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

Dininny & 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 $11\frac{1}{2}\times20$ 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 blast in the top coal, the first squib missed. He then returned and tried another. Supposing this missed also, he was going back the second time, when, as he was approaching the hole, it fired, breaking down about five tons of coal. Part of this struck him, cutting his leg nearly off and bruising him badly about his head. He was removed to the hospital and died there at the time stated.

Accidents from Miscellaneous Causes Underground.

Fifty-nine accidents occurred in this class during 1885. Thirty-nine were fatal. Ten persons were lost at once in the West End colliery and twenty-six in the No. 1 slope, Nanticoke.

ACCIDENT, No. 4.—Thomas Smith, engineer, was killed in the Stanton shaft, Wilkes-Barre, January 20, 1885. The water had gained on the pump in the shaft and a bucket was used instead of one of the cages to hoist water. Smith was running the pumping engine and was on the night-shift. About half-past six, A. M., his curiosity led him to descend the shaft to see how low the water was. Because the bell-wire was frozen fast to the buntins, he made arrangements with the hoisting engineer to lower the cage as far as the surface of the water, which was about four feet above the track at the bottom, and after waiting two minutes to hoist it up again. When the cage came up Smith was not on. It was lowered again and held down a short time, but came up without him again. Then, after searching for several hours, his body was found in the sump under water, the marks upon which indicated that he had been caught between the cage and buntin. Several theories were suggested in explanation of the manner it occurred, but none of them could be definitely proven to be right.

ACCIDENT, No. 7.—John Hennesey, a miner, was kicked in the abdomen by a mule, in the Avondale mine, near Plymouth, February 7, 1885, and died the following day. The mule kicked him while passing him in the mine.

ACCIDENT, No. 15.—George Williams, a sinker, was fatally injured in the South Wilkes-Barre shaft, April 23, 1885, in the following manner: While working with several others at the bottom of the shaft sinking, it was supposed that a small piece of rock, falling from above, struck him on his head. He fell suddenly, and when his fellow-workmen raised him up his skull was severely factured. No one heard the stone falling, but from the nature of the injury it is believed that it was caused in that way. He was removed to the hospital, and died there in a few hours.

The West End Disaster.

The West End colliery, near the village of Mocanaqua, across the river from Shickshinny, was the scene of a shocking disaster on the 11th of August, 1885. Ten men lost their lives from breathing the poisonous gases which arose from the fires under the boilers in the mine. The mouth of

the drift through which the coal is brought out of this mine is four thousand five hundred feet east of the breaker, and the mine cars are hauled from a turnout two thousand feet inside of the drift-mouth to the breaker. All the workings between the mouth and the turnout above water level were finished, the coal having been mined out to the outcrop. At the inner end of the turnout there is a slope sunk diagonally down the pitch on a small grade about six degrees, to a distance of one thousand two hundred feet. There were workings on each side of the slope. The coal above water level is mined above a gravity-plane, between that and the outcrop. The foot of the plane is about five hundred feet inside of the head of the slope. Owing to the difficulty of obtaining water on the surface, the boilers which generate steam to run the slope engine and the fan engine were placed in the mine a short distance below the head of the slope on the left side, where the air-current returns to the out-cast. The fan was located about three hundred feet away from the boilers, between them and the out-cast, and from the fan to the mouth of the up-cast there was a distance of over one thousand feet, rising on an average grade of about fifteen degrees. Thus the air-current first passed through the workings of the slope, and then up behind the boilers, taking with it the gases arising from the fires through the fan, and directly out through the up-cast. On the night of the 10th of August, at about eleven o'clock, the eccentric strap on the fan engine broke, and the fan stopped running. There were a few men working on the night shift, but as they had never seen or heard of dangerous gases being generated in the mine, the stoppage of the fan caused no alarm, and they finished their night's work before leaving without suffering any inconvenience from lack of ventilation. By half-past seven next morning, the eccentric strap was repaired ready to take into the mine, and the engineer, machinist, and mine-foreman together took it with them, and rode from the breaker on the locomotive train into the mine. There were from forty to fifty workmen riding in on the same train. All knew that the fan had broken and was not running, but it seems that no one apprehended any danger. Upon reaching the turnout at the head of the slope, the mine-boss and the machinist took the strap toward the fan, and the workmen went on to their working-places. At this time it was believed that the fan could be fixed to run in about half an hour, but after putting the eccentric strap in place, the engine was started, and it would not run. The boss and others went in to the fan several times to pry it off the center and finally they discovered that the fan-shaft was bent so that it could not run. Messages came to the boss, at this time, that the men were getting sick down the slope by inhaling foul air, and could not walk out. The boss himself was affected in the same manner by inhaling the noxious gases in the fan, and he soon became unconscious.

The air was healthy on the west side of the slope, and the men from that side ran to assist those on the other side; but the subtle poison was

such as to effect them again in a short time, and it proved a difficult task for even these to escape. Many fell unconscious and had to be carried up the slope and sent out in cars. By mid-day a large number had to be carried out, being unconscious, three of whom were dead and seven more missing, nearly every one who worked in that mine having been helping. The slope-men were, by this time, sick from inhaling the gas. A fresh relay of men came in the afternoon and succeeded in bringing out the bodies of the remaining seven. They were found lying at various points on the gangways of the east side workings. The names of those who died are Wilson Rymer, John Bilby, Nicholas Bertels, James Fry, Hiram O. Meade, John Winskoski, Peter Boruzki, James Whalen, William Zienti, and Anthony Boruzki. The cause of the accident was that, during the time the fan was not running, the air-current reversed, and instead of conveying the gases produced from the combustion of coal under the boilers out through the up-cast, the air came in that way, and conveyed the gases down into the workings, and the men who worked in those workings which it entered first were the ones that suffered first from inhaling it. The air-current must have changed its course only a short time before the men entered their places. Upon entering, they were taken sick immediately after reaching the faces of their working-places, but were reluctant to leave so soon, believing that the fan would start and refresh the air every minute. However, they finally started out, and the ten named fell and failed to reach a point where the air was pure. Others fell in the same manner, but were rescued by workmen from the other parts of the mine.

The night and morning were very warm and close, and when the temperature of the up-cast air became cooler than the temperature of the air outside, the current naturally reversed. The mine-foreman did not expect this to take place, and, believing that there was no danger, permitted the men to go to work. It was here he made a serious mistake. Whether he thought it was safe or not, he should not have permitted them to go to work until the fan was set running and the working-places examined and ascertained to be safe; but, having never seen any danger in the mine, these precautions were overlooked.

Esquire Walker, of Shickshinny, empanelled a jury, and held an inquest on the deaths of the victims of this accident, and in their verdict they laid the blame for its occurrence on the mine-foreman, Christian Coonrad. He was prosecuted for violation of the mine laws, and was convicted. (See another part of this report for account of the prosecution.)

A Disaster in the No. 1 Slope, Nanticoke.

At about ten o'clock, A. M., December 18, 1885, a large body of quicksand and water broke through the roof into the Ross seam workings of this mine, causing the death of twenty six persons. Since the accident at the West Pittston mine in 1871, no disaster has been so fatal to human life

Delaware and Hudson Canal Company.—A new opening was effected for the Conyngham colliery, connecting with the workings of the Baltimore slope, in October, 1887. It provides a convenient escape way for the workmen of both collieries, and makes everybody connected with those mines feel safer in case anything should happen to prevent exit through the main openings.

The No. 2 Baltimore shaft is now at a depth of over 500 feet, and is expected to cut the Red Ash seam at a depth of 670 feet. At No. 3, which is to constitute the second opening, gangways are being driven to open work, and to be ready to ship coal when the main shaft shall be completed

At the Boston mines the fan at No. 3 was applied to ventilate its workings, and it gives fair results. Still the ventilation of this mine is not satisfactory, but when the air-ways are fully prepared, an improvement is confidently expected.

Susquehanna Coal Company.—At the No. 1 shaft of this company two new underground slopes were sunk, one in the Forge seam and the other in the Buck Mountain. To avoid the trouble arising from the heat radiating from the steam pipes, the hoisting engines are located on the surface, and the ropes pass through bore-holes made for the purpose. Telephones and electric bells are used to converse and give signals.

At the No. 6 colliery, Glen Lyon, a new fan twenty-five feet diameter was erected. The engine is 24″x36″, connected directly to the shaft of the fan. It is used to ventilate the workings of the shaft. The second openings for the workings of this shaft are now completed to each of the seams.

Kingston Coal Company—The new breaker erected at the No. 4 shaft of this company was started to prepare and ship coal in October, 1887, and has been running since. It is one of the largest structures in the district. It is heated throughout by steam, and is equipped with the most efficient machinery.

Delaware, Lackawanna and Western Railroad Company.—At the Avondale colliery a new fan was erected on the new air-shaft. It is an open fan sixteen feet diameter, connected with a horizontal engine by belt gearing. Under a ventilating pressure equal eight-tenth inch of water-gauge it is exhausting 137,600 cubic feet of air per minute. A new opening was made from the lower lift of the Red Ash seam to the Ross. It is a rock tunnel 226 feet long on a grade of 18½ degrees and 7x18 feet area. It opens an extensive field of this coal seam.

The new breaker at the Woodward shafts is nearly completed. Four cages are in operation in the main shaft, and workings are being opened in both the Bennett and Red Ash seams. Second openings are being driven in both seams to connect with the air-shaft.

West End Coal Company.—A new fan was erected on this colliery sixteen feet in diameter and connected directly with the engine. It is

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

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, Beauveau Borie, John B. Garrett, Wm. L. Conyngham, James I. Blakslee, C. O. Skeer, Charles Hartshorne, W. A. Ingham, 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 Dodson collieries. The Nos. 1 and 2 collieries of the Red Ash Coal Company, 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 outcrops 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.

Improvements by the West End Coal Company.

A new slope was opened at the West End colliery on the Red Ash seam and sunk to a depth of 500 feet, having an average grade of 10 degrees. When completed it is expected to be about 3,000 feet in depth.

Improvements at the Warrior Run Colliery.

A new fan was erected at this colliery to replace an old one. It is 20 feet in diameter, run by an engine 16-inch diameter, directly connected. At a speed of 62 revolutions per minute 86,000 cubic feet of air is exhausted, the water gauge being 1.8 inches.

The Buttonwood Colliery.

This was an old colliery and was abandoned in 1866 after working but a short time. The Parrish Coal Company re-opened it under a lease from the Lehigh and Wilkes-Barre Coal Company. During the years 1892, 1893 and 1894. The shaft was enlarged to a size of 32x12 feet and sunk through four coal seams, the lowest of which is cut at a depth of 686 feet, which is the present depth of the shaft. They are working the two lower seams, viz: the Hillman and Bennett.

An air shaft was sunk from the surface to the Hillman seam, a depth of 574 feet, having an area of 12x22 feet. The two lower seams are connected also by a tunnel 370 feet in length. A tunnel is being driven to the Kidney seam, which was driven a distance of 42 feet at the end of the year. When this is completed, the workings of the three seams will be connected to the air shaft, which is the second opening.

A new 24-foot fan was erected on the top of the air shaft, run by an engine 20x36 inches, directly connected. At 48 revolutions it is exhausting 93,600 cubic feet of air per minute, with a pressure of .7 inch water gauge.

The new breaker was completed and started to ship coal in September, 1894. It is substantially built and equipped with the best kind of machinery, and every dangerous part is protected by railing or covering, as the law requires. At the shafts and breaker there are three pairs of hoisting engines, aggregating 2,170 horse power.

Concerning the history of the Old Buttonwood colliery and the cause of its abandonment, the following account was kindly furnished by Mr. James E. Roderick, who was in charge at that time.

Stockton, Pa., February 28, 1895.

Mr. G. M. Williams,

Inspector of Coal Mines:

My Dear Sir: Yours of the 26th received. In reply will say that in the early part of 1866 John T. Griffith secured the contract of Buttonwood shaft to put the coal on big cars at so much per ton. Some

still its possessors. The breaker was not rebuilt and the coal of the Baltimore tunnel is now hoisted up the new No. 4 shaft and hauled by a locomotive to the Baltimore No. 2 breaker where it is prepared and shipped to market. Therefore the name Baltimore tunnel will be superseded by the name Baltimore Shaft No. 4 in all the reports of the future.

The Burning of the West End Coal Company's Breaker.

At about ten o'clock Monday morning, March 29, the West End Coal Company's breaker at Mocanaqua was discovered to be on fire, and in a short time was completely burned. The colliery was idle and it is not known how the fire originated. On March 14, 1893, a breaker on the same site was burned and this one was erected in its place and commenced to prepare and ship coal on August 15, 1893. A new breaker was erected again on the same site and this was completed and commenced to prepare and ship coal September 2, 1897.

Record of Improvements for the Year 1897.

Improvements by the Lehigh and Wilkes-Barre Coal Company.

At South Wilkes-Barre colliery a rock tunnel has been driven from the Hillman to the Kidney seam for hauling purposes. It is 450 feet in length and 8x12 feet area.

At the Maxwell colliery a new fan has been erected thirty-five feet diameter, Guibal pattern, 12 feet wide. Area of upcast is 192 square feet. Horizontal engine working direct. Cylinder 20x48 inches diameter. Engine horse power, 150.

Improvements by the Delaware and Hudson Canal Company.

At Baltimore tunnel a shaft was sunk to save hauling the coal out from the old tunnel. The new shaft is designated as the Baltimore No. 4 shaft and the mine will be known hereafter by that name. The shaft is from the surface to the Baltimore seam. It is 97 feet in depth having an area of 12 by 30 feet. A new gravity plane is being made to take the place of three old planes. When finished it is to be 3,300 feet in length, having grades varying from 7 to 12 degrees. Its sectional area is 8x18 feet.

A rope haulage has been installed to haul the coal from the head of slope and foot of plane in the Red Ash seam to the bottom of the shaft. The engines are located on the surface.

At Baltimore No. 3 a new gravity plane has been made 800 feet long having a grade of 15 degrees and a sectional area of 8 by 16 feet.

At Baltimore No. 2 the trestle leading from the shaft to the breaker was torn down and a conveyor was constructed to convey

Susq Coal
#65

No. 1 shaft, to take the place of the Hillman seam pump, which has been moved to the Lee seam, obviating the necessity of hoisting the No. 1 shaft water by tanks suspended under the cages.

A new washery was built during the strike to supply boiler coal from the old No. 1 breaker bank; this is located near the old No. 1 slope.

There have been driven ten minor rock tunnels for ventilation and second opening and six planes extended, two of them in rock, as well as a shaft sunk 102 feet from the Hillman toward the Forge seam, in No. 4 slope; the total depth of this will be about 175 feet, making second opening from the No. 4 slope, Forge seam, workings.

At No. 6 colliery extensive retimbering has been done, but no new work of importance.

Delaware, Lackawanna and Western Company, 1899.

Woodward Colliery.—Slope in Cooper seam, 7x14 feet, 300 feet long; not completed. Slope in Ross seam, 7x14 feet, 600 feet long; not completed. Engine plane in Bennett seam 7x14 feet, 3,000 feet long. One electric hoist for plane, 80 horse power.

Bliss Colliery.—One shaft for second opening to the Hillman seam; size, 5x6 feet, and 45 feet depth. Tunnel from Baltimore to Hillman, 7x12 feet and 290 feet in length. Slope in Baltimore seam, 7x12 feet, 1,500 feet long; not completed. Slope in Ross seam, 7x20 feet, 1,000 feet long; not completed. Tunnel Forge seam to Red Ash, 7x16 feet, 125 feet long; not completed.

West End Coal Company, 1899.

Outside.—Five-foot high pressure return tubular boilers; three at boiler plant, on top of hill, and two at long drift boiler plant. One 6-inch steam line from long drift boilers to bore hole near barns. One 5-inch steam line from boilers on top of hill to old airshaft and down through bore hole to head of slope. One bore hole for 6-inch steam line near barns and bore hole for water column near same place. One bore hole for rope, from surface to head of Sand drift slope, and engine and engine house placed on surface for same. Removed fan from old Conyngham drift and placed it at mouth of old Black Creek tunnel.

Inside.—Rock tunnel driven from bottom split, Red Ash, to top split, a distance of 310 feet. Rock plane driven from second lift, Baltimore slope, to top split, a distance of 246 feet. Gravity plane in "Klondyke," about 200 feet long.

WEST END COAL COMPANY

Long Drift Basin

One 7x12 foot plane from the Red Ash to the Ross seam, 370 feet; one 7x12 foot tunnel from the Red Ash to the Ross, 400 feet; one 150 foot rope haul at the head of main slope; one 400 foot rope haul at the foot of Ross rock plane; one pair direct motion 24x36 inch slope engines, for main slope.

Lee Basin

One slope 10x12 feet in Red Ash seam, down 400 feet No. 1 Lee; one slope in Red Ash seam 10x12 feet down 300 feet No. 2 Lee.

Outside.—One 10 foot by 14 inch Vulcan mine locomotive; one 300 H. P. Maxim water tube boiler; new pockets, and a car haul and automatic car tipple at the breaker; 100 mine cars.

PLYMOUTH COAL COMPANY

Dodson Colliery

The improvements consist of two items, pumping 96 feet of water out of the Gaylord shaft and increasing pumping capacity over 50 per cent. in order to handle the extra amount of water.

In the year 1894, the Gaylord mines caved in. The company took out their pumps and set them in the shaft some distance above the Ross vein. The water rose to that point—157 feet in the shaft. The Plymouth Coal Company on account of this had to leave 200 feet of coal in the barrier pillar from line to line. In order to mine this coal, arrangements were made by the Plymouth Coal Company to pump this water out. One extra duplex Jeanesville pump 30x12x 36 inches was built under the shaft, and one extra Scranton pump, Jeanesville pattern, 24x10x36 inches was built at the bottom of the Red Ash slope. In the meantime two narrow places were driven from the upper gangway, on Red Ash plane, through the above mentioned pillar towards the water, when within 100 feet of the water 3 bore holes were kept in each plane some 60 feet ahead, until the water was struck. Five holes were put through, 3.2 inch and 2.2½ inch holes. Pipes with valves were put on two of them, and the others left running. The head of water on these holes was 134 feet, and they were started October 11, 1904, and by December 31, 80 days, they had discharged 110,277,700 gallons of water or 1,378,471 gallons per day.

Woodward

Notwithstanding the fact that this colliery was operated almost continually during the year, considerable improvements were made, consisting of the following:

Installing a 600 H. P. Cross compound engine and generator to furnish electric power for locomotives and hoists. Also new electrically driven centrifugal pump to furnish water for shakers, screens, etc., and one rope driven dust fan. All of which have added to the efficiency of this breaker.

Inside improvements consists of driving two rock tunnels, one from Cooper vein to Lance vein, and one from Cooper vein to Cooper vein through fault.

The ventilation in this colliery has been improved by the erection of six concrete brick and iron air bridges.

The condition of the haulage roads and return air-ways have been improved by cleaning up and enlarging.

Report of Jersey Fire

I am pleased to be able to report that this most stubborn and serious mine fire, if not entirely extinguished, has been so surrounded by incombustible material that it will be practically impossible for it to spread into any other part of the adjacent old workings.

This fire was discovered on May 18, 1901. The origin has always been a mystery. It has cost the company a tremendous amount of money. The officials and workmen engaged at this work have also suffered a great many trying ordeals, and are very well pleased with the conditions existing at the present time, as the work of fighting a fire of the magnitude of this one in old abandoned workings, where no system of ventilation could be adopted or applied, is a problem that taxes the ability of the most competent mining men.

The most important question in fighting a mine fire is to produce a sufficient quantity of air to dilute and render harmless noxious and dangerous gases, so as to enable the mine workers to attack their most insidious enemy.

A great deal of credit is due the men in charge of this work and those who have worked with them.

WEST END COAL COMPANY

West End

One 110 and one 250 K. W. electric generator installed in concrete power house. One 7 ton electric locomotive, No. 1 Lee, and one 7 ton electric locomotive, R. A. Split. One 4 stage Worthington turbine pump, electrically driven, No. 1 Lee, one 5 stage Worthington pump, electrically driven, Lee shaft, one 15 foot Guibal fan, No. 1 Lee, electrically driven, and two Flory electric hoists. Three 300 H. P. Maxim water tube boilers, in concrete boiler house; 54 steel mine cars.

Several air bridges have also been erected to improve the ventilation.

WEST END COAL COMPANY

West End Colliery.—One 7 x 12 foot tunnel at Lee 200 feet long, from No. 3 to No. 2 vein.

One 7 x 12 foot tunnel, Sand drift, 275 feet long from Ross to Red Ash.

One 7 x 12 foot tunnel on No. 1 slope, Long drift, 400 feet long, through fault.

One 7 x 12 foot tunnel, Long drift, 100 feet long, Ross to Ross split.

One 5 x 5 foot drainage tunnel, in Sand drift basin, 500 feet; not finished.

The Red Ash vein was opened in the extreme west end of Pricilla Lee basin.

LEHIGH AND WILKES-BARRE COAL COMPANY.

Wanamie No. 18 Colliery, Inside.—No. 21 Tunnel, Bottom Red Ash to Top Red Ash.

No. 22 Tunnel, Bottom Red Ash to Top Red Ash.

No. 23 Tunnel, Bottom Red Ash to Top Red Ash.

ALDEN COAL COMPANY

Alden Colliery.—During the year a rock slope has been driven from the Bennett to the Red Ash vein, 740 feet. This slope will be the second opening for the lower workings in No. 2 shaft.

A 24,000 gallon concrete tank for hot water boiler feed has been erected at No. 2 shaft boiler house.

An Ames Multipolar generator has been installed for lighting the various buildings around the colliery.

A ten-foot fan has been put in the breaker for removing dust, and five spiral pickers have been added to the breaker equipment.

Colliery No. 7.—An electric sewing machine was installed in the harness shop.

Electric haulage was installed in No. 1 shaft and 2 electric motors were put in service to replace aid motors which were transferred to another mine.

A waterway was driven between Nos. 1 and 2 shafts a distance of 133 yards.

No. 30 slope in No. 1 shaft was driven 136 yards during the year.

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Auchincloss Colliery.—The 25-foot ventilating fan referred to in last year's report is now in operation.

The work of erecting a brick partition between hoistway and airway, No. 2 shaft, is under way, and when it is completed a 35-foot ventilating fan will also be placed at the mines.

The work of erecting mule barns, pump-rooms, engine-houses, etc., of incombustible material will soon be completed.

Bliss Colliery.—The work of erecting brick partition in this shaft, separating hoistway and airway, is under way.

A brick and concrete wash-house for employes, with improved lockers, has been built.

A new fire-fighting apparatus has been installed on the outside, with new fire-pump, fire-line, etc.

The colliery has been equipped with four Draeger helmets known as the "Life-saving Apparatus," housed in a small brick building on the property, and men have been trained in their use.

Built a concrete and brick foremen's office and lamp-room.

The rebuilding of mule barns, pump-rooms, engine-houses, etc., of incombustible material, will soon be completed.

No. 13 slope has been sunk from the Mills to the Hillman vein. Second opening for this slope is now under way.

Truesdale Colliery.—The work of reconstructing the breaker with steel supports and pockets is under way.

The ventilating fans referred to in last year's report for No. 1 shaft and Nos. 1 and 6 slopes, have been completed.

A new rock conveyor and trestle erected from the breaker to the rock bank.

New and improved steam lines have been installed at this colliery connecting the boiler plant with various engines.

The colliery has been equipped with four Draeger helmets, known as the "Life-saving Apparatus," housed in a small brick building, and men have been trained in their use.

A rock tunnel has been driven for development, from the Mills vein, No. 5 slope, down Hillman and Baltimore seams to Forge vein.

A rock slope has been sunk through Warrior Run anticlinal to Red Ash vein.

Several short rock tunnels have been driven from Ross to Top Split Red Ash vein, which will be used for development and ventilation.

A new concrete and brick mine foremen's office has been erected at Nos. 1 and 6 slopes.

WEST END COAL COMPANY

West End Colliery.—During the year a double inlet, reversible, exhaust and blow fan was erected and put in operation at this colliery. The arrangement of the doors in the accompanying plan shows

their position when the fan is exhausting air from the mine. When changed to the position indicated by the dotted lines the fan then becomes a blow fan. This is the first and only fan of its kind in this district.

One 26 by 24-inch Ridgway side crank engine.

One 350 K. W. D. C. generator.

One 4-panel slate switchboard.

One double drum Vulcan electric shaft hoist, with solenoid brake, automatic control and overwind switch.

Two 8-inch by 12-inch cement-lined Aldrich triplex pumps.

Two 7-ton electric locomotives.

One Ingersoll-Rand compound air compressor.

One 8-foot Jeffrey fan, driven by a 100-H. P. Crocker-Wheeler motor, double inlet exhaust reversible.

One 54-inch booster fan, electric-driven, direct on line.

One hundred steel mine cars.

One rope haul and car hoist, electric-driven, Lee shaft.

The following tunnels have been driven.

No. 10 tunnel, 500 feet, Lee No. 1 to No. 4 vein across south rise.

No. 11 tunnel, 400 feet, Lee No. 1 to No. 4 vein across north rise.

No. 21 tunnel, 250 feet, Long drift, Red Ash split to Ross.

No. 22 tunnel, 50 feet, Long drift, Ross to Ross Split.

No. 23 tunnel, 50 feet, Long drift, Ross to Ross Split.

No. 24 tunnel, 150 feet, Long drift, R. A. Split. Built a concrete supply house 20 by 40 feet and a concrete boiler house 30 by 70 feet at No. 2 plant.

LEHIGH AND WILKES-BARRE COAL COMPANY

Wanamie Colliery.—Outside: Gasoline locomotive house.

Wash house at No. 19.

Inside: No. 8 tunnel extended to Hillman.

Started remodeling pumping plants in Nos. 3 and 6 slopes.

Gasoline locomotives installed.

No. 27 tunnel, Red Ash to Ross.

MINE FOREMEN'S EXAMINATIONS

The examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held April 4 and 5 in the High School Building, Nanticoke. The Board of Examiners was composed of Joseph J. Walsh, Mine Inspector; F. H. Kohlbraker, Superintendent; Frank Kettle and Joseph Dzialdowski, Miners.

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

Mine Foremen

Daniel Davis, Jenkin Evans and James M. Williams, Nanticoke; Peter Murphy, Glen Lyon; Peter F. Mitchell, Shickshinny.

Assistant Mine Foremen

Charles Adamski, Thomas J. Arnott, Michael Gzemski, Albert R. Lewis and John W. Jones, Nanticoke; Michael Chebro, Rhone; Nelson N. Nichols, Scranton; Edward Speary, West Nanticoke; William R. Talbot, Shickshinny.