

case that persons, holding responsible positions under our large companies and small operators, are selected, less from the practical knowledge possessed by them, or the duties pertaining to the place, than from the fact of relationship to high officers, or other equally unworthy and improper motives. No other condition, save that of fitness for the place should govern the selection of men upon whose skill, coolness and judgment the lives and safety of others depend. More than one fearful accident during the past year, entailing great loss of life and property, have borne witness to the truth of this proposition.

Some expression of opinion has been made upon the subject of increasing the number of inspectors. In my judgment no increase is necessary at present. With a proper appreciation of individual responsibility upon the part of owners and superintendents all the legitimate benefits that can result from the inspection of mines may be attained under the present system. It was not the purpose of the law, as I view it, to create a mine superintendent in the office of inspector, but rather to cloth with official authority one whose watchfulness and care should constantly prompt others to obey the requirements of the law, and in case of flagrant neglect to require its enforcement. It is a mistake, not seldom made, to suppose that the dictum of an inspector can take the place of positive enactment. The responsibility of wrong construction should be upon the violator, even though backed by the erroneous opinion of an inspector.

PROSECUTIONS.

I have caused legal proceedings to be taken to punish infringements of the law, viz: Against five persons for riding upon loaded cars up a slope called the Gaylord slope, near Plymouth.

Also, against three persons for the same offence at the **Mineral Spring** slope, near Wilkesbarre.

No penalty was insisted upon by me save a payment of costs, these being the first cases prosecuted and the defendants pleading ignorance of the law. The effect upon the whole district has been salutary. Action was taken against the agent of the Consumers' coal company for not reporting accidents, also against Broderick, Conyngham & Co., for a similar offence, which resulted in obtaining judgments for \$25 in each case—the minimum penalty. These also being the first cases of this class.

I caused bills in equity to be filed in the common pleas of Luzerne county against Samuel Bonnell and others, the Consumers' coal company and the Wilkesbarre and Seneca Lake coal company, charging them with a violation of the ventilation law in working their several collieries without having provided the second opening required, and praying for injunctions to restrain them.

In the two former cases injunctions were promptly granted by the court. The latter case being of a somewhat different kind, and late in the year when brought up, was discussed; but no opinion given before the court in this case; it was a slope extended downwards, called a new lift.

Also, against the Northern coal and iron company, charged them with a violation of the ventilation law in not providing a sufficient quantity of pure air in their colliery. The court granting an injunction in this case also promptly.

Also, against Broderick, Conyngham & Co., charging them with a violation of the law in not providing a sufficient quantity of pure air in the mine known as the Washington mine. This case was not disposed of for some time, had several hearings; in the meantime the condition of the mine was somewhat improved.

The firm of Wilner & Co. having failed late in the fall, Mr. Maltby has taken hold of the whole concern once more, with the intention of driving a tunnel from the small vein now being worked in the shaft to the under one. O. C. Fowler, general superintendent,

MOCANAQUA COAL COMPANY'S MINES.

These mines are located near Shickshinny, and consist of three drifts. There has not been any work done in these mines during this year. These mines being situated as they are, several hundred feet above the level of the river, are easily ventilated, there being no gases to contend with; the greatest danger is met by sudden falls of pieces of the roof, which is very irregular.

Ventilation was produced by a small furnace, and sometimes only by natural means. A fan was in contemplation just before their stopping. A. J. Cohen, general superintendent; Z. Kreiger, mining boss.

MINERAL SPRING COAL COMPANY'S MINE.

This colliery is located east of Wilkesbarre, Pa., and is bounded on the east by the Laurel run, and on the west by the Baltimore No. 3 mines. It is a slope on the Baltimore vein, split; the two veins being worked separate, which are in some places 28 feet, and in other places only a few feet apart. The top vein generates fire-damp in small quantities.

Condition and ventilation.—This mine is tolerably safe, roof being generally good, and not much gas to contend with. Two furnaces are in use to create ventilation, both moving a current of about 84,000 cubic feet of air per minute. Amount at face of mine, 27,000 cubic feet. Number of persons employed inside 68. There has been some improvements made in forcing more of the air through the faces of the working places than heretofore, by building stone and mortar stoppings instead of wooden ones, and other changes. A. J. Davis, Esq., successor to Mr. J. R. Davis, general superintendent; Wm. Coby, mining boss.

NEW JERSEY COAL COMPANY'S MINES.

These mines are located a short distance west of Ashley borough, and consist of two collieries Nos. 1 and 2. The No. 1 colliery is located about one mile west of Ashley, and consists of one slope and one tunnel. This colliery has not been worked any during the year 1872. F. Barnes, general superintendent.

No. 2 colliery.—This colliery is located a little nearer the borough of Ashley, and consists of one drift opened on the Red Ash vein. There was a slope also upon the same vein, but it has been abandoned, and the coal is being taken all out the drift at present. There has been but very little work done in this mine during the year 1872, except supplying a local trade. They did not ship coal until the month of November.

Ventilation.—This is rather scarce and has always been so in this mine. The vein has been very irregular in parts of this mine and the work done there is much of the same character. A small furnace is being used to create circulation. Frank Barnes, general superintendent; Thos. Hughes, mining boss.

NORTHERN COAL AND IRON COMPANY'S MINES.

These mines are five in number, but only four of them shipping any coal as yet.

No. 1 shaft.—This colliery is located a short distance east of the borough of Plymouth. It is sunk 295 feet. There are two veins being worked in this shaft—the Lance and the Cooper. The lower or Cooper bed generates a small quantity of fire-damp.

If these points had been at all times observed, the vast difference now apparent in many collieries, between the amount of ventilation in summer and that of the winter season could not occur, and the result would have been the enjoyment of a much better and safer system of ventilation. Certainly, for the deep mines, which must be opened in the future, every point upon which safety depends, should never be overlooked or forgotten.

RECORD OF IMPROVEMENTS FOR 1880.

Lehigh Valley Coal Company.

At the **Mineral Spring** slope, three short tunnels were driven from the Baltimore into the Ross vein. Their lengths are forty-nine, sixty-two, and ninety-two feet, and the thickness of the seam where they have entered is in the upper lift four feet six inches, and in the lower lift six feet.

At the Henry colliery, the Baltimore vein is divided by a very thick rock, and a tunnel was driven from the bottom part of the vein into the upper part. It is two hundred and twenty-four feet in length. Two air-shafts were sunk through the same rock, from the upper part of the Baltimore vein to the lower one. They are thirty-four and forty-five feet in depth.

Lehigh and Wilkes-Barre Coal Company.

At the Diamond shaft, a tunnel was driven from the Baltimore vein to the Hillman. It is five hundred and twelve feet in length, and a sectional area of one hundred and twelve feet. The grade is about eighteen degrees. A large territory of the Hillman vein is convenient to work from this tunnel, and they are now driving a second opening in order to bring forward the ventilation for the purpose of working it.

At the Hartford colliery, a new slope was opened from the surface down to the lower lift of the workings, and is to be extended to the bottom of the basin after working the upper lift out. It is now fifteen hundred feet in length, on an average grade of fifteen degrees. Two new tunnels were also driven at this colliery; one from the Baltimore vein to the Ross, and the other to the Red-Ash vein. Both these veins are now being worked from these tunnels, and each has a large territory to mine from.

At Sugar Notch, No. 9, colliery, a new tunnel was driven from the Ross, to work the Red-Ash vein. It is three hundred and sixty feet in length, and eighty-four feet sectional area.

At No. 10 slope, a tunnel was driven from the Kidney to the Hillman vein. It is two hundred and forty feet in length, and the vein at the point entered is ten feet thick, and of a good quality of coal.

Delaware and Hudson Canal Company.

At the Mill Creek slope, a tunnel was driven to be used for an air-course. It is one hundred and fifty feet in length, and one hundred and twelve square feet of sectional area.

At the Laurel Run slope, they sank a new air-shaft, twelve by thirty feet sectional area, and erected a new fan, thirty-five feet diameter, upon it,

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by natural ventilation by driving openings to the surface. A new breaker was erected to prepare the coal from these openings. It is a substantial building with first-class machinery. All the dangerous parts are fenced and boxed off. The breaker started to prepare coal in the month of November, 1886.

The Pennsylvania Coal Company built a new breaker at Port Griffith, in Jenkins township, to prepare the coal from shafts Nos. 4 and 7, slope No. 4 and tunnel No. 1. It is a large breaker and has the latest improved machinery. It has a capacity for cleaning a large amount of coal per day. The breaker started up in November, 1886.

Colliery Improvements During 1886.

The improvements made in the different collieries of this district have been somewhat more extensive this year than last. Some of the collieries are old ones, and have been worked very extensively; therefore, it has caused the companies to sink to lower veins to get their collieries in condition to maintain the present shipments of coal from them.

Pennsylvania Coal Company.

This company sunk a new shaft, in Old Forge township, Lackawanna county, to the bottom of the Powder Mill vein, a depth of 145 feet, sectional area, 384 feet. It is used to hoist coal, which is taken to the Old Forge breaker for preparation for market. A new inside plane was driven at the bottom of the shaft, 125 feet in length, with a sectional area of 208 feet, and a grade of $12\frac{1}{2}$ degrees.

In No. 10 shaft, a new slope was sunk (600) six hundred feet, and driven up a new plane, a distance of (150) one hundred and fifty feet, to maintain the present out-put of coal

No. 14 breaker, situated in Jenkins township, was burned down on the evening of November 18, 1886, with all the surrounding buildings. The breaker was a new one, and started up on August 7, 1886. The fire is supposed to have started in the boiler-room. The night engineer had occasion to go to look after a pump some distance from the boiler-house; when he came back the fire had got such headway that he could not put it out. One of the boilers had a defective sheet next the fire, which sprung a leak, throwing the fire out of the furnace door and setting fire to the building.

Delaware and Hudson Canal Company.

At the Laurel Run colliery, a tunnel was driven from the bottom split of the Baltimore vein to the top split, a distance of 110 feet, to be used to transport coal; sectional area, 70 feet. They are now driving their second opening for the same purpose.

Lehigh Valley Coal Company.

At the **Mineral Spring** colliery, a tunnel was driven from the bottom

for winding flat ropes five-eight inches thick by six inches wide. These ropes are now in service and giving great satisfaction.

A rock tunnel was driven from the Baltimore vein to the Five foot, a distance of 488 feet. The vein was found in good condition and about five feet thick. The second opening for this tunnel is a rock plane on a pitch of thirty degrees. The total length of which is 199 feet. At the end of the year a connection was made in the coal from the plane to the tunnel.

In the above colliery a tunnel has been driven through the fault at the fourth lift of the Midvale Hillman slope which enables the company to concentrate all the transportation from the lower levels of the Midvale slope at one point.

At the Prospect Hillman slope a fire was discovered in the airway of the proving slope Hillman vein, on the 12th of April, which was caused by a gas feeder becoming ignited from a Bratticeman's lamp. The fire was fought for some hours but it was found that gas was accumulating inside of the location of the fire. It was therefore decided to fill the slope with water which was promptly done and the fire was extinguished.

During the year it was decided by the Lehigh Valley Coal Company to reopen the **Mineral Spring** Colliery which has been shut down since 1889, and work was commenced sinking two shafts to the Red Ash vein. The old Baltimore slope has been reopened to the third lift and preparations are being made for sinking a slope in the Checker vein to open up the coal to the north. A ventilating fan has been erected which will ventilate this slope.

The Coal Brook slope which has been idle since 1889, is being put in condition. The water has been pumped out and the gangways are being put in order for mining coal. The foundation for a new breaker has been constructed and the foundation for a 1,000 horse power boiler plant of the Babcock and Wilcox type, has been completed.

The Henry breaker has been converted into a washery and is now being operated as such. Two shafts have been commenced from the surface to reach the Red Ash vein, which are being sunk through a large pillar left in the Baltimore vein for that purpose. The idea being that all veins under the Baltimore, shall be mined without any connection with the overlying seams. Both of these shafts were down to the rock, and about twenty-five feet into the solid rock at the end of the year, and the concrete cribbing was completed. The cribbing is forty-five feet in depth.

A rock tunnel has been driven from the Upper to Lower Baltimore vein in the north workings of the Henry colliery. The total length of which is 569 feet. The second opening for this tunnel is a shaft from the Upper to Lower Baltimore vein, forty-one feet in depth.

Miscellaneous Causes, Outside

William Neimeyer, Carpenter, employed by the Lehigh Valley Coal Company, in the erection of their new breaker at the **Mineral Spring** colliery, was instantly killed January 2 by a plank falling from the top of breaker and striking him on the head while he was at work on the ground. The loftsmen were moving the gin or hoisting pole on top of breaker when one of the guy ropes caught under a plank which was lying from one bent to another, causing it to fall.

Condition of the Collieries

The collieries of this district are comprised of 22 breakers with 39 separate openings. The distance apart of the extreme ones is about twelve miles. They are in fairly good condition, with the exception of two, which were not as they should be at the time of my last visit, but I suppose they are now in better condition, as they have notified me to that effect. Some of the above openings have miles of gangways and breast roads to be traveled. Two-thirds of these openings give off explosive gas, requiring a large volume of fresh air to keep the workings in a healthful condition. There is a constant watch kept on the ventilation current by the fire bosses or assistant mine foremen, whose duty it is to make a careful examination of the working faces in the morning before the workmen enter. The collieries are all well supplied with ventilating fans of the Guibal type, which furnish the necessary air. The roads are in fairly good condition, kept free from standing water and debris, with ample room on one or both sides of the track so that cars can be passed while in motion. The collieries are all supplied with a hospital inside the mines, with a full supply of whatever is necessary to relieve the injured, as the law requires. In my opinion the place for the hospital should be on the surface close to the mine opening, as the injured person wants to be taken out as soon as possible.

Improvements by the Lehigh Valley Coal Company

The new breaker at **Mineral Spring** colliery of the Lehigh Valley Coal Company, of which I made mention in my last report, has been completed, and began operations March 16, 1903. A new shaft for hoisting coal and another shaft for second opening was sunk from the surface to Red Ash vein, a distance of 430 feet. The shafts have been connected in the above seam. A Scranton Compound Duplex pump, 32x36x12x36 inch, with a 12-inch column, was installed in the Old Baltimore slope of the above colliery, which will supply wash water to the breaker. A complete installation of 1,000 horse power Babcock and Wolcock boilers was made in a new brick building erected for them. A pair of new engines was

LEHIGH Valley
Coal Co

placed at the head of slope to hoist the coal to breaker. Likewise a pair of engines was erected at the head of Coal Brook slope to hoist the coal.

At the Prospect Shaft a brick addition to the boiler house was made enclosing a 250 horse power B. & W. boiler. A new brick engine house has been completed. In the Midvale slope on different levels. Three rock tunnels were driven from the Hillman to Brookley veins, which will be used for the transportation of coal.

In the Hillman slope a rock tunnel was driven from the Hillman to the Bowkley veins.

At the Henry colliery the hoisting shaft was extended from the Baltimore to Skidmore veins. A rock tunnel was driven through an overlap to the five-foot, 220 feet. The second opening tunnel is being driven at present.

The two new shafts begun in 1902, were sunk to Red Ash vein, a distance of 675 feet from the surface. A brick engine house 34x72 feet was erected for the hoisting engines of these shafts.

The Wyoming shaft, the old wood cribbing from the surface to the rock, was replaced by concrete, which makes a good job at this shaft.

At the Heidelberg No. 1 slope a new rock plane, 18 degree pitch, was driven from the lower split to the upper split of Red Ash vein, a distance of 212 feet. The second opening was driven on a 30 degree pitch. A rock slope is being sunk from the Marcy to Clark vein, also a second opening shaft for same.

A new 12-foot diameter ventilating fan was erected. A new brick boiler house was built, enclosing a 450 horse power return tubular boiler. Dispensing with the old boiler plant.

Improvements by the Delaware and Hudson Company

At the Baltimore tunnel the General Electric Company has installed an electrical haulage which handles all the coal from the Red Ash vein to the mouth of tunnel, doing away with the use of a rope haulage plant and hoisting plant at No. 4 shaft. The Stanton vein slope has been extended 250 feet. A new breaker is in course of erection to prepare the coal which is now taken to No. 5 breaker for preparation.

Improvements by the Hudson Coal Company

A new breaker has been completed at Pine Ridge with a new steel head frame erected over the shaft. The foot of the shaft has been remodeled by brick arching and a chain hoist put in for handling the empty cars. To accomplish all of the above work at the foot of

HILLSIDE COAL AND IRON COMPANY

Consolidated slope.—Condition as to safety good, drainage fair, ventilation fair.

Consolidated shaft.—Condition good as to safety, drainage and ventilation.

Butler, Checker and Marcy slopes and Thomas shaft.—Condition good as to safety, drainage and ventilation.

Fernwood Slope and Tunnel.—Condition as to safety good; drainage and ventilation fair.

DELAWARE AND HUDSON COMPANY

Baltimore tunnel.—Condition good, ventilation and drainage good.

Baltimore No. 2 shaft.—Condition, drainage and ventilation good.

Baltimore No. 5.—Condition, drainage and ventilation good.

HUDSON COAL COMPANY

Pine Ridge shaft.—Condition fair as to safety, drainage and ventilation.

Laurel Run.—Condition as to safety good, drainage and ventilation fair.

Laffin shaft and tunnel.—Condition as to safety good, drainage and ventilation fair.

TRADERS' COAL COMPANY

Ridgewood slope.—Condition as to safety good, drainage and ventilation fair.

AVOCA COAL COMPANY, LIMITED

Avoca shaft.—Condition as to safety good, drainage fair, ventilation bad.

CLARENCE COAL COMPANY

Clarence slopes.—Condition as to safety good, drainage and ventilation fair.

IMPROVEMENTS

PENNSYLVANIA COAL COMPANY

Pennsylvania.—At No. 10 Colliery a power plant for electric haulage and lighting has been installed; a McEwen 20x18 inches centre crank engine directly connected to 215 K. W. compound generator of the general electric type; four 7½ ton electric mine locomotives to be used in the Marcy and Red Ash veins.

A tunnel was driven from No. 10 Marcy to the Pittston vein in No. 9 shaft to transport the coal from No. 9 to No. 10 shaft; a tunnel was also driven from No. 9 Red Ash to No. 10 Red Ash vein for transportation.

LEHIGH VALLEY COAL COMPANY

Mineral Spring Colliery.—Surface Coal road 4000 feet long from Coal Brook slope to tunnel No. 34.

Tunnel No. 34 driven 200 feet from surface to Red Ash vein.

Nos. 29, 36 and 37 tunnels driven from inside slope Coal Brook through fault or overturn to main south dip in Red Ash vein.

Tunnel No. 35 being driven through same fault on upper lift.

No. 33 Tunnel driven through over turn basin in Mineral Spring shaft district, Red Ash vein.

Inside slope extended in Red Ash 600 feet.

Rope hole completed to Red Ash vein.

300 H. P. return tubular boiler installed at Coal Brook.

Breaker has been equipped with mechanical pickers.

William Crusher, new bore holes and pipe lines extended, taking care of all the silt and refuse from breaker.

New 20 foot double intake Guibal fan driven by Corliss engine.

Brick house.

Henry Colliery.—300 H. P. B. and W. water tube boiler installed.

New 25 foot double intake fan driven by Corliss engine.

Concrete air shaft completed in Five Foot vein.

New 25 foot double intake fan driven by Corliss engine, brick house, completed in Red Ash shaft.

New 16x24 hoist engine and brick house completed and Five Foot slope reopened.

New second outlet completed in Borroughs tract, Five Foot vein.

Two tunnels with second outlet completed in Red Ash shaft district.

New inside barn completed in Red Ash.

New brick overcast, empty car foot turnout, column and steam lines installed in Red Ash shaft.

Rock slope completed in Wyoming shaft district, from lower Baltimore to Skidmore vein.

Rock slope from Baltimore to Skidmore vein completed in Henry shaft district.

Nos. 21, 22 and 23 subslopes started in Red Ash district.

Prospect Colliery.—300 H. P. B. and W. water tube boiler added to the plant, brick house.

New inside barn Red Ash.

New electric transportation outfit has been installed consisting of one 175 K. W. 250 volts generator, directly connected to 20x18 McEwen engine, 225 R. P. M.

Two electric locomotives installed in Red Ash and Baltimore.

William crusher and extension of silt lines.

Additional mechanical pickers in breaker.

Additional fire emergency pump 16x10x16.

Lafin.—No. 4 plane, bottom split Red Ash, extended 900 feet in rock and coal.

No. 3. plane, bottom split Red Ash, extended 230 feet.

Pine Ridge.—No. 31 tunnel driven from Rock to Hillman 240 feet.

No. 12 slope Rock vein extended 650 feet and pair of 12x16 inch engines installed.

Pair of 8x12 inch engines installed for sinking No. 13 slope in Hillman vein.

Pair of 8x12 inch engines installed for sinking No. 14 Kidney slope.

Laurel Run.—No. 11 tunnel extended 750 feet toward Red Ash vein. Haulage road toward Pine Ridge driven 950 feet in Checker vein. New 28 foot Guibal fan installed, but as yet not in commission. The laurel Run breaker was abandoned August 1, and all coal from this colliery prepared at Pine Ridge breaker.

Baltimore No. 2.—No. 7 slope extended 950 feet Red Ash vein.

In both of these shafts electric motors, about six in number are used for transportation on main roads. Condition of colliery, good.

FIRE IN NUMBER 7 SHAFT, PENNSYLVANIA COAL COMPANY

On the morning of December 3, a fire was discovered in Number 7 Shaft 14 Foot vein west level heading, on south pitch in chambers, just inside of Marcy vein tunnel. After fighting the fire with hose, etc., for a few days, it was decided to build dams and flood the workings with water from bore holes going down on highest point above the fire. The dams were started on December 9, and finished December 13, about 100,000 bricks having been used. The first bore hole was started December 11, the second December 13, and both were finished in 5 days, working two shifts of 10 hours each.

On December 28 when pressure was $21\frac{1}{2}$ pounds, it was decided to strengthen the dams, which was done by timbering and lagging and filling in between pillars and lagging with $2\frac{1}{2}$ feet of concrete. The depth of the bore holes was 247 and 248 feet, respectively. Highest pressure on dams was reached January 8, at 2 A. M. with 65 pounds pressure to the square inch.

On January 12, 1907, at noon, it was decided to make an opening in one of the dams to ascertain if the fire was out. On January 14, a hole had been broken through the wall and an investigation made and declared that the fire was out.

Condition of the colliery, good.

LEHIGH VALLEY COAL COMPANY

Mineral Spring Colliery.—Additional machinery was placed in Breaker consisting of new elevator conveyor lines, mechanical pickers, etc., to handle culm bank coal in reclaiming banks on west side of breaker.

New standard fence complete around the property.

Number 35 Tunnel finished through Coal Brook anticlinal.

Number 32 Tunnel finished through Mineral Spring anticlinal.

Numbers 38 and 39 Tunnels also finished through such anticlinal.

A pair of 20x30 inch second motion friction drum hoist engines are being installed on surface in concrete brick house for Number 8 Inside Slope Red Ash vein, rope passing through 6 inch cased bore hole.

A new brick-concrete washhouse completed at Coal Brook.

A new brick-concrete washhouse completed at Mineral Spring.

A new brick supply house and blacksmith shop completed at Coal Brook.

Silting has been extensively carried on throughout the year in the Baltimore and Checker veins Mineral Spring. Condition of colliery, good.

Heidelberg Number 1 Colliery.—Inside. A 4,500 foot engine plane was driven and graded for economical transportation in Red Ash vein.

A 1,400 foot gravity plane was installed in Marcy vein, to which a new tunnel, 370 feet, was driven to Clark vein as a tributary. A 45 foot air shaft acting as second opening was also completed.

The ventilation of the Marcy and Clark veins was improved by an air shaft from the surface.

Robbing was extensively carried on in Red Ash vein.

No. 8 Shaft.—A new engine house was erected and a new hoisting engine installed to handle the coal from the Clark and Babylon veins. A Guibal fan, 20 feet in diameter, was erected to take the place of the old one.

A large brick building was erected at No. 8 shaft, size 100 x 20 x 12 feet, to be used as Mine Foreman's office and shifting shanty and oil house combined.

At the No. 9 boiler plant, an additional battery of Sterling boilers, 622 horse power, was installed.

At No. 10 shaft a new engine house was built and engine installed to handle the coal from the Pittston and Marcy veins.

At No. 10 shaft two rock tunnels, 7 x 12 feet and 300 feet long and 7 x 12 feet and 125 feet long, were completed from the Marcy to the Clark veins, on the East Level heading.

No. 6 Colliery.—A rock tunnel, 7 x 12 feet and 200 feet long, was driven from the Marcy to the Pittston vein, in the basin of the entire workings, to take care of the body of water in the Pittston vein and mine out the pillars. A new pump was erected in the Marcy vein, size 24 x 48 x 16 x 48 inches, by the Scranton Steam Pump Company, to pump the water by bore holes to the surface. A tunnel, 7 x 12 feet and 100 feet long, was driven in No. 11 shaft from the Pittston to the Marcy vein, in the Laflin basin. A saw-mill has been built at this colliery to cut the mine timber by steam power.

Ewen.—In the Hoyt shaft a rock slope, 7 x 12 feet and 200 feet long, was driven from the Pittston to the Pittston vein through the anti-clinal on the west side of the river. A rock plane, 7 x 12 feet and 125 feet long, was driven from the Checker to the Checker vein, for the purpose of mining the coal, which was found to be considerably above the regular level.

At No. 4 shaft a large Jeanesville pump was installed in the Pittston vein, to pump the excess water to the surface. A saw-mill was built at this colliery to cut the prop timber with a steam saw.

No. 14 Colliery.—At the Cortright slope a new brick office, emergency hospital, and shifting shanty, were erected. Connections have been made with the Marcy vein and No. 14 shaft and tunnel.

HUDSON COAL COMPANY

Pine Ridge.—No. 14 plane in the Hillman vein was driven 600 feet; No. 11 plane in the Rock vein was driven 650 feet; No. 21 slope in the Checker vein was driven 900 feet; No. 22 slope in the Rock vein was driven 350 feet from Checker to the Red Ash vein. Two 8-inch bore holes were drilled from the surface to the Hillman vein, a distance of 135 feet, for flushing purposes. Two new steam boilers of 250 horse power were erected.

LEHIGH VALLEY COAL COMPANY

Mineral Spring.—The No. 3 air shaft from the surface to the upper Baltimore vein was lined with concrete. A new building was constructed to examine the mine cars for refuse in the coal.

No. 8 slope was sunk through a rock fault, and No. 9 slope graded. The silting operations in the Red Ash were extended to the west side of the slope.

A mule stable in the Red Ash vein was extended and made ready for more nules.

At Coal Brook slope, a new plane, 7 x 14 feet and 186 feet long, was completed between the No. 29 tunnel and No. 35 tunnel levels.

HILLSIDE COAL AND IRON COMPANY

Butler.—Erected a new concrete building, 94 x 40 feet, with an annex 40 x 60 feet, fire-proof throughout, to be used as machine, car and blacksmith shop.

At Fernwood a new slope, 7 x 12 feet and 1,000 feet long, was driven on the west rise, from the surface to the bottom split of Red Ash vein, to open up the Fernwood mines to deliver the coal to the Butler breaker. A tunnel was also driven off the new slope to the middle split of Red Ash. A new plane opening was driven from the Fernwood to the Clarence mine, 7 x 12 feet and 400 feet long, the coal to be taken up the Fernwood slope, thence to the Butler breaker.

In the Thomas shaft, a tunnel, 7 x 12 feet and 38 feet long, was driven from the middle split to the bottom split of Red Ash, for developing purposes.

DELAWARE AND HUDSON COMPANY

Delaware.—The new shaft in the course of sinking was sunk 160 feet from the surface and will be continued to the Red Ash vein.

The Mill Creek air shaft was extended 105 feet to the Ross vein; No. 7 rock slope was sunk 1,100 feet to the Red Ash vein; No. 10 plane in the Ross vein was extended 900 feet; No. 8 slope Ross vein was sunk 1,100 feet towards the North basin. A return airway in the Ross vein was driven 300 feet towards Mill Creek air shaft.

The Chapman slope which was abandoned by the Irondale Coal Company in the year 1849, was reopened by the Pennsylvania Coal Company to recover the pillars left. The coal is taken to Number 14 breaker, over land 1,000 feet, and prepared for market.

LEHIGH VALLEY COAL COMPANY

Mineral Spring Colliery.—The new steel breaker, to replace the one destroyed by fire in March, 1910, was completed and resumed operations April 3. In connection with the breaker, an Ottumwa box car loader was installed, and a new breaker engine house, containing hoisting engine, breaker engine and jig engine, was built. The loading of the coal into railroad cars is done by means of a 36-inch rubber belt, which conveys the coal from the pockets to the cars. A Barney plane for hoisting the coal up into the breaker was installed. The empty car plane was dismantled and the cars from the breaker are now run by gravity over a steel trestle to the head of the Red Ash shaft and Baltimore slope. The entire yard surrounding the breaker was graded and terraced and retaining walls built at the foot of these terraces. An 8-inch bore hole 77 feet deep was drilled to drain the water from the box car loader pit to the Baltimore vein. An 8-inch bore hole was drilled from the surface to the Red Ash vein for silting; which is to be used in the event of the hole now in use becoming blocked. An 8-inch bore hole for rope was put down from the surface to the head of the Red Ash No. 5 plane. A pair of 20x48-inch first motion engines was installed on the surface, east of the reservoir, to operate this plane. The Coal Brook coal will be lowered by these engines to the shaft level. Work was started on the reconstruction of the mule barn to make it absolutely fireproof. The timber at the head of the Baltimore slope was removed and a reinforced concrete mouth constructed.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen, was held at the Y. M. C. A. Hall, Pittston, April 4 and 5. The Board of Examiners was composed of Thomas J. Williams, Mine Inspector; Henry T. McMillan, Superintendent; David P. Williams and James Martin, Miners.

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

Mine Foremen

John Burke, John E. Phillips, John Cosgrove, Avoca; Robert Metcalf, Duryea; John J. Mattick, Hudson; Michael Cavanaugh, Hughestown; David J. Jenkins, West Pittston.

Assistant Mine Foremen

William Owens, Richard M. Hughes, Thomas Daley, Avoca; Thomas Jones, Hughestown; George C. Ayers, William Mattick, Hudson; William Palmer, Samuel May, Pittston; James Gardiner, Plains; George Fairclough, Laffin; Thomas L. Williams, Duryea; Edward J. Quinn, Yates.

in the Red Ash vein, 3,000 feet. A fireproof mule barn to hold 17 mules was built in Red Ash vein, and one was also built in Marcy vein.

Number 14 Colliery.—A new fireproof mule barn 87 by 114 feet, was built on the outside at the tunnels, to accommodate 54 mules.

At the Courtright slope, a brick building 10 by 12 feet was erected outside for the use of blacksmith.

Two new shafts, one 12 feet by 16 feet 5 inches by 608 feet, and one 12 feet by 22 feet by 585 feet, were sunk from the surface to the Red Ash vein, for the purpose of working the veins below the Marcy.

A rock tunnel 7 feet by 12 feet by 250 feet was driven through the anticlinal in the Pittston vein for transportation.

A fireproof mule barn, to accommodate 45 mules, was built in the Checker vein.

HUDSON COAL COMPANY

Pine Ridge Colliery.—A rock slope was sunk from the Cooper to Red Ash vein, a distance of 900 feet, size 7 feet by 14 feet. The second opening was driven to the Laurel Run workings, a distance of 1,700 feet.

HILLSIDE COAL AND IRON COMPANY

Butler Colliery.—Built a new washery, pockets of concrete and the balance of yellow pine, size 110 feet by 65 feet by 90 feet high. Washery is equipped with the latest machinery to prepare coal.

One-half battery 150 H. P. of B. and W. dutch oven type boilers added to the boiler plant.

One brick wash-house, 18 by 42 by 11 feet erected for the firemen, breaker and washery employes.

Thomas shaft. A rock tunnel 7 by 12 by 540 feet, was driven through the anticlinal for haulage road in the Red Ash vein.

A rock slope 7 by 12 feet is being driven from the Red Ash vein to the Butler workings through the fault, to be used as a second opening for the Butler slope Red Ash vein.

Butler Marcy slope. The Pittston water tunnel has been extended to the Marcy vein.

Fernwood slope. A new mule barn of wood has been erected outside to accommodate 20 mules; size 20 by 120 by 12 feet. A new building of corrugated iron was erected for supplies; size 32 by 112 by 12 feet.

LEHIGH VALLEY COAL COMPANY

Mineral Spring Colliery.—Safety over-hoists were placed on the shaft engines. Two powder cars were built for the transportation of powder to Coal Brook tunnel. Two closed passenger cars were constructed for the transportation of men to and from Coal Brook.

A new loading belt was installed in the breaker.

The mule barn in the Red Ash vein was made fireproof. A new concrete hospital was built in the first lift off the Baltimore slope.

The props and timber in No. 39 tunnel for a distance of 60 feet were replaced by concrete and steel beams.

At No. 10 shaft the rock slope, 7 by 12 by 300 feet, was driven from the Marcy to the Clark vein, and a pair of 12 by 24-inch engines installed. An air shaft 10 by 10 by 60 feet was sunk from the Marcy to the Clark vein near foot of the new slope. A rock plane was driven from the Pittston vein to the Abbot slope section of the Barnum, Checker vein, 7 by 12 by 200 feet.

Ewen Colliery: At No. 4 shaft a new brick enginehouse 27 by 40 feet was built, in which was installed a pair of 15 by 36-inch engines for operating the rope haulage in the Red Ash vein. A brick building was erected near No. 7 shaft, 107 by 33 feet, in which was stored hay, feed, lime, cement and sprags.

No. 6 Colliery.—Installed at the Wright slope a ventilating fan 20 feet in diameter, driven by a 4-valve Ridgway engine, 15 by 20 inches, inclosed with a brick building 18 by 48 feet. Erected a brick building 28 by 30 feet, to house the locomotive.

No. 14 Colliery.—Erected a brick locomotive house, 40 by 40 feet, and installed a 20-foot ventilating fan driven by a 12 by 14-inch Ridgway simplex side crank engine at Diamond slope. Built a brick supply house, 122 by 23 feet, containing loaders' room and cement, lime, feed, hay and sand rooms.

The second opening, 7 by 10 feet, to the New Diamond slope workings to the surface has been finished, a distance of 100 feet.

HILLSIDE COAL AND IRON COMPANY

Butler Colliery.—At the Thomas shaft, installed a Vulcan fan, 14 by 6 feet, operated by an 18 by 20-inch Ridgway engine. Built fan house of steel with concrete connection to shaft, 35 feet 9 inches by 21 feet by 11 feet 2 inches, and brick engine house 12 feet by 25 feet by 11 feet 2 inches in connection with the new air shaft sunk to the Red Ash vein workings. Sunk an air shaft for ventilation 12 feet by 12 feet by 200 feet.

At the Butler Marcy slope completed second opening from the Red Ash vein to Thomas shaft workings. A part of the distance was driven through coal and part through rock. This also serves as a return air course to the new fan erected near Thomas shaft. Extended Pittston water tunnel 1,800 feet beyond the Marcy vein toward the Red Ash vein of Thomas shaft.

HUDSON COAL COMPANY

Pine Ridge Colliery.—No. 19 plane in the Red Ash vein was driven 800 feet to connect No. 23 slope with Millcreek shaft. Remodelled foot of shaft at Cooper vein. All timber having been removed and replaced by steel "I" beams and concrete.

Laffin Colliery.—No. 8 slope, top bench, top split, Red Ash vein, was driven 900 feet.

LEHIGH VALLEY COAL COMPANY

Mineral Spring Colliery.—Outside: The Checker vein fan house was made fireproof by the use of metal lath and plaster. The roof over the Red Ash fan house and over the return airway in the shaft was replaced with fireproof material. Erected a hospital and mine foreman's office. The box car loader at breaker was inclosed in a

Outside. Completed a brick, iron and concrete power house 38 by 96 by 16 feet, and installed therein one 330 H. P. McEwen engine driving D. C. generator to furnish electricity to Nos. 5, 6 and 11 shafts. Also completed a concrete, iron and brick building for sand-dryer, cement-house, lime, hay, feed, hospital and storeroom.

Number 14 Colliery.—At the Red Ash shaft installed a hoisting and a fan engine, and built houses for same. Also built an addition to No. 2 tower. At the Hillman slope installed an engine, and built a house for same.

Ewen Colliery.—Inside: Sunk an air shaft, 12 feet by 14 feet, from surface to the Marcy vein at Hoyt shaft. A new concrete pump-room was built in the Schooley shaft, Pittston vein, and a Jeanesville pump, 24 by 48 by 12 by 36 inches was installed therein.

Outside:—Erected a new concrete and steel breaker and washery to replace the breaker destroyed by fire on December 11, 1914. Installed a 14-foot fan, enclosed in a brick building, to ventilate workings in the Hoyt shaft. At the Schooley shaft, a new washery was erected to prepare coal taken from the culm bank for steam purposes.

DELAWARE AND HUDSON COMPANY

Laffin Colliery.—Extended No. 4 plane, Red Ash vein, a distance of 250 feet.

Delaware Colliery.—Extended No. 14. plane in the Red Ash vein, 350 feet through fault to the workable coal beyond. Completed a tunnel, from No. 7 plane Ross vein, a distance of 500 feet, to cut veins in back basin.

Pine Ridge Colliery.—Completed No. 26 slope, Checker to Bennett vein, and No. 30 slope in Red Ash vein was extended a distance of 250 feet toward the basin.

HILLSIDE COAL AND IRON COMPANY

Butler Colliery.—Completed the water tunnel to Fernwood to take the water to the Pittston water tunnel.

LEHIGH VALLEY COAL COMPANY

Mineral Spring Colliery.—Inside: A fire line was installed in the Red Ash vein.

Outside:—A concrete dam was constructed at the reservoir to increase capacity of same. Completed structural steel work under an empty car trestle. Drilled a bore hole from the surface to the Red Ash vein, a depth of 265 feet, to conduct signal wires from outside engine house to No. 5 plane.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held in the Y. M. C. A. Hall, Pittston, May 18 and 19. The Board of Examiners was composed of Hugh McDonald, Inspector; H. T. McMillan, Superintendent, West Pittston; Frank J. Parks, Miner, Pittston; and Michael J. Ford, Miner, Pittston.

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

Delaware Colliery.—The following tunnels were driven: No. 29, Ross to Red Ash, 1160 feet; No. 30, Red Ash through fault, 850 feet; No. 31, Ross to Checker, 330 feet; No. 32, Ross to Checker, 250 feet; No. 33, Cooper to Five foot, 320 feet. Drove No. 17 plane from Ross to Bennett, 210 feet.

Pine Ridge Colliery.—Extended Laurel Run No. 4 plane 450 feet to the surface for a manway. A second opening connecting No. 19 plane, Red Ash, with Delaware, was extended 160 feet.

The breaker was remodeled and improved.

Baltimore No. 5 Colliery.—Two tunnels, 170 feet long, were driven from the Red Ash to Top Split and one 190 feet from the Abbott to Snake Island.

The Baltimore landings at Conyngham and No. 4 shaft and the Red Ash landing at Baltimore No. 5 shaft were secured by concrete walls and steel beams.

LEHIGH VALLEY COAL COMPANY

Mineral Spring Colliery.—Two concrete fire boss stations were constructed; one in the old slope at Jones lift and the other at the foot of No. 2 shaft, Red Ash vein.

Concrete floor was laid in the carpenter shop, partitions torn out and steel columns substituted for roof support. A substantial concrete platform was constructed in front of the ware-house and minor improvements were made on the inside.

EAST BOSTON COAL COMPANY

East Boston Colliery.—Drove tunnel from Eleven Foot to Bennett, new Bennett slope.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held in Kingston, June 6 and 7. The Board of Examiners was composed of John B. Corgan, Inspector; Gilbert Jones, Superintendent, Dorranceton; Thomas Thornton, Miner, Parsons; Charles Semanski, Miner, Swyersville; John J. McNelis, Clerk, Luzerne.

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

MINE FOREMEN

Patrick H. Conway, Old Forge; James Dixon, Hudson; John J. Llewellyn, Wilkes-Barre; Frank Davitt, Miners Mills; Timothy Cronin, Nathaniel Dixon, Parsons; William F. Corgan, Luzerne; John Hosey, Kingston.

ASSISTANT MINE FOREMEN

Ellsworth Austin, Joseph Loscoskie, Con Maloney, Thomas Summerson, Parsons; Thomas Bottoms, Jr., Michael J. Condon, Mark Luksic, Louis Sulzbacher, Luzerne; William Brazill, Miners Mills; Albert Joseph Bevan, Wilkes-Barre; Anthony John Mattick, Anthony M. Sudnick, Benjamin Eckertt, Hudson; Thomas Nankwell, Cecil Ninness, Plains; Martin Shields, Forty Fort.

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

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

LEHIGH VALLEY COAL COMPANY

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

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

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

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

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

HADDOCK MINING COMPANY

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

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

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

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

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

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

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

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

CENTRAL COAL COMPANY

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

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

long; and tunnel to the Ross vein in the Laurel Run section. Installed one 7-ton electric locomotive and one 10-ton electric locomotive. The Pine Ridge shaft was relined and wood cribbing replaced by concrete from the surface to the rock.

LEHIGH VALLEY COAL COMPANY

Henry Colliery.—Installed new stacks on the boilers. Completed the electrification of the mines by running power line from Prospect Colliery. A bore hole was put down on the west side of the river from the surface to the Red Ash vein for carrying electric power line into the mines, and sub-station was constructed in the Five Foot vein. Completed No. 76 tunnel from Skidmore to old workings in the Lower Baltimore vein; No. 77 tunnel in Wyoming slope from Five Foot vein to large virgin area in Hillman vein; No. 78 tunnel in Wyoming Five Foot vein to virgin area in this vein south of the fault. Constructed a concrete air bridge to improve ventilation in Henry Five Foot vein. Drainage bore holes were drilled from Bowkley to Hillman vein, from Hillman to Five Foot vein, and from Hillman to Lower Baltimore vein, for the purpose of concentrating the pumping.

Mineral Spring Colliery.—Completed a rock plane for use as a man-way for No. 5 plane, and did considerable rock grading on No. 5 plane. Completed electric power line from Prospect Colliery for the purpose of electrifying Coal Brook workings. Installed a Cochran feed water heater in the boiler house. The mouth of the old slope was improved with reinforced concrete. Made extensive repairs to all the company houses.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held in Kingston, April 23 and 24. The Board of Examiners was composed of John B. Corgan, Mine Inspector, Kingston; Gilbert S. Jones, Superintendent, Dorranceton; W. J. Cotter, Miner, Wyoming; Thomas Thornton, Miner, Parsons.

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

MINE FOREMEN

Guy E. Connor, Plains; Mark J. Luksic, Louis Sulzbacher, Luzerne; William T. Mattick, Miners Mills; Philip H. Kelly, Raymond Muggford, Charles S. Watkins, Parsons; George F. Charlton, Edwardsville; John R. Pattison, Plainsville.

ASSISTANT MINE FOREMEN

Joseph Bonsall, John Shaughney, William J. Corcoran, Charles Neyhard, Plains; John Cosgrove, William Roberts, Ashley; John J. Dillon, Thomas Schmidt, Wilkes-Barre; Thomas H. Rundle, Forty Fort; Julius Lisinski, John Adams, Benjamin Jones, Frank Christopher, Parsons; Michael D. Angley, Pringle.