

Dinenny & 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 8×14 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.

a tunnel from the Hillman toward the Kidney vein, which at the close of the year was driven a distance of 250 feet. Its size is 12×7.

The Hanover Coal Company.

At the **Maffit** colliery of this company a tunnel was driven from the Ross to the bottom split of the Baltimore seam. Its sectional area is 7×12 feet and its length 200 feet. A second opening was effected, and the new seam is now being mined. A tunnel is in progress also from the Ross to the Red Ash seam, which will open a long lift of that vein.

The Parrish Coal Company.

A twenty-foot fan was erected at this colliery, which improved the ventilation to a great extent. Running 32 revolutions, it produces a ventilation of 75,000 cubic feet of air per minute. They are sinking a slope at this mine also to work the Baltimore seam.

Fire in the Dorrance Colliery.

This colliery belongs to the Lehigh Valley Coal Company and is located in the northern end of Wilkes-Barre. Late on Saturday evening, June 13, 1885, while the night shift were at work sinking the underground slope, the gas-blowers ignited from a miner's lamp. It very soon spread, and set the brattice and timber on fire, to such an extent that in spite of the most strenuous efforts they failed to extinguish it by the ordinary means and it was concluded to flood the mine with water. Water was pumped in from the river. While it was filling, a considerable quantity of smoke was ascending both shafts. By July 2, the mine had filled with water to a point sixty feet vertically higher than where the fire existed, and, believing it was extinguished, they began to hoist the water out. By July 12, the water was lowered to within two feet of the bottom of the gangway, when, to every one's surprise, four explosions took place, showing that fire still existed. The water was poured in again until the air-passages on the east side, where the fire existed, were closed. Then an examination revealed the fact that fire existed in the air-way at a point where it was much higher than the surrounding entrances, and they at once went to work to lay pipe from this high point out so that the air and gases could escape while the water was filling. This was a very dangerous work, because it had to be done in very noxious gases, consequently it was slow and tedious. By August 1, this was completed and water was poured in again. The air escaped all right for a day or two, but the heat caused steam to rise, saturating the air, and this again condensing in the pipe, soon filled the lowest point with water and made it useless. After leaving the water stand awhile, it was pumped out until it lowered so that the east air-way could be entered, and an examination proved that the fire was extinguished. After pumping the water all out, it was seen that the fire had spread over considerable ground and had done material damage, but this in time was re-

reported to exhaust 30,000 cubic feet of air per minute while running thirty revolutions.

Parrish Coal Company.—This company erected a new fan on their slope. It is twenty feet diameter, running forty-five revolutions per minute and exhausting 68,000 cubic feet of air per minute.

A. J. Davis.—At the Warrior Run colliery a new air-shaft was sunk, effecting a second opening to the new tunnel. It is 9x9 feet and 206 feet deep, and connects with the Baltimore seam. The main slope is being extended also to a further depth of from two to three hundred feet.

Hanover Coal Company.—The **Maffet** shaft of this company is being extended from the Ross to the Red Ash seam. It was down a distance of 185 feet below the Ross at the close of the year, and when completed it will open an extensive lift of good coal. A number of other improvements were made during the year.

Coal Breakers Consumed by Fire.

On Sunday, January 16, 1887, between one and two o'clock A. M., the Boston breaker of the Delaware and Hudson Canal Company, at the upper end of Plymouth, took fire and was totally consumed. It is not known how it originated, but everything in and about the breaker was destroyed. By November 3rd, a new breaker was erected near the Boston shaft, about a mile and a quarter north-east of the site of the old one. This is a great improvement on the old one. They began to pass coal through it on the date mentioned. They worked eight and one-fourth days before the old breaker took fire and forty-one and three-fourths days with the new one before the close of the year.

Burning of the Parrish Coal Company Breaker.

At about ten o'clock P. M., January 25, 1887, the breaker of the Parrish Coal Company, at Plymouth, was discovered to be on fire, and although strenuous efforts were made to prevent its destruction, it was completely destroyed in a short time. It was comparatively a new breaker, having been in operation only since December, 1884, about a month more than three years. Preparations were immediately made to erect a new one, and on July 7 it was completed and started to prepare coal for shipment to market. The new one is a fine structure, larger than the old one, and has the best appliances for preparing and separating coal.

Burning of the No. 10 Breaker.

The No. 10 breaker of the Lehigh and Wilkes-Barre Coal Company, at Sugar Notch, took fire from a passing locomotive early Monday morning, May 2, 1887, and it, with every building within a radius of two hundred feet was completely destroyed. The engine-house and slope head house on the old No. 10 slope was burned, and the cage

Alden Coal Company.

The shaft-tunnel of this company was extended to the Red Ash seam. A new fifteen foot Guibal fan was also erected on the mine, making the second fan in use for the purpose of producing ventilation. While running at lower speed than it is capable of it is exhausting 50,000 cubic feet of air per minute, which, at present, is found sufficient.

Delaware, Lackawanna and Western Railroad Company.

The Woodward colliery of this company was completed and began to prepare coal for shipment in July, 1888. The breaker is a large double structure, capable of preparing 2,000 tons of coal per day for the market. It is well lighted and is heated throughout by steam. Everything in the breaker and around the colliery is finished in an exceedingly satisfactory shape. No expense has been spared to make everything as safe as possible. The main shaft is a double one; *i. e.*, it has four cages for hoisting coal—two working for the Red Ash seam and two for the Bennett. The hoisting engines are powerful and are directly connected with the drums. From each of the seams conversation with the engineers can be had by telephones, and signals are given by pneumatic gongs.

The main shaft is 53x12 feet area, and is over 1,000 feet deep to the Red Ash seam.

The No. 2 shaft is 35x12 feet area, and is also sunk to the Red Ash seam, a depth of 1,013 feet, and both are connected by openings in the Bennett and Red Ash seams. This shaft is being fitted with cages and machinery to work the Cooper seam. Two fans were erected, one on each shaft, and one is twelve and the other sixteen feet diameter, exhausting respectively 55,000 and 59,700 cubic feet of air per minute.

Lehigh Valley Coal Company.

The Dorrance shaft having been extended to the Baltimore seam a second opening was effected by a slope sunk from the Hillman to the latter on a grade of 30 degrees. This was 7x12 feet area and 400 feet long, all in rock.

Plymouth Coal Company.

At the Dodson colliery a new Guibal fan, 15 feet diameter, was erected to replace the old one. By running 70 revolutions it produces a ventilating pressure of one and two-tenths inches of water gauge, and 108,000 cubic feet of air per minute. The driving engine is 16x13 inches, connected directly to the fan.

Hanover Coal Company.

The **Maffet** shaft of this company was sunk from the Ross to the Red Ash seam, and is now at a depth of 385 feet below surface. This opens a new lift of good coal extending up to the level of the old Ross tunnel.

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' x 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 excellent 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

CLASSIFICATION OF FATAL AND NON-FATAL ACCIDENTS.

Causes of Accidents.	Killed or fatally injured.	Severely injured.
By explosions of fire-damp,	7	33
By falls of roof and coal,	44	68
By falling down shafts,	2	. . .
Crushed and run over by mine-cars,	7	59
By explosions of powder and blasts,	4	23
By miscellaneous causes underground,	6	27
By miscellaneous causes on surface,	7	23
Totals,	77	233

Number of widows, 46; orphans, 182.

The Collieries of the Fourth District.

During the year 1894 there were forty-three breakers and sixty-six openings at work more or less time, mining and preparing coal for market in the Fourth Anthracite district. An average of 46,789 tons per day worked was produced, making a total production of 7,162,961 tons in an average work of 153.1 days.

The collieries in operation less than 153.1 days were those of the Lehigh and Wilkes-Barre Coal Company. The No. 3 colliery of the Delaware and Hudson Canal Company, which, after working 153 days, was destroyed by fire on the evening of November 15, and remained idle the remainder of the year. The No. 3 colliery of the Susquehanna Coal Company, where the production is not sufficient to keep the breaker working all day owing to the partial exhaustion of the mine. The Gaylord colliery of the Kingston Coal Company, several weeks' idleness caused by the disastrous cave of February 13th. The collieries of the Lehigh Valley Coal Company, the Red Ash Coal Company, the Parrish Coal Company, the **Maffet** colliery of the Hanover Coal Company, and the Warrior Run colliery of Mr. A. J. Davis.

The Lee colliery of the Newport Coal Company did not work more than 100 days. It was suspended on August 25th, and since then has passed into the possession of another company. The Buttonwood colliery of the Parrish Coal Company is an old mine enlarged and reopened. It was lying idle since 1866. The shaft was enlarged and sunk to a deeper seam and a new breaker was erected. It began shipping coal in September, 1894, and worked 50 days until the end of the year.

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. Willilams, 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.