine with 1400 feet of 6 foot steam line installed.

#### WILKES-BARRE ANTHRACITE COAL COMPANY

Hillman Vein Colliery.—The inside slope was extended 264 feet and a 325 horse power electrical hoist installed.

At Conyngham shaft, concrete partition walls were built in shaft from Red Ash Top Split to 150 feet above Baltimore vein. New car haul in Red Ash vein installed at foot of shaft, and a rock plane 108 feet long driven as return airway, Red Ash vein.

At Baltimore No. 2, concreted east side foot of shaft in Red Ash vein, shaft at pump room 7 feet by 10 feet by 60 feet.

Established Mine Rescue Station and lecture room for Wilkes-Barre Division at Conyngham, equipped with Draeger helmets and pulmotors, etc.

Completed the work of concreting barns.

#### WILKES-BARRE ANTHRACITE COAL COMPANY

**Hillman Vein** Colliery.—Inside: Built new fire boss shanty and emergency hospital of fireproof material at foot of shaft, also new 16-stall fireproof stable near foot of shaft. Installed 70-horse power engine at top of No 2. East slope driven 300 feet. Baltimore slope extended 940 feet. Baltimore tunnel driven 630 feet toward Stanton vein as the second opening for Baltimore workings. Two tunnels from Hillman vein to Kidney vein, each 220 feet, connected by a gangway. New 40-horse power engine installed in Hillman slope. Hillman slope driven 450 feet. Electric triplex pump installed in Hillman slope. 40-horse power engine installed for placing of refuse, and 20-horse power engine installed in new Seven Foot slope. New Seven Foot slope driven 300 feet. One triplex pump installed in pump lift to supply washery.

Outside.—New fan installed in boiler house for forced draft on boilers. Two bore holes driven from surface to the Seven Foot vein, about 90 feet each, to be used for slushing. Washery completed and in operation.

#### PITTSTON COAL MINING COMPANY

Hadleigh Colliery.—Outside: A new breaker is being built to replace the old one, which was torn down.

#### DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

This Company is sinking two new shafts on the Laurel Run farm near the Parson station of the Delaware and Hudson Company. These shafts will be sunk to a depth of 1,150 feet to the Red Ash vein. The coal will be conveyed in mine cars over the old Wilkes-Barre and Eastern road bed and bridge to the Pettebone breaker. Both shafts have been sunk to the rock and concreted to surface.

H. H. W.

The two shafts being sunk by the Delaware, Lackawanna and Western Railroad Company, at Parsons are progressing very successfully, and Pettebone No. 3 has reached a depth of 515 feet and No. 4 shaft 393 feet.

The trestle work connecting these shafts with the Pettebone breaker, on the west side of the Susquehanna river, at Dorranceton in the 8th District, is about completed.

It is the intention to stop sinking operations in the main shaft when the Cooper vein is reached. The work of development will then be proceeded with in this seam and the upper seams, and the shaft sunk later from the Bennett vein to the Red Ash vein by a bore hole connection from the Cooper to the Bennett vein.

#### DELAWARE AND HUDSON COMPANY

Baltimore No. 5 Colliery.—Placed 68 I beams 15 by 24 inches at head of No. 1 slope in the Red Ash vein for roof support.

Installed a triplex 12 by 12 inch single-acting electric pump in the Red Ash vein.

Conyngham.—Completed 6 by 8 inch bore hole 607 feet, from surface to Hillman 8 inch and Hillman to Baltimore 6 inch, to slush culm from Baltimore No. 5 breaker to the Conyngham workings.

Completed 8-inch cast iron pipe slush line 1,375 feet long, Baltimore No. 5 breaker to bore hole; 6-inch bore hole 274 feet long for drainage from Hillman to Baltimore vein, and concrete pump room 15 by 22 feet at foot of Conyngham shaft in Red Ash vein.

Installed electric triplex 12 by 12 inch single acting electric pump in Red Ash vein.

Installed 7 by 20 foot Jeffrey fan in Conyngham main shaft.

Baltimore No. 2.—Completed concrete pump room 20 by 24 feet at foot of Baltimore No. 2 shaft in Red Ash vein.

Installed electric triplex 12 by 12 inch single acting pump in Red Ash vein.

Completed 540 feet partition wall in shaft, 12 inches by 14 feet, from Red Ash to surface cribbing.

#### WILKES-BARRE ANTHRACITE COAL COMPANY

**Hillman Vein** Colliery.—Completed tunnel from Kidney to Abbott, and started second opening. Slope driven in Kidney to open coal in upper lifts.

In the Stanton vein a slant slope was driven across pitch from 3-W to 4-W and now is being driven down to Basin.

3- $\frac{1}{2}$  West gangway driven to connect Baltimore tunnel to Stanton slope.

In the Baltimore vein a second opening from Baltimore to Stanton vein was completed. Drove straight slope 700 feet to north line of the property.

Commenced driving slant slope east from Straight slope. Installed 100 H. P. 4 stage centrifugal pump in pump lift and 35 H. P. triplex pump at No. 4 west.

Outside: Installed 3 batteries of boilers, 400 H. P. each, on old foundations of boiler house and emergency pump in boiler house.

Sank two bore holes from surface to Hillman vein about 60 feet each, to be used for slushing to bottom of shaft.

## WILKES-BARRE ANTHRACITE COAL COMPANY

**Hillman Vein** Colliery.—Completed slope from Hillman to Kidney vein, intercepting Abbott vein; Rock slope from Ross and Red Ash veins, and started development in the Abbott vein. Concrete lining placed in landing at shaft in upper Hillman level, and stable made fireproof.

## DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Pettebone No. 3 Colliery.—Shafts Nos. 3 and 4 have been sunk a depth of 270 feet and 954 feet, respectively. The trestle work connecting these shafts with the Pettebone breaker, on the west side of the Susquehanna river, is completed.

Installed duplicate ventilating fans, shaft hoisting engines; and both shafts have been equipped with steel towers.