

the main doors on headings and air-ways are hung so that they will close of their own accord; they have attendants at main doors; the air is circulated to the face of the workings in four splits; the amount of ventilation has been measured and reported according to law; ventilation is good.

Machinery.—The engines in use at this colliery are one pair of hoisting engines of 40-horse power, one breaker engine of 30-horse power and one donkey engine in mine for pumping purposes, &c.; they have a metal speaking tube in the shaft; they have a safety carriage with all the modern improvements; they have flanges of sufficient strength and dimensions for safety; they have an adequate brake on the hoisting drums; the main links, chains and connections are in good condition; the boilers have been cleaned and examined and reported in good condition; they have a steam-gauge and safety-valves for safety and to indicate the pressure of steam; the breaker machinery is boxed and fenced off so that operatives are safe.

Remarks.—They have furnished a map of the mine; they have second openings located at various distances from the main opening; they have no house for men to wash or change clothes in; the mining boss seems to be a practical and competent man; there are no boys working in the mine under twelve years of age; the engineers seem to be experienced, competent and sober men; they do not allow any person to ride on loaded cars on the planes in the mine; they do not allow more than ten men to ride on the safety-carriage at one time; the parties having charge know their duty in case of death or serious accident; the shaft landings are protected by safety-gates.

No. 6 SLOPE.

This slope is located in Pittston township, and lying about 600 feet south-east of No. 8 shaft; it is 900 feet long, 6 feet high and 10 feet wide; it is operated by the Pennsylvania coal company. Andrew Bryden is general mine superintendent and James Moffat is mining boss.

Description.—There is a breaker connected with this mine about 1,200 feet away; they mine and prepare about 100 tons of coal per day; they employ 22 miners, 13 laborers, 3 drivers and 2 company men in the mine, 2 drivers, 3 company men and 3 mechanics outside, in all 48 men and boys; they are working the 7 feet vein of coal; average thickness 6 feet; they work headings 10, air-ways 15 and chambers from 20 to 26 feet wide; they leave pillars from 14 to 18 feet wide to sustain the roof; they leave cross-entrances from 18 to 50 feet apart for the purpose of ventilation; the roof is good slate; the mine is in a good working condition.

Ventilation.—Ventilation is produced by the action of the atmosphere: the intake is located in No. 10 shaft and No. 6 tunnel; it contains an area of 100 feet at No. 10 shaft and an area of 36 feet at the drift or slope; the outcast is located at mouth of slope; it contains an area of 54 feet; the average supply of fresh air is 19,870 cubic feet per minute. The main doors are hung so that they will close of their own accord; they have attendants at main doors; the air is circulated to the face of the workings in two splits; the amount of ventilation has been measured and reported according to law. Ventilation is good.

Machinery.—They use two hoisting engines of 20-horse power each and one steam pump of 25-horse power; they have a metal speaking tube in the mine; they have flanges of sufficient strength and dimensions for safety attached to the sides of their hoisting drum; they have an adequate brake on their hoisting-drum; the ropes, links, chains and connections are in good condition; the boilers have been cleaned and examined and reported in good condition according to law; they have a steam-gauge and safety-valves for safety and to indicate the pressure of steam.

Remarks.—They have furnished a map of their mine; they have second openings located at various distances from main opening; they have no house for men to wash or change their clothes in; the mining boss seems to be a competent and practical man; there are no boys working in the mine under twelve years of age; the engineers seem to be experienced, competent and sober men; they do not allow any person to ride on loaded wagons or cars in the slope; the persons having charge know their duty in case of death or serious accident.

the purpose of ventilation. The roof is hard rock. The mine was in good working condition.

Ventilation was produced by a furnace located 300 feet from the main opening. The intake is located at the mouth of the drift; area 108 feet. The outcast is located in the furnace air-shaft; area 36 feet. The main doors were hung so that they would close of their own accord. They had attendants at the main doors. The air was circulated to face of the workings in two splits. They had no instrument for measuring the amount of air. Ventilation was good.

Machinery.—They use one engine of 40-horse power to run the breaker machinery, and to hoist on the planes outside. There is no machinery required at the tunnel.

Remarks.—They have furnished a map of mine. They have a second opening. They had no house for men to wash or change in. They did not allow any person to work in the mine under twelve years of age. The parties having charge know their duty in case of death or serious accident. There is a branch railroad built from the Lehigh and Susquehanna division of the Central railroad of New Jersey to the colliery. The breaker machinery is fenced and boxed off so that operatives are safe.

No. 6 SHAFT COLLIERY

Is located in Jenkins township, about two miles south-west of Pittston, on the east side of the Susquehanna river. It is 180 feet deep to the Checkered or 7 feet vein and 312 to the Pittston or 11 feet vein. This mine is operated by the Pennsylvania coal company, and John B. Smith is their general superintendent; Wm. Law is general mining superintendent; Thomas Aubrey is mining boss and Loftus Campbell is outside foreman.

Description.—They have a breaker attached to the shaft tower by a trestle 160 feet long. They mine about 250 tons of coal per day. All the coal mined at Nos. 6, 5 and 11 shafts is cleaned and prepared at No. 6 breaker. They employ 36 minors, 36 laborers, 15 drivers, 2 door-boys and 16 company men in the mine, and 30 slate pickers, 4 head and plate men, 2 drivers, 17 company men; 3 mechanics and 1 boss outside, in all 168 men and boys. They have two gravity planes in operation in the mine; one is 300 feet and the other 180 feet long. The loaded cars going down the planes, haul the light cars to the top. This is a very cheap mode of getting coal to the foot of the shaft. They are only working the Pittston vein; average thickness, twelve feet. They drive headings 10 feet, airways 15 feet and chambers 24 feet wide. Headings and airways are driven on a level and chambers on a pitch. The roof is good slate. They leave pillars to sustain the roof, from 16 to 18 feet wide. They leave cross entrances for the purpose of ventilation, from 18 to 30 feet apart.

Ventilation.—This mine is ventilated by steam at the outcast in No. 2 slope. The intake is located at Nos. 6 and 7 shafts. The air is conducted to the face of the workings in two splits or currents. They have air-doors and gates on the main traveled roads, so as to control the air-currents and force the air to the face or all the working places. They have double doors on the main traveled road with attendants so as to keep them closed. The main doors on headings and airways are hung so that they will close of their own accord. They work in one split 30 men and in the other 42 men. The amount of ventilation has been measured and reported monthly according to law. The amount of air at the intakes averages 28,750 cubic feet and at the outcast 30,000 cubic feet. Ventilation is good. The size of the intake air-way is 150 and 91 feet and upcast 80 feet.

Machinery.—They have two hoisting carriages in the shaft; one is a safety carriage with all the modern improvements. The ropes, links, chains and connections are in good condition. They have a metal speaking tube in the shaft, and have flanges of sufficient dimensions attached to the side of the hoisting drums. They have adequate brakes on hoisting drums. The boilers have been cleaned, examined and reported in good condition. They use safety valves and steam gauges for safety and to indicate the pressure of steam. They use two hoisting engines of 70-horse power.

Remarks.—They have furnished a map of the mine. They have no house for men to wash and change their clothes in. They have no noxious, inflammable or poisonous gasses evolve in the mine. The mining boss seems to be a practical and

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competent man. There are no persons allowed to ride on loaded wagons or carriages either on the planes or in the shaft. The mine is in a good, safe, working condition. The parties having charge know their duty in case of death or serious accident. The shaft landings are protected by safety-gates. The breaker machinery is boxed and fenced off, so that the operatives are safe.

No. 5 SHAFT

Is located in Jenkins township, about two miles south-west of Pittston, on the east side of the Susquehanna river. It is 88 feet deep to the Checkered vein and 170 feet to the Pittston or 14 feet vein. This mine is operated by the Pennsylvania coal company. Benjamin Harding is mine boss.

Description.—They have no breaker attached to this mine, as the coal from this mine is prepared at No. 6 shaft breaker. They employ 34 miners, 34 laborers, 8 drivers, 2 door-boys, 7 company men in the mine; 2 drivers, 6 company men, 2 mechanics and one boss outside; in all 96 men and boys. They are working the Pittston or 14 feet vein; average thickness 10½ feet. The Checkered vein is not working. They have two gravity planes in the mine; length of each 350 feet. They drive headings 10 feet, air-ways 15 feet and chambers 24 feet wide. The nature of the roof is slate. They leave pillars to sustain it from 16 to 18 feet wide, and cross-entrances for the purpose of ventilation from 18 to 25 feet apart.

Ventilation.—Ventilation is produced in the mine by the action of the atmosphere. They have air-doors and gates on the main traveled roads, so as to control air-currents and force air to the face of all the working places. They have double doors on all main traveled roads with attendants so as to keep them closed. The main doors are hung so as to close of their own accord. The air is conducted to the face of workings in two splits or currents. They work 32 men in one and 36 men in the other. The amount of ventilation has been measured and reported monthly, according to law. The amount of air per measurement, at intake averages 16,500 feet per minute. The intake is located at No. 5 shaft and Nos. 3 and 4 slopes. The outcast is located at the mouth of No. 11 shaft. The area of intake is 130 feet and outcast air-way 150 feet.

Machinery.—They use two hoisting carriages in the shaft; one is a safety-carriage with all the modern improvements. The ropes, links, chains and connections are in good order. They have a metal speaking tube in the mines. They have flanges of sufficient dimensions attached to the side of the hoisting drums. They have adequate breaks on the hoisting drums. They have bridle chains attached to the safety-carriage, where they hoist persons into and out of the mine. The boilers have been cleaned and examined, and all the feed pipes, water-gauge cocks, &c., are in good condition. They use a steam gauge to indicate the pressure of steam per square inch. They also use one hoisting engine of 40-horse power.

Remarks.—They have furnished a map of the mine. They have second openings nearest to shaft, 1,100 feet. They have no house for men to wash or change their clothes. They have no noxious or poisonous gases evolve in the mine. The mining boss seems to be a practical and competent man. There are no persons allowed to ride on loaded wagons or carriages in the mine. The engineers seem to be sober, competent and experienced men. The parties having charge know their duty in case of death or serious accident. The mine is in good, safe, working condition; there are no boys working in the mine under twelve years of age; the shaft landings are protected by safety-gates. In the ventilating of this mine the air currents are quite the reverse in summer to what they are in winter. This shaft is located three-fourths of a mile south-east from the Susquehanna river.

No. 11 SHAFT.

This shaft is located in Jenkins township, two miles south-west of Pittston, on the east side of the Susquehanna river. It is 62 feet to the Checkered vein and 194 feet to the Pittston or 14 feet vein. This mine is operated by the Pennsylvania coal company. Andrew Bryden is general mine superintendent and Benjamin Harding is mining boss.

Examination of Applicants for Mine Foreman's Certificates.

The annual examination of applicants for mine foreman's certificates in the Second district, was held in the Welsh Hill school building, Pittston, Pa., June 25th and 26th. The examiners were H. McDonald, inspector, A. G. Mason, superintendent, both of Pittston, Pa., and Archie McQueen, of Pleasant Valley, Pa.

The following fourteen were successful, John W. Reid, Samuel M. Johnson, James R. Walsh, John Marian, Richard Beer, William J. Thomas, Patrick S. Coyne, Stephen McLinarie, James Blease, James Wilson, Mathew D. Macky, John Hastie, David D. Davis and Evan H. Reese.

James Waddell, of Kingston, Pa., applied for a certificate of service and was recommended to receive one.

General Condition of the Mines.

The mines of this district are in comparatively good condition as regards ventilation with the exception of a few which are not in the condition that the law requires, but I am happy to state that these mines are now being attended to, so that in a short time they will be in such condition as to give all the air to the workingmen that is required by law.

The drainage in the mines has been improved more than in former years, yet there is room for improvement in this regard. Likewise the timbering is receiving its share of attention. As there has not been one accident in this district this year attributable directly to the neglect of timbering or propping.

Mine Improvements during 1888.

Pennsylvania Coal Company.—In shaft No. 6 of this company two underground tunnels were driven from the Pittston to the Marcy seam, a distance of one hundred and twenty, and three hundred feet respectively, which opens up an extensive lift of good coal.

At shaft No. 11 of this company, a new underground slope was sunk in the Pittston seam, a distance of five hundred and twenty-two feet. The engines are located on the surface and the ropes pass down through the air shaft.

A new tunnel was driven by this company about one mile south of No. 14 shaft, from the surface, cutting the Pittston seam at a distance of two hundred feet. The coal is of a good quality and is taken by a small locomotive to No. 14 breaker, to be prepared for market.

A new shaft was sunk by this company close to old No. 4 shaft, in Pittston borough, from the surface to the Powder Mill seam, a distance of four hundred and sixty-four feet. Size of shaft twelve by thirty-two feet. It will be used for hoisting coal.

Lehigh Valley Coal Company.—At Coal Brook slope an air shaft was sunk to the Red Ash seam, and a new fan twenty feet diameter

ers at the breaker were abandoned. In the mine an additional intake air-course was driven in the eleven-foot seam and the return air course enlarged, which increased the volume of air in the six-foot vein from 85,000 cubic feet to 145,000 cubic feet per minute.

Pennsylvania Coal Company.—The No. 6 shaft was enlarged from 10x16 feet to 10x31 feet to make room for two hoist-ways a pump-way and an air-way from the surface to the Pittston seam, a distance of 312 feet, which shaft was then continued down to the Red Ash vein 300 feet. The location for a new breaker has been staked out to be built in the spring of 1898, which will prepare the coal from shafts Nos. 5, 6 and 11.

At No. 4 shaft of this company three new Babcock and Wilcox water tube boilers of 150 horse power each were erected, which take the place of twelve cylindrical boilers formerly used. Also at the Ewen breaker six Babcock and Wilcox boilers were erected and put in operation on February 13, 1897, which supply steam to the breaker, and to No. 7 and Hoyte shafts, supplanting the 27 cylindrical boilers previously used.

Forty Fort Coal Company.—At the Harry E., a new pair of First motion engines have been placed on the head of the inside slope in the Red Ash seam. Diameter of cylinders 30 inches, length of stroke 48 inches. The drum shaft is 14 inches in diameter and made of steel, length being 28½ feet. There will be 8,000 feet of one and one-half inch rope on the drum; 15 cars will be hoisted on a trip.

Raub Coal Company.—At the Louise Colliery an addition of 36 feet was built to the breaker and new machinery placed in position, thereby increasing the capacity of the breaker to 800 tons per day. New openings have been driven from the surface to the Ross and Red Ash seams by tunnels on the property lately acquired by the company. A small locomotive takes the coal from these openings to the breaker, a distance of one mile.

At 5 P. M., March 1, 1897, a settling of the surface was discovered on the east side of Eighth street, in the borough of Wyoming, Pa., which caused considerable anxiety to the people who resided in that vicinity. Realizing that the workings of the Pittston seam of the Mount Lookout Colliery had extended under that portion of the town, word was sent to notify William A. Thomas, the inside foreman of the colliery, of the fact. He immediately descended the shaft to make an investigation of the mine. On reaching the foot he encountered a rush of sand and water coming through the rock tunnel. Knowing the danger of being caught by the rush, he retreated to the foot of the shaft and was hoisted to the surface again. The mine had stopped work that day at 3 P. M., and all the men had come out some time before the rush took place. Therefore, the officials did not attempt to go down again for one hour. When the

Pennsylvania Coal Company.

A new breaker has been erected at **No. 6 colliery** which is located about 200 yards east of the site occupied by the old breaker which was taken down and removed to make room for improvements about the shaft. The new breaker is a large structure and it is estimated that about a million and a half feet of timber was used in its construction. Mechanically it is far superior to any breaker now in possession of the company in this district. The equipment is the most modern known to the anthracite coal business for the preparation of coal. After the coal leaves the car at the head of the breaker it is handled entirely by machinery until deposited in the pockets at the lower end of the breaker. An endless chain system is used for conveying the cars into the two patent Farrell dumps at the head, and as soon as the cars are emptied they pass over the tips, run up a short incline and switch themselves back to another set of chain conveyors. The cars are handled entirely by chain and gravity. In moving through the breaker the coal first passes over a set of bars through which the culm and fine coal find an opening and pass to the extreme bottom of breaker. The coal is then conveyed to the top of the breaker again and passes over a separate pair of screens, where it is crushed into sizes, recleaned by the patent Thomas slate pickers, and conveyed by the belt conveyors into the chutes. The larger coal passes over the grate bars and lands on a movable platform where it is cleaned as it passes over. The greater quantity of the coal after going through the rolls is elevated by three sets of elevators to the six main screens where it is separated into sizes. The culm is conveyed on belt conveyors to a pocket 100 feet from the breaker. The capacity of this breaker is estimated at 2,000 tons per day. The coal to be handled by it is mined from shafts Nos. 5, 6 and 11.

A new washery has been erected midway between the Ewen and **No. 6 breakers** to wash the culm in the old culm bank.

The No. 6 shaft has been sunk from the Pittston seam to the Red Ash, and a new brick engine house erected close to the shaft.

Babylon Coal Company.

The Babylon colliery shut down on the 13th of January and resumed operations again on June 13, 1898, after being idle five months for general improvements in and about the breaker. The repairs consisted of taking down the trestling which spanned the 200 feet between the hoisting shaft and breaker. The hoisting shaft was re-cribbed from the rock to the surface, a distance of 56 feet, with 12x12 inch Georgia yellow pine, and a new tower was erected over the shaft. A conveyor line was built from the surface landing at the shaft to

Number 6 Colliery.—In Number 6 Shaft a new brick car and blacksmith shop was built 30x90 feet; also a new brick wash house 17x17 feet.

A tunnel from Clark vein, Number 6 Shaft, to the Babylon vein, in Number 5 shaft, was completed. This will bring all coal to the same foot. Condition of colliery and ventilation fair; drainage bad.

Number 11 Shaft.—A steam plane was driven from the Babylon to the 14 foot vein to the Laffin basin. This will shorten the distance of transportation of coal over one mile.

A ventilating shaft was sunk from the Babylon to Red Ash vein on south pitch. Condition of colliery, fair.

Number 5 Shaft.—No improvements. Condition of colliery, fair.

Ewen Colliery.—A large washery was erected with a daily capacity of 1,600 tons. It is completed with modern machinery for cleaning the culm from the bank.

Number 4 Shaft.—A new steel tower was erected over the hoisting shaft. A new engine and pump house 41x20 feet was built, also a blacksmith, oil and wash house, 48x17 feet, of brick. A rock tunnel was driven from the Marcy to the 14 foot vein to recover the pillars in the old Number 2 Shaft. Condition of colliery, good.

Hoyte Shaft.—A new steel hoisting tower was erected over this shaft 80 feet in height; a new engine and compressor house was built of brick. A rock slope was also driven from the 14 foot to Marcy vein. This slope will reach the coal in Marcy vein, that otherwise could not be reached. Condition of colliery, good.

Number 10 Colliery.—A new breaker and washery was built situated between Number 10 and Number 8 colliery, which will take and prepare the coal from Numbers 1, 8, 9, 10 and 10, Jr., Shafts. It is equipped with all the most modern improvements and has a capacity of 5,000 tons per day.

The coal is carried to the top of breaker by inclined over-lapping open top bucket steel conveyor, which is operated by 185 horse power 250 volt compound wound motor, reciprocating feed on conveyor driven by 10 H. P. 250 volt compound wound motor. The breaker and washery is equipped with mechanical pickers and nine L. V. jigs.

Both buildings are heated by exhaust steam. The engines are the Pennsylvania Coal Company pattern, 18x36 inches, in pairs. A brick building 50x160 feet was built for car and machine shops and is equipped with three lathes, planer, drill press, shaping machines operated by steam.

New mine scales and building erected at foot of conveyor for weighing mine cars. A new track scales for both light and loaded cars have been installed by Barker and Son, Scranton, Pa.

The power house is built of brick 34x74 feet with four engine type direct current compound generators 215 K. W. capacity, four 18x20 inch automatic McEwen engines. This electric power will be carried to Barnum Colliery, Number 1 and Number 10 shafts, and will operate a part of the breaker.

The boiler house is built of brick 76x113 feet, with an addition of 40x33 feet. The boilers are of the Sterling maxim type, consisting of 2,400 H. P. Equipment for boiler plant will be one 4,500 H. P. feed water heater, two 16x10x18 inch Scranton duplex plunger end packed pumps.

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 Laffin 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.

CONDITION OF COLLIERIES

PENNSYLVANIA COAL COMPANY

- No. 14.—Safety conditions, ventilation and drainage good.
 Ewen.—Safety conditions, ventilation and drainage good.
 No. 6.—Safety conditions, ventilation and drainage good.
 No. 9.—Safety conditions, ventilation and drainage good.
 Barnum.—Safety conditions, ventilation and drainage good.

HUDSON COAL COMPANY

- Pine Ridge.—Safety conditions and ventilation good; drainage fair.
 Laflin.—Safety conditions, ventilation and drainage good.

HILLSIDE COAL AND IRON COMPANY

- Butler.—Safety conditions, ventilation and drainage good.

LEHIGH VALLEY COAL COMPANY

- Heidelberg No. 1.—Safety conditions, ventilation and drainage fair.
 Mineral Spring.—Safety conditions, ventilation and drainage fair.

DELAWARE AND HUDSON COMPANY

- Delaware.—Safety conditions, ventilation and drainage good.

TRADERS COAL COMPANY

- Ridgewood.—Safety conditions, ventilation and drainage fair.

YOST MINING COMPANY

- Yost.—Safety conditions, ventilation and drainage fair.

IMPROVEMENTS

PENNSYLVANIA COAL COMPANY

Ewen Colliery.—A new brick fireproof storehouse has been built at No. 7 Junction, 33 by 250 feet, two stories high, to handle the supplies for the Pennsylvania and Hillside Companies.

At No. 4 shaft the boiler plant has been increased by adding one and a half sets of Babcock and Wilson boilers, 450 horse power. The ventilating fan has been rebuilt. The wooden connection from the shaft to fan has been replaced with brick and concrete, and the rest of the building made fireproof. A large Jeanesville pump has been installed in the 14 foot vein, which delivers the water to the surface.

No. 6 Colliery.—A power saw was erected to saw the props for the mines. A new washery has been erected in connection with the breaker to handle the tonage and the culm from the bank. One battery of Maxim Sterling boilers, 330 horse power, was added to the boiler plant, and the boiler house remodeled, and also the boilers to the Dutch oven type.

Explosion of Gas in Hoyt Shaft, Ewen Colliery, of Pennsylvania Coal Company

January 10.—Mathew Daily, company man, Frank Leish, laborer, and Patrick Bulger, company man, were fatally injured by an explosion of gas in Pittston vein. At 1.30 p. m., Bulger was sent to build a wall to direct the air current up to a counter gangway above, where Frank Leish was working. Mathew Daily was cleaning the road on the counter gangway. The fire boss on the above morning failed to discover any gas in the working places. The supposition is that Bulger had about completed the wall that directed the air current up into the abandoned breast where gas had accumulated when the gas was carried into the face of counter gangway and ignited by the open light of Frank Leish, who was the only person burned. Daily was suffocated by the after-damp, Leish died January 12 and Bulger died January 25, from injuries received due to the concussion.

Explosion of Powder in Number 10 Shaft, Number 9 Colliery, of Pennsylvania Coal Company

January 25.—Michael Roach, miner, George Zigmound, laborer, and Andrew Sepcock, laborer, were fatally burned by the explosion of a keg of powder.

These men got into a trip of empty cars with a keg of powder to ride in the gangway to work. The trip of cars was hauled in the gangway, Marcy vein, by an electric motor and the powder was ignited either by the electric current or by the men in the car. Roach died the same evening, Zigmound February 1, and Sepcock February 2.

Four other persons were slightly burned by this explosion while riding in the car next to the one containing the powder.

Explosion of Gas in Number 11 Shaft, Number 6 Colliery, of Pennsylvania Coal Company

June 5.—Walter Fitzsimons, car runner, was instantly killed and Martin Quinn, road cleaner, was fatally burned by an explosion of gas. As June 4 was Sunday, the ventilating fan on Number 5 shaft was slowed down to allow repairs to be made in the shaft, and the fan was not started at its regular speed until sometime in the night. In the meantime gas had accumulated in the workings of Number 6 shaft, Red Ash vein, which is connected through Number 5 workings up to Number 11 shaft.

The mule barn is situated in the workings between Number 11 and Number 5 shafts, and the drivers go down Number 5 shaft to the barn.

The fire boss of Number 11 shaft entered the mine at his usual time in the morning of the 5th and made his examination. On arriving at the foot of the shaft he met Martin Quinn, the road cleaner, at 6.00 a. m., and placed him at a door close to the manway to the barn and told him to allow no person to go in until he returned from examining the workings inside. At 6.45 a. m., Fitzsimons came down and started down the manway to the barn and lighted a body of gas with his open light.

WILKES-BARRE COLLIERY COMPANY

Madeira Colliery.—Ventilation and drainage fair. Condition as to safety, good.

McCAULEY COAL COMPANY

Pickaway Colliery.—Ventilation and drainage fair. Condition as to safety, good.

The roads inside of the mines of the Pennsylvania Coal Company and Hillside Coal and Iron Company are kept in first class condition. The gangways are kept free from refuse and standing water, and are of ample width. The passing branches at the foot of most of the shafts are concreted on both sides from bottom to roof, the roof is supported by steel girders and the foot or landings are lighted by electric lights.

IMPROVEMENTS

PENNSYLVANIA COAL COMPANY

Barnum Colliery.—A slush pump 24 by 10 by 36 inches has been installed for pumping slush to the top of the hill, southeast of No. 2 shaft. No. 3 shaft has been abandoned as a hoisting shaft, all coal being taken by motor to No. 2 shaft, Pittston vein landing.

Number 9 Colliery.—No. 3 shaft, on Broad street, Pittston, has been sunk to the Red Ash vein, to be used as a second opening and for ventilation; size of shaft 10 by 20 feet.

Curtis slope has been sunk from the surface to the Checker vein, 7 by 12 by 350 feet long. An electric hoist has been installed outside to hoist the coal from this opening. This is enclosed with a fireproof building, 14 by 18 by 12 feet.

At Leadville shaft the Clark vein has been opened through old No. 9 shaft, the coal being dropped to the Red Ash vein and hoisted up the Leadville shaft.

Number 6 Colliery.—A pair of 10 by 24 inch engines was installed outside in a fireproof building 17 by 32 feet, for hoisting the coal from the New Diamond slope. An air shaft 12 by 12 feet was sunk from the surface to the Marcy vein, a distance of 360 feet, for the purpose of ventilating the Diamond, Babylon and Red Ash veins.

In No. 6 shaft a tunnel was driven 7 by 12 by 200 feet long, for the purpose of recovering the Hillman vein pillars.

In No. 5 shaft two shafts, 10 by 10 by 30 feet deep, were sunk from the top to the bottom split of the Checker vein.

In No. 11 shaft a pair of 16 by 24 inch engines were installed to operate the tail rope haulage in the Babylon vein.

Ewen Colliery.—At No. 4 shaft a pair of 15 by 36 inch engines was installed in a brick building 27 by 40 feet, for the purpose of operating the rope haulage in the Red Ash vein.

In Hoyt shaft a fireproof mule barn was erected in the Red Ash vein, to accommodate 24 mules. An air shaft, 10 by 10 by 70 feet, was sunk from the Pittston to the Marcy vein, for ventilation.

In No. 4 shaft a rock tunnel 7 by 12 by 300 feet, was driven in the Red Ash vein, for transportation. A new rope haulage was installed

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

CARNEY AND BROWN COAL COMPANY

Carney and Brown Colliery:

Carney and Brown Slope.—Ventilation, drainage and safety conditions, fair.

NO. 6 COAL COMPANY

No. 6 Colliery:

No. 6 Slope.—Ventilation and drainage good. Safety conditions, fair.

IMPROVEMENTS

PENNSYLVANIA COAL COMPANY

Pennsylvania No. 1 Colliery.—A rock tunnel 5 by 7 feet and 250 feet long, was driven from the First Dunmore vein, No. 1 shaft, to the First Dunmore vein, through faulty ground, for the purpose of ventilation.

No. 5 Colliery.—Brick building erected, 41 by 150 feet, to take care of outside stock. A new and more modern pump room was finished in Third Dunmore vein near foot of shaft.

A rock tunnel about 500 feet long and 7 by 10 feet in cross-section was driven from the Third Dunmore vein through an upthrow in the Bunker Hill section.

Underwood Colliery.—This colliery was placed in operation April 28. The work of construction has been going on during the year. The boiler plant, power plant, engine house and other necessary buildings are about completed.

SCRANTON COAL COMPANY

Pine Brook Colliery.—Installed 300 Maxim water tube boiler.

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Diamond Colliery.—Built new washhouse and sub-station. Installed one 7-ton electric locomotive with reel, etc.

PRICE-PANCOAST COAL COMPANY

Pancoast Colliery.—A tunnel 600 feet long was driven from No. 3 to No. 2 vein.

NAY AUG COAL COMPANY

Nay Aug Colliery.—Built new washhouse. Also built addition to mule barn outside. Installed Hayes derailer above breaker as a safety precaution. A First Aid team was trained in the Y. M. C. A. and Bureau of Mines car.

SPENCER COAL COMPANY

Spencer Colliery.—Installed electric hoist in No. 1 shaft, 100 H. P. motor to replace steam hoist. Installed four 30 H. P. motors in mines, and new rotary pump for washery. Concreted 40 feet of No. 1 shaft from No. 1 to No. 2 Dunmore vein. Built 100 feet of new trestle and new scraper line at breaker.

CARNEY AND BROWN COAL COMPANY

Carney and Brown Colliery.—A second opening driven from Marcy vein to surface, a distance of 150 feet. A new hoisting tower was erected.

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CONDITION OF COLLIERIES

PENNSYLVANIA COAL COMPANY

Barnum, Numbers 9, 6, 14 and Ewen Collieries.—Ventilation drainage and condition as to safety, good.

DELAWARE AND HUDSON COMPANY

Lafin, Delaware and Pine Ridge Collieries.—Ventilation, drainage and condition as to safety, good.

LEHIGH VALLEY COAL COMPANY

Mineral Spring and Heidelberg No. 1 Collieries.—Ventilation, drainage and condition as to safety, good.

TRADERS COAL COMPANY

Ridgewood Colliery.—Ventilation and drainage, fair. Condition as to safety, good.

WILKES-BARRE COLLIERY COMPANY

Madeira Colliery.—Ventilation and drainage, fair. Condition as to safety, good.

CONLON COAL COMPANY

Conlon Colliery.—Ventilation, drainage and condition as to safety, good.

CENTRAL COAL COMPANY

Wyoming Colliery.—Ventilation, drainage and condition as to safety, good.

McCAULEY COAL COMPANY

Pickaway Colliery.—Ventilation and drainage, fair. Condition as to safety, good.

IMPROVEMENTS

PENNSYLVANIA COAL COMPANY

Number 9 Colliery.—Installed air compressor at the shaft, and erected a brick extension to the engine room. Completed a brick building 36 feet by 62 feet with a slag roof, at No. 3 shaft. A concrete partition was put in No. 3 shaft between the upcast and downcast from the Red Ash to the surface.

Number 6 Colliery.—Inside: At No. 6 shaft. Installed 2 electric motors to replace air motors, and a large pair of engines on the Red Ash slope. At No. 5 shaft, installed 3 electric motors to replace air motors.

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

Lafin 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: