

Machinery.—They use 2 hoisting engines, 25-horse power each, and 1 breaker engine of 25-horse power; they have a metal speaking-tube in the slope; they have flanges of sufficient strength and dimensions for safety attached to the hoisting drum; the boilers have been cleaned and examined, and reported in good condition; they have a steam gauge 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 mine; they have a second opening; they have a house for men to wash and change in; the mining boss seems to be a practical and competent man; he has no fire-boss to assist him; there are no boys working in the mine under 12 years of age; the engineers seem to be experienced, competent and practical men; they do not allow any persons to ride on loaded cars in the mine; the parties having charge know their duty in case of death or serious accident.

ERIE COLLIERY.

This colliery is located in Carbondale township, and situated 1,000 feet south-east of the Lackawanna river. The shaft is 183 feet deep to the Carbondale vein. It was operated by the Glenwood coal company, now in bankruptcy. Edward Jones is general mine superintendent and John C. Evans is mining boss.

Description.—There is a breaker attached to the shaft tower; they mine and prepare 200 tons of coal per day; they employ 34 miners, 34 laborers, 10 drivers, 3 door-boys and 3 company men in the mine; 48 slate pickers, 5 head and plate men, 1 driver, 4 company men, 6 mechanics and 2 bosses outside; in all 140 men and boys; they are working the Carbondale vein of coal; average thickness 10½ feet; they work headings 12, air-ways 14 and chambers 45 feet wide; they leave pillars 14 feet wide to sustain the roof; they leave cross-entrances 30 feet apart, for the purpose of ventilation; the roof is rock and sandstone; the mine is in a good working condition.

Ventilation is produced by a furnace; the in-take is located in main shaft, area 210 feet; the up-cast is located in furnace air-shaft, area 140 feet; the amount of pure air is 14,000 cubic feet per minute; the main doors are hung so as to 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; ventilation is good.

Machinery.—They use 1 breaker engine, 25-horse power, 2 hoisting engines, 30-horse power each, and 1 pumping engine of 60-horse power; they have a metal speaking-tube in the shaft; they have an adequate brake, and flanges of sufficient strength and dimensions for safety, attached to the hoisting drum; they use one safety carriage, with all the modern improvements; the ropes, 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 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 mine; they have a second opening; they have a house for men to wash and change in; the mining boss seems to be a practical and competent man; there are no boys working in the mine under 12 years of age; the engineers seem to be experienced, competent and sober men; they do not allow over ten men to ride on the safety carriage at one time; they do not allow any persons to ride on loaded carriages in the shaft; the parties having charge know their duty in case of death or serious accident; the shaft landings are protected by safety gates.

POWDERLY SLOPE.

This slope is located in the township of Carbondale, and situated one-fourth of a mile south-east of the Lackawanna river; it is — feet long to the Top and Bottom Carbondale vein; the opening is 6 by 12 feet, and driven at an angle of — degrees; it is operated by the Delaware and Hudson canal company. Andrew B. Nicol is assistant mine superintendent, James Nicol is mining boss and William Bowers is outside foreman.

Description.—The coal mined here is prepared at Rackett's Brook breaker; they mine 550 tons of coal per day; they employ 64 miners, 51 laborers, 17 drivers, 4 door-boys and 8 company men in the mines; 2 slate pickers, 12 head and plate men, 1 driver, 1 company man, 6 mechanics and 2 bosses outside; in all 168 men and boys; they are working the Top and Bottom Carbondale veins of coal, average thickness 5½ feet each; they work headings 10, air-ways 14 and chambers 38 feet wide; they leave pillars 15 feet wide to sustain the roof; they leave cross-entrances 50 feet apart for the purpose of ventilation; the roof is good rock; the mines are in a good working condition.

Ventilation is produced by means of a fan; the in-take is located at mouth of slope, area 48 feet; the outcast is located in air-shaft, area 25 feet; the amount of pure air in the Top is 31,400, and in the Bottom vein 31,400 cubic feet per minute; the main doors are hung so as to close of their own accord; they have attendants at main doors; the air is circulated to the face of the workings in one volume in each vein; the amount of ventilation has been measured and reported; ventilation is good.

Machinery.—They use 2 hoisting engines, 118-horse power, and 1 steam pump. 35-horse power; the boilers have been cleaned and examined and reported in good condition; they have a steam gauge to indicate the pressure of steam.

Remarks.—They have furnished a map of mines; they have a second opening; they have no house for men to wash or change in; the mining boss is a practical and competent man; there are no boys working in the mines under 12 years of age; the engineers seem to be experienced, competent and sober men; they do not allow any persons to ride on loaded cars in the mines; the parties having charge know their duty in case of death or serious accident; they have large schutes connected with these mines, where they load large railroad cars and also separate and clean the coal.

POWDERLY ROCK TUNNEL.

This tunnel is located in the township of Carbondale, and situated one-fourth of a mile south-east of the Lackawanna river. It is operated by the Delaware and Hudson canal company. Andrew B. Nicol is assistant mine superintendent and James Nicol is mining boss.

Description.—The coal mined here is prepared at Rackett Brook breaker; they mine and ship 200 tons of coal per day; they employ 30 miners, 27 laborers, 7 drivers, 7 door-boys and 5 company men in the mine; in all 76 men and boys; they are working the bottom coal of the Carbondale vein; average thickness 5½ feet; they work headings 10, air-ways 14 and chambers 38 feet wide; they leave pillars 15 feet wide to sustain the roof; they leave cross-entrances 50 feet apart, for the purpose of ventilation; the roof is slate; the mine is in a good working condition.

Ventilation is produced by two grates; the in-take is located at mouth of tunnel, area 48 feet; the out-cast is located in grate air-shaft, area 25 feet; the amount of pure air is 10,200 cubic feet per minute; the main doors are hung so as to close of their own accord; they have attendants at main doors; the air is circulated to the face of the workings in one volume; the amount of ventilation has been measured and reported; ventilation is good.

Machinery.—There is no machinery required at this tunnel.

Remarks.—They have furnished a map of mine; they have a second opening; they have no house for men to wash or change in; the mining boss is a practical and competent man; there are no boys working in the mine under 12 years of age; the parties having charge know their duty in case of death or serious accident.

No. 1 SLOPE.

This slope is located in the city of Carbondale, and situated on the east bank of the Lackawanna river. It is operated by the Delaware and Hudson canal company. A. B. Nicol is assistant mine superintendent and John Campbell is mining boss.

angle of inclination is $9^{\circ} 35'$. The slope was driven part of the way through coal, at a cost of \$364, but there were $28\frac{1}{2}$ yards of rock to cut, from nought up to eight feet, which cost \$283 33, and 77 yards driven through sandstone, which cost \$3,080. The whole cost for sinking the slope was only \$3,952 33. They have a pair of engines, 13-inch cylinder and 18-inch stroke; estimated horse power, 50; the size of their drum is six feet diameter, which has an approved brake attached to it. There is no second opening to the slope, but they are driving for one toward No. 1 drift, and expect to make a connection soon.

OTHER NEW OPENINGS AND CONNECTIONS.

The Delaware, Lackawanna and Western railroad company have made connections between the Hampton shaft and the Oxford shaft, at Hyde Park, and between Tripp's slope and the Brisbin shaft, in the Third ward, Scranton. They have also sunk an air shaft, at Hyde Park, into the workings of the Oxford shaft, and connects also with the Hampton shaft workings. A fan is to be placed at this air shaft which will assist in ventilating both collieries named.

The Pennsylvania coal company have completed a new slope at No. 1 tunnel, in Pittston township, which is intended for hoisting coal. They have also made a second opening for No. 4 slope, in Jenkins township, which is to be used also for ventilation; and the workings of old No. 10 shaft in the 14-foot seam, have been connected with the new No. 10 shaft, in Pittston. No. 2 shaft, Dunmore, was sunk to the lower seam.

The Delaware and Hudson canal company have made a connection, in the 14-foot seam, between Marvine and Leggetts Creek shafts, Providence; and at No. 1 shaft, Carbondale, an air shaft has been sunk, and two more air shafts at No. 3 shaft, and still another at the Coal Brook colliery. These air shafts are only poor-make shifts, unless mechanical means are used to produce ventilation. There are too many of them in Carbondale. What is needed there is a system of air courses inside of the collieries.

At the Filer colliery, Winton, a drift has been driven from a ravine into the workings, for a traveling way for the men to go to and from their work. A new drift has been opened at the Greenwood colliery for mining coal, and the same company have made an additional opening for coal at the Sibly colliery, in Old Forge township. An opening has been made at the Green Ridge slope for ventilation. The above are all the openings and connections made in the district during the year, so far as I am informed.

IDLE AND ABANDONED COLLIERIES.

The Archbald shaft, Lackawanna township, and Oxford shaft, Hyde Park, owned by the Delaware, Lackawanna and Western railroad company, were idle all through the year; the last work done at the Hyde Park shaft was done in February, and the Scranton coal company's drifts at Bellevue were idle. Bellevue slope and shaft worked only $22\frac{1}{2}$ days.

No. 1 shaft, Pittston township, owned by Pennsylvania coal company, was idle; No. 2 and No. 3 shafts were abandoned as hoisting shafts, and are now used as pumping shafts.

The Marvine shaft, Providence; **Powderly slope**, Carbondale township, and Breaker, Forrest and Jefferson tunnels, Carbondale City, all owned by the Delaware and Hudson canal company, were idle.

The following collieries have also been idle: Rolling Mill colliery, Scranton, consisting of a slope, tunnel and drift; the Ontario colliery, Pleasant Valley, and the Heidelberg colliery, Pleasant Valley. Spring Brook No. 1

Belmont Mines.

There has been a new fan erected here during the year, which gives general satisfaction.

Delaware, Lackawanna and Western Railroad Company's Oxford Shaft.

Sunk main shaft from Rock vein to Clark, a distance of about 165 feet, and sunk a new air-shaft from surface to Clark vein, 354 feet; 10×26 feet for ventilation, and to hoist men and let down material. We will set a fan over this one, and a fan at the old, or main shaft, to ventilate part of it and all of Bellevue slope, so as to leave Bellevue fan for Bellevue shaft alone. The slope at Diamond shaft E vein is completed, and working all right. At the Brisbin shaft we have two of the gravity planes we alluded to last year, all ready and working. The third one is very near ready. At Cayuga shaft we are driving a tunnel, or plane, from G to Diamond vein, to let down the coal to G vein. Expect to be ready in 1883. At Sloan shaft we are resinking from G vein to Clark; are also sinking a second opening from G to Clark—size, 8×10 feet in the clear. We intend to make this to that men can go up or down. Storrs shaft being sunk 416 feet, we are now opening gangways in G or big vein 285 feet down. Not developed yet.

Yours, respectfully,

B. HUGHES.

SCRANTON, *March 6, 1883.*

PROVIDENCE, *February 23, 1883.*

PATRICK BLEWITT, Esq.,

Inspector of Coal Mines:

DEAR SIR:—The following are the improvements made in and around the D. & H. C. Co.'s mines for the year ending December 31st, 1882:

Coal Brook Mines.

Have graded a new gravity plane to let coal down on north-east side. Have driven seventy feet of rock tunnel, 7×9 feet, to open No. 3, or four-foot vein from Lackawanna tunnel, in bottom coal on a level with breaker. Have about 600 feet of heading cut in coal.

No 1 Shaft.

Have graded a new gravity plane to let coal down on north-west side.

Powderly Slope.

Commenced pumping out water October 20th; are also building schutes and outside plane.

Jermyn No. 1.

Have finished sinking inside slope to basin. Put up a new 17-foot fan, by four-foot face, on air-shaft that was being sunk last year.

Grassy Island Shaft.

Have sunk fan-shaft, 11×14 feet, 252 feet deep to the Grassy Island vein.

A new plane fourteen hundred feet long has been made in the Grassy Island vein, taking the place of two shorter ones.

Another large tubular boiler was placed in position, as was also a ten-foot fan for making draft for boilers.

At Grassy Island slope, new first motion engines for hoisting from Diamond vein to surface were installed, and new engines are replacing old ones at Grassy Island shaft.

A new breaker has been built at White Oak, on site of the old one that was burned in July, and a new tunnel has been driven to bottom vein.

Jermyn No. 1, a new rock plane 650 feet long has been driven from Archbald to Grassy Island vein. A new slope has been made, and a branch to hold from 70 to 100 cars is being made at foot of shaft.

The breaker has been rebuilt and now has a capacity of 1,500 tons per day.

Also, a new plane 1,500 feet long has been driven on a light grade from foot of shaft to old workings, where it is proposed to rob pillars.

A tail rope system of haulage has been adopted in No. 1 shaft, which hauls a trip of fourteen cars 3,850 feet, replacing five mules and drivers. Also, a new slope has been sunk a distance of 400 feet to "third vein," and two gravity planes, 750 and 650 feet, respectively, have been made.

A new drift has been opened at Powderly, in Grassy Island vein, and a surface railroad 3,000 feet long has been built to convey the coal from the drift to the chutes, and another pump has been added, making three pumps delivering water to surface through a 16-inch bore hole. A new lowering plane 1,800 feet long is about completed.

At Racket Brook a new washery with a capacity of 600 tons per day has been erected.

A new breaker of 2,500 to 2,800 tons daily capacity has been built at Coal Brook. It is modern in every particular and has replaced the old Coal Brook and Racket Brook breakers. The coal from No. 1 shaft and tunnel, Powderly slope and tunnel and Coal Brook mines will be prepared by it.

A new drift, known as the Mills drift, has been opened up, and is ventilated by a new Guibal fan, ten feet diameter, driven by a gasoline engine, with very good results.

At Wilson Creek a new rock plane from bottom to top coal has been made. It is 250 feet long. Also, two gravity planes, 750 and 1,025 feet long, respectively, have been made, and a small air motor three feet high has been added in top coal drift, making three in all doing all the work for forty-five places, besides rendering rock blasting unnecessary, except that the vein becomes less than three and a half feet.

Carney and Brown Coal Company, fair.

Edgerton Coal Company, fair.

Finn Coal Company, good.

Black Diamond Coal Company.—This mine was in a very bad condition generally, but on my last visit I found the ventilation greatly improved.

COLLIERY IMPROVEMENTS

By the Delaware and Hudson Company

Clinton.—Sinking new slope from surface to Grassy vein, section 7x14 feet, present depth 125 feet.

Extension of present haulage in old slope Top vein 2,400 feet begun.

Erection of supply store 16x28 feet and office for mine foreman 14x18 feet. Installation of 3 cylinder boilers, 90 horse power total.

New local sales pockets in Carbondale City of 4,500 to 5,000 tons capacity, with elevator and conveyor driven by 26 horse power gas engine.

Carbondale No. 1.—Air shaft from surface to top vein, 151 feet, completed.

One ten foot ventilating fan driven by 26 horse power gasoline engine.

Powderly No. 2.—Erection of new breaker and washery combined. Machinery driven by one pair of 16x36 inch engines, 150 horse power. Conveyors driven by one pair of 18x36 inch engines, 90 horse power. Washery supplied with one 18x12x18 inch Jeansville Duplex pump of 1,000 gallons capacity. Installed six new return tubular boilers of 150 horse power each.

Jermyn No. 1.—One direct current generator of 180 kilowatts driven by direct connected engine. Mines wired for electric haulage, and one electric locomotive of 12 tons weight put in use. One 24x14 x36 inch Jeansville Duplex pump of 1,800 gallons capacity installed, but now under water and not being operated.

One new gravity plane 1,200 feet long. Foot of shaft, head and foot of inside slope wired and light furnished by arc lamps.

White Oak.—One 17 foot fan erected, driven by 14x36 inch engine to ventilate the Dunmore vein.

New slope sunk 500 feet in Dunmore vein.

Proposed 3,000 feet haulage road begun.

Grassy Island.—One three stage air compressor with 16x11½x5 5-8 inch diameter air cylinders, 22 inch diameter steam cylinder by 24 inch stroke, 140 horse power. One locomotive type boiler installed, 250 horse power. Three small air motors sent to this mine, but not all in use.

IMPROVEMENTS

DELAWARE AND HUDSON COMPANY

Clinton.—New tail rope installed 1,000 feet in length, with a pair of double engines 14x20 inch in River Side Slope to pull coal north and south. A new hospital "First Aid," and wash house has been erected outside for employes of the Dunmore vein. Two new ventilating fans erected, each 20 feet in diameter.

No. 1. Carbondale.—Tail rope has been extended 1,000 feet, delivering cars to main line.

Powderly.—New car shop, supply house and blacksmith shop erected.

Jermyn.—Rock tunnel completed from the Archbald vein to the Dunmore vein, distance 125 feet. New electric motor $4\frac{1}{2}$ tons with 12x18 inch reel on top for lowering loaded and hoisting empty cars in chambers.

White Oak.—New car shop has been erected. New plane in Dunmore vein finished.

PRICE-PANCOAST COAL COMPANY

A rock slope has been sunk in the Diamond vein over the "Anticlinal." A pair of double engines has been put in same vein to hoist the coal from this slope; size of engines 24x36 inch. In No. 3 vein a slope has been sunk 600 feet in length to the river line, and a pair of engines put in to hoist the coal, 12x12 inch in size. No. 2 Gravity Plane that was abandoned six years ago has been opened. In the Clark vein a new plane has been built, 600 feet in length. Dunmore No. 2 vein, the west slope, 900 feet in length, has been graded, and a pair of engines 12x12 inch in size erected outside to hoist the coal. One 250 horse power boiler was installed.

PENNSYLVANIA COAL COMPANY

No. 1 Colliery, Outside—In 1904, work was commenced on the installation of 300 additional horse power "Babcock and Wilcox" boilers, and new 10 foot forced draft fan; also new "Cochrane" feed water heater and 12x8x12 inch "Duplex Scranton Pump" and new 50,000 gallon water tank. This work has all been completed during the year. The following buildings have been erected during the year. A new stone powder house 12x14 feet; a new stone oil house 12x12 feet 7 inch; also new brick wash house for miners 16x24 feet. Work is progressing on new brick building 16x36 feet to contain three rooms; office for outside foreman, shifting shanty for firemen, and shifting place for breaker men.

No. 2 Shaft, Outside.—The fan and head house, which was burned during the year, has been replaced by concrete buildings. A 12 inch concrete wall has been built between the down-cast and up-cast from foot of shaft to fan.

No. 1 Shaft, Inside.—Water tunnel from Lackawanna river to No. 1 Shaft. No. 1 Colliery has been driven in 1,600 feet during the year, and on the No. 1 end, 1,900 feet. Total distance driven since the tunnel was commenced, 5,200 feet. Distance yet to be driven, 1,600 feet. Another tunnel has been driven 675 feet from the third Dunmore vein to the second Dunmore vein, to carry the water to main tunnel, sectional area 6x9 inch.

CONDITION OF COLLIERIES AND IMPROVEMENTS

DELAWARE AND HUDSON COMPANY

Clinton Colliery.—A new slope was sunk from the surface to the Grassy vein, distance on pitch 1,800 feet. Coal hoisted to the surface by a pair of 14x20 Flory engines using tail rope system. Breaker has been overhauled and a new trestle 300 feet in length to head of breaker has been completed. Condition of mine roads good; drainage good; ventilation fair.

Coal Brook Colliery.—One six-ton electric motor has been added, making 8 air motors and 7 electric in use pulling coal, and one Turbine pump driven by an electric motor and delivering 2,500 gallons of water per minute to surface, has been added to equipment. A new opening to Grassy vein on the company farm connected by railroad 3,000 feet in length has been made. Also one new 16 ton mine locomotive for pulling coal from opening has been added. Ventilation fair; other conditions good.

No. 1 Carbondale Colliery.—New engine plane on east side No. 1 slope, 1,200 feet in length, delivering cars to foot of slope haulage road north of No. 3 shaft, has been rebuilt pulling cars to foot of No. 1 slope distance about 4,000 feet. Condition of colliery, ventilation, roads and drainage, good.

Powderly Colliery.—Locomotives has been placed on east side, pulling coal from Grassy opening to head of plane, a distance of 3,000 feet. Electric lights have been placed in breaker office and buildings. Ventilation fair; other conditions good.

Jermyn Colliery.—New 6-ton electric motor added for pulling coal, and one pair of 10x12 engines delivering supplies from surface to foot of shaft, a distance of 1,800 feet. A new washery, capacity 800 tons per day, equipped with the latest improved machinery, is near completion. Ventilation in many places is bad; other conditions good.

White Oak Colliery.—Slope driven through anticlinal 900 feet in length. Condition of colliery, fair.

HILLSIDE COAL AND IRON COMPANY

Clifford Colliery.—A tail rope and engine plane combination haulage system has been installed. A transmission line has been run from the power house at No. 2 shaft over a mile away and through bore hole from the surface to the south section of Dunmore vein, for the purpose of haulage and pumping. One motor and one electric pump have been installed there. Condition of colliery, fair.

No. 2 Shaft Colliery.—A new fire-proof boiler house has been erected. One turbine pump of one thousand gallons capacity driven by electricity, and two triplex plunger pumps of 600 gallons capacity each, driven by electricity, have been installed in the Clark vein, the water being delivered to surface through boreholes. A saw mill has been erected, driven by steam power, for the purpose of cutting all prop timber, which is extensively used on account of so much robbing being done. A tunnel has been driven from the bottom Dunmore vein to the second one overlying the bottom, the distance between being 16 feet vertical, the length of tunnel 450 feet, the area 6 feet by 10 feet. Condition of colliery, fair.

SPRING HILL COAL COMPANY

Spring Hill Colliery.—Ventilation good; general condition fair.

FALL BROOK COAL COMPANY

Fall Brook or Murrins Colliery.—Ventilation and general condition fair.

ARCHBALD COAL COMPANY

Tappans Colliery.—Ventilation and general condition fair.

FINN COAL COMPANY

Finn Colliery.—Ventilation and general condition bad.

WEST MOUNTAIN COAL COMPANY

West Mountain Colliery.—Ventilation bad; general condition fair.

SALEM HILL COAL COMPANY

Bartons Colliery.—Ventilation and general condition fair.

IMPROVEMENTS

DELAWARE AND HUDSON COMPANY

Clinton Colliery.—Water course completed connecting with No. 2 shaft of the Hillside Coal and Iron Company. One twelve-inch bore hole drilled 210 feet for pumping purposes. Pumping plant is installed in North side, River Slope. No. 4 plane extended 100 feet and completed. Breaker repairs consist of 12 emery pickers, new 27 inch by 36 inch rolls, and 2 new scales for weighing railroad cars.

Coal Brook Colliery.—New drift at Wilson Creek, 400 feet in length, driven to take the place of the old drift, which will be used as a water course in the future. Coal Brook and Clinton mine water course driven 1,100 feet and completed. Breaker repairs consist of steel conveyor, 350 feet long, 16 emery pickers, 8 spiral pickers and 2 lump coal shakers. Electric power house extended 12 feet by 54 feet (extension built of brick). One electric generator, 540 K. W., driven by a Compound Duplex Hamilton Corliss engine, 20 x 36 x 42 inches, has been installed.

Carbondale No. 1 Colliery.—New rope haulage 3,050 feet long, and a fan shaft, 10 feet x 10 feet in area and 50 feet in depth, completed; a Buffalo 5-foot fan, driven by a 10 H. P. electric motor, for ventilating new tunnel, installed; Rock plane from bottom to top vein driven 70 feet.

Powderly Colliery.—Two 8 inch bore holes 60 feet deep drilled; 6 inch slush line laid, 4,000 feet long, preparatory to filling workings

under the Lackawanna River to avoid dangers from flooding; a 30 inch pump hole, 130 feet deep drilled; a centrifugal slush pump, 36 inches in diameter, driven by single engine, 8 x 10 inches, installed.

Jermyn Colliery.—Brick boiler house addition, 54 x 70 feet, containing 4 Wickes boilers, 300 H. P. each, in course of construction; two 24 inch bore holes, 235 feet deep, drilled for pumping water to surface; two Scranton Compound Duplex pumps, 19 x 36 x 21 x 36 inches, capacity 5,000 gallons a minute, installed; new plane from Archbald vein to Grassy vein driven 350 feet; one six and one-half-ton motor with reels installed; an 8 inch bore hole, 120 feet deep, drilled for slushing purposes.

White Oak Colliery.—Two 10 inch bore holes drilled for exhaust steam and discharge from slope pump; one 19 inch bore hole drilled for pumping water to surface; one Scranton Plunger pump, 20 x 10 x 36 inches, capacity 800 gallons a minute, installed; one Allison Plunger pump, 20 x 10 x 24 inches, capacity 600 gallons a minute, installed.

HILLSIDE COAL AND IRON COMPANY

Forest City Colliery.—The old Forest City breaker washery was torn down and a new one, 68 feet wide, 100 feet 6 inches long and 130 feet 7 inches high, erected. The lower portion of this washery up to the machinery line, including the pockets, is of reinforced concrete. All mud coal, including chestnut, and all small sizes from buckwheat down, are prepared there, and ten double-compartment jigs are used in separating the impurities from the coal. Two additional boilers, 125 H. P., locomotive type, have been added to the Forest City breaker boiler room, and the water tunnel connecting the Clark vein workings at No. 2 shaft was completed by the Delaware and Hudson Company and connection made, which will drain the entire workings above that level. Clifford breaker was abandoned the latter part of the year and all the coal, including that from Clifford shaft, is now being prepared through the Forest City breaker and washery. A new Compound Duplex Plunger pump, 18 x 28 x 10 x 36 inches, has been installed in the dip workings in Clifford shaft to deliver water to the surface or to the new washery, as needed.

ARCHBALD COAL COMPANY

Tappans Colliery.—The coal from this colliery heretofore was delivered into the Delaware and Hudson railroad cars on a siding at Archbald, after being hauled in wagons a distance of one and a quarter miles. To eliminate this expense a new track has been laid, 6,600 feet in length, with 40 pound T iron rails, from the breaker to the top of an incline plane. A new incline has been built, 1,750 feet in length, with 40 pound iron; new coal pockets have been built at bottom of new plane where coal is dumped from special cars, built for the use of the colliery, and taken to and from the breaker by a new twenty-ton locomotive. A branch of the Delaware and Hudson Railroad is built from the main line nearly midway between Archbald and Winton to the new coal pockets. This is a decided improvement and reduces the cost of transportation from the colliery to the railroad, and will also be the means of increasing the output of the colliery. The old Pierce Coal Company's shaft has been reopened

SPRING HILL COAL COMPANY

Spring Hill.—Ventilation and general condition fair.

WEST MOUNTAIN COAL COMPANY

West Mountain.—Ventilation bad; general condition fair.

SALEM HILL COAL COMPANY

Bartons.—Ventilation and general condition bad.

CLINTON FALLS COAL COMPANY

Clinton Falls.—Ventilation and general condition fair.

STILLWATER COAL COMPANY

Stillwater.—Ventilation and general condition fair.

AINSLEY COAL COMPANY

Sunset.—Ventilation and general condition fair.

IMPROVEMENTS

DELAWARE AND HUDSON COMPANY

Coal Brook Colliery.—A tunnel, 330 feet long, was driven to the Dunmore vein, and an air shaft was sunk 50 feet in depth, and 10 x 12 feet in section. The old Midland tunnel was re-opened and re-timbered for a distance of 300 feet. No. 3 Slope in Grassy vein was extended 300 feet. The electric plant was increased by the addition of a 750 K. W. General Electric generator, driven by a 20 x 42-inch and 36x42-inch Hamilton Corliss Cross compound engine. No. 8 outside engine plane was extended 1,000 feet, to deliver coal to the main haulage road, where two additional 30-ton locomotives have been placed to facilitate transportation. Four Wicks boilers have been added to the steam plant.

Clinton Colliery.—A tunnel 400 feet long, and a rock ditch 400 feet long for draining the workings of the colliery into the Wilson Creek drainage, were completed. Installed a pair of Flory 10x12-inch hoisting engines in the Clifford vein, East Side slope.

Powderly Colliery.—The pumping capacity has been increased by the installation of a single Goynes 22x16x36-inch pump, discharging through a 20-inch concreted bore-hole, 150 feet in depth.

Carbondale No. 1 Colliery.—A rock plane 150 feet long was driven from the Bottom vein to the Top vein in No. 4 tunnel, and a rock plane 100 feet long from the Top vein to the surface, for a second opening. An air shaft was sunk from the surface to the Top vein in No. 4 tunnel, 10x10 feet in section, and a 10-foot Buffalo steel fan, driven by an electric motor, was placed at the top of shaft to improve the ventilation. A narrow gauge track, one mile in length, was built to Powderly breaker and equipped with one 14-ton and one 12-ton

OUTLOOK COAL COMPANY

Outlook.—Ventilation, safety conditions and drainage fair.

FALL BROOK COAL COMPANY

Murrins.—Ventilation, safety conditions and drainage good.

CLINTON FALLS COAL COMPANY

Clinton Falls.—Ventilation bad; safety conditions and drainage fair.

AINSLEY COAL COMPANY

Sunset.—Ventilation, safety conditions and drainage fair.

IMPROVEMENTS

DELAWARE AND HUDSON COMPANY AND HUDSON COAL COMPANY

Coal Brook Colliery.—Six 6-ton electric motors added to present power for transporting coal inside, which dispenses with compressed air plant; 150 horse power electric hoist operating slope and plane 1,000 feet in length delivering coal to main locomotive road to breaker, 200 horse power electric motor for driving 20-foot fan, replacing steam engine power; 50 horse power electric hoist to replace a 10 by 12 inch double engine driven by compressed air. Concrete base for supply house 28 by 60 feet for storing supplies.

Powderly Colliery.—A 12-ton locomotive added to present power for hauling coal from No. 1 Carbondale mine to Powderly breaker. 2,000 feet of 6-inch pipe laid for slushing of culm under the Lackawanna river to secure the roof in this locality. Three 6-ton electric motors, with drum attachments, to draw up and lower cars from face of chambers, in Carbondale No. 1 mine, which dispenses with eighteen mules. Two rock tunnels, 7 by 12 feet in section and 600 feet long, driven through fault opening large track of coal on south side, No. 1 Carbondale mine; and one blacksmith shop, concrete base, 24 by 50 feet, erected at same mine.

Jermyn Colliery.—Rock plane, 7 by 15 feet in section and 200 feet long, driven through fault for developing coal on west side. Generator 250 horse power, 750 amperes, installed for furnishing additional power. Driving a rock plane from the bottom to top split of the Grassy vein 7 by 15 feet in section, 300 feet long at present time. 35 horse power electric hoist installed for lowering and hoisting supplies at east side opening, dispensing with double steam engine 10 by 12 inch cylinders.

Clinton Colliery.—Rock slope 7 by 12 feet in section and 300 feet long for extension of rope haulage from top to bottom vein. Slope in Clifford vein driven 800 feet to present time, to open new level of coal. One Duplex Jeanesville pump installed in River slope delivering water through a 12-inch bore hole to surface.

White Oak Colliery.—10-foot Buffalo steel fan installed, driven by a steam engine 14 x 16 inch cylinders at No. 6 tunnel. Slope 8 by 11 feet in section in progress of sinking. Fan shaft 12 by 12 in section and 65 feet deep for ventilation of this slope. Engine plane 1,000 feet long is being constructed to deliver coal to surface.

7 feet x 12 feet in area, was driven from Bottom to Third vein and equipped with a 65 H. P. electric hoist. A rock plane, 150 feet in length and 7x12 feet in area, was driven from Top to Grassy vein to improve ventilation. A drift, 7 feet x 12 feet in area and 200 feet in length, was driven from the surface to Third vein, and a 10-foot diameter fan installed driven by electricity.

Powderly Colliery.—At No. 1 tunnel a fan 10 feet in diameter, driven by a 35 H. P. electric engine, was installed for ventilating Third vein. A tunnel, 7 feet x 12 feet in area and 150 feet in length, was driven through a fault in the Top vein. The haulage 1,200 feet in length was converted into an electric motor road. A fan 10 feet in diameter, driven by electricity, was installed to ventilate No. 1 Slope. A 21-ton electric motor transports the coal from No. 1 Carbondale to Powderly breaker. 3,500 feet of rope haulage operated by a 12x15 double drum engine installed for Eastside coal.

Jermyn Colliery.—Norwalk air compressor transferred from Coal Brook. Rock plane, 500 feet in length and 7 feet x 12 feet in area, driven from Bottom to Top Split Grassy vein. Rock slope from surface to Clark vein 7x12 feet in area and 180 feet in length.

White Oak Colliery.—Foundations for new breaker completed. Brick boiler house 88 feet x 50 feet, containing 4 Sterling 300 H. P. boilers, was finished. Built blacksmith shop 36 feet by 24 feet; car shop 48 feet x 30 feet; and supply house 20 feet x 40 feet. No. 6 engine plane extended 500 feet, operated by 14-inch x 20-inch engine. Drove manway for No. 3 Slope 200 feet and concreted top, bottom and sides.

HILLSIDE COAL AND IRON COMPANY

Erie Colliery.—A new culm scraper line has been installed between Erie washery and the old Keystone culm bank, for the purpose of conveying the same to the washery for preparation.

A new concrete building has been erected for storing lime, cement, feed and hay.

Two air compressors have been installed within a corrugated iron building, adjoining the fire room, the compressed air to be used for drilling the rock in New County vein.

A new concrete mule barn of twenty stalls, feed room, etc., has been constructed near the foot of Erie shaft, replacing the outside barn on West Side.

A Sullivan undercutting coal machine has been installed in the New County vein, East Side. Several new counter headings have been completed in this section, doing away with less satisfactory haulage roads.

Considerable culm has been slushed into the Clark vein workings underneath the Lackawanna River.

SCRANTON COAL COMPANY

Riverside Colliery.—Two large locomotive type boilers were installed, displacing nine old cylinder boilers.

Raymond Colliery.—Breaker burned down January 22, 1911, and replaced by a modern breaker of 1,000 tons capacity. The new breaker, which resumed operations December 4, is equipped with the latest improved machinery for the preparation of coal, and has an annex where all the smaller sizes down to No. 3 buck is prepared.

CONDITION OF COLLIERIES

DELAWARE AND HUDSON COMPANY

Coal Brook, Powderly, Jermyn and White Oak Collieries.—Ventilation, drainage and condition as to safety, good.

SCRANTON COAL COMPANY

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

Riverside Colliery.—Ventilation good. Drainage and condition as to safety, fair.

HILLSIDE COAL AND IRON COMPANY

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

ARCHBALD COAL COMPANY

Tappans Colliery.—Ventilation bad in New County vein. Drainage bad. Condition as to safety, fair.

Ventilation good in Dunmore vein. Drainage fair. Condition as to safety, good.

HUMBERT COAL COMPANY

Sunnyside Colliery.—Ventilation, drainage and condition as to safety, fair.

WEST MOUNTAIN COAL COMPANY

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

FALLBROOK COAL COMPANY

Murrins Colliery.—Ventilation, drainage and condition as to safety, fair.

IMPROVEMENTS

DELAWARE AND HUDSON COMPANY

Coal Brook Colliery.—Water course to Clinton colliery constructed a distance of 2,000 feet. Installed three 6½-ton electric motors and one 12-ton electric motor for handling coal. Engine plane in No. 21 tunnel, 2,000 feet long, under construction. Installed 16-ton steam locomotive for handling coal from Wilson Creek to the breaker.

Powderly Colliery.—Installed two 6½-ton electric motors with drums. Completed rope haulage in No. 1 tunnel, 3,500 feet long, and rope haulage in No. 1 slope, 1,800 feet long, also completed railroad from Powderly to Jermyn mines, outside. Installed one 21-ton steam locomotive for handling coal from mines to breaker.

Jermyn Colliery.—Finished new slope to bring coal from mines to surface, 350 feet long concreted on four sides, 9 feet by 11 feet, completed 150 H. P. electric hoist on engine plane No. 14. Conveyor line,

20 by 7 feet and built concrete fan drift connecting with upcast compartment of No. 4 shaft. The fan is driven by an 18 by 30 inch Hamilton Corliss engine, single. Completed reinforced concrete partition wall between the upcast and downcast compartments of No. 4 shaft, a distance of 680 feet. Commenced to build new wash house near No. 2 shaft to contain shower baths and 200 lockers.

Coal Brook Colliery.—Installed two 6.5-ton electric locomotives with drum attachment for hauling coal and a 10-foot steel Buffalo fan for ventilating No. 6 tunnel. Built an addition to the boiler house 51 by 56 feet. Installed a General Electric 1,000 K. W. generator, driven by a pair of engines, 24 by 44 by 22 inches. Installed a new engine house and a 20 by 24 inch engine for No. 1 haulage and a 21-ton locomotive for hauling coal from the mines to the breaker. No. 22 plane was driven 2,000 feet.

Powderly Colliery.—No. 1. Installed a 6½-ton electric locomotive with drum attachment for hauling coal inside. No. 9 plane was equipped with a 20 H. S. P. electric house. Powderly tunnel driven from the surface to the Clark vein, a distance of 600 feet.

Jermyn Colliery.—Installed a General Electric 25 K. W. generator, driven by a 22 by 22 inch engine, and built a brick addition to the power-house, 24 by 51 feet. Two 6.5-ton electric locomotives with drum attachment installed for mine work. Tunnel driven 200 feet from surface to Clark vein. Driving a tunnel from the surface to the Dunmore vein to be 300 feet in length when finished. It is about one-third completed.

Gravity Slope Colliery.—Completed a breaker, 92 by 114 feet with a capacity of 1,500 tons per day, to supersede the old White Oak breaker. A concreted washhouse, 16 by 50 feet, was built for Gravity slope. A wooden washhouse, 16 by 24 feet was built for No. 6 tunnel. Installed a 16-ton locomotive for hauling coal from the mines to the breaker. Completed a water tight pump room, 20 by 60 feet, and a chute 14 by 18 feet. Installed two centrifugal electrically driven pumps with a capacity of 2,500 gallons each. Completed an engine house, with 14 by 20 foot engines, for lowering coal on No. 8 plane. Installed four 300 H. P. Stirling boilers in brick house and one generator 250 K. W. at breaker, and furnished power for pumping plant and light for breaker. Completed one engine house, 20 by 24 feet, and installed a 14 by 20 foot Flory engine on No. 8 plane and No. 12 tunnel.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held in the Carbondale High School Building, June 23 and 24. The Board of Examiners was composed of P. J. Moore, Inspector; Richard Beers, Superintendent, Carbondale; John F. Boland, Miner, Carbondale, and David Evans, Miner, Olyphant.

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

MINE FOREMEN

Thomas Davies, Charles F. Moore, Carbondale; Thomas J. Sullivan, Thomas H. Thomas, Patrick Cowley, Olyphant; Edison Thomas,

14 plane, New County vein, Grassy Island No. 2 shaft. Installed one 18 by 36 inch Dickson first motion hoisting engine on surface, Dunmore vein, No. 4 plane, Grassy Island No. 2 shaft.

Coal Brook Colliery.—Outside: Changed main and steamboat rolls to slow-gearred rolls. Installed in the power plant a 1600 KVA 2300 volt, 25-cycle, 3-phase, G. E. generator, with a 28 by 44 by 42 Hamilton-Corliss compound non-condensing engine, and one 600 KW G. E. frequency changer, changing 25 cycle to 60 cycle, 2300 volts, 3-phase.

Powderly Colliery.—Outside: Installed 6 Wilmot jigs in the east end of the breaker. Equipped each of the six boilers in boiler plant with Coppus blowers.

Jermyn Colliery.—Outside: Boiler plant was enlarged by the installation of 926 HP B. and W. Stirling boilers. An electric hoist was installed No. 8 plane, 730 HP, 250 volt, direct current. Also installed one 250 G. E. Co. 250 KW, 250 volt D. C. belt driven generator, and a 22 by 22 McEwen engine in power house. Installed one Joplin jig in washery.

SCRANTON COAL COMPANY

Raymond Colliery.—Two 300 horse power boilers were installed.

HILLSIDE COAL AND IRON COMPANY

Erie Colliery.—A rock tunnel, 7 feet by 12 feet and 400 feet in length, was driven from the Clark vein to the New County vein, to facilitate inside transportation. Many of the motor roads have been regraded.

ARCHBALD COAL COMPANY

Tappans Colliery.—No. 2 New County slope has been extended a distance of 2500 feet on a gradient of 7 degrees, and two rock slopes were driven from this slope a distance of 300 feet, each, to reach the coal in the Dunmore veins on the Archbald anticlinal. A new slope has been started in the Dunmore vein and is now down a distance of 200 feet on a gradient of 4 degrees.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen, was held in Watt's Hall, Carbondale, May 18 and 19. The Board of Examiners was composed of P. J. Moore, Mine Inspector, Carbondale; Richard Beer, Engineer, Carbondale; John F. Boland, Miner, Carbondale; David Evans, Miner, Olyphant.

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

MINE FOREMEN

Frank J. Hevers, John J. Ford, Patrick J. O'Rourke, Michael F. Brennan, Martin F. Murphy, Archbald; William Loftus, Olyphant; Thomas H. Williams, Carbondale; Patrick J. Murray, Peckville; Martin J. Loftus, Jessup.

IMPROVEMENTS

DELAWARE AND HUDSON COMPANY, INSIDE
HUDSON COAL COMPANY, OUTSIDE

Powderly Colliery.—No. 9 tunnel, from Clark to Top Clark was extended 400 feet.

Coal Brook Colliery.—The breaker was remodeled to increase capacity. A rock plane 175 feet long was driven from 3rd vein to Bottom Clark; No. 21 plane was extended 1,600 feet and equipped with electric hoist; 8,700 feet pipe line laid from Wilson Creek to breaker, for water supply.

Four 7-ton electric locomotives were installed to improve transportation.

Jermyn Colliery.—No. 17 rock plane, 350 feet long, was driven from Grassy to Top Grassy. No. 11 tunnel, 150 feet long, from Grassy to Top Grassy. No. 12 tunnel, 260 feet long, extended from Clark to Top Clark, Airshaft, surface to Top Clark, 60 feet.

Gravity Slope Colliery.—A rock slope, 80 feet long, was driven through fault in Archbald bed. Tunnel from surface to Dunmore bed, 325 feet; rock plane through fault in Dunmore bed, 250 feet; airshaft from surface to Archbald bed, connected. An 800-gallon electric pump was installed in No. 3 slope, Archbald bed, and two 10-ton electric locomotives in Dunmore bed.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held in Carbondale High School, Carbondale, Pa., June 6 and 7. The Board of Examiners was composed of the following persons: P. J. Moore, Mine Inspector, Carbondale; Richard Beer, Superintendent, Carbondale; John F. Boland, Miner, Carbondale; David Evans, Miner, Blakely.

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

MINE FOREMEN

Michael Munley, Jessup; Wade F. Rodham, Scranton; James T. Stephens, Peckville.

ASSISTANT MINE FOREMEN

Lewis D. Jones, Olyphant; Frank Moon, Jermyn; Anthony J. Conaboy, Thomas G. Williams, John W. Williams, Leo Healey, Joseph Surdoval, Carbondale; Edward J. Magnar, Jessup; Isaac Benjamin, Scranton.

Jermyn Colliery.—Rock shaft was sunk from Top Clark to Grassy vein, 90 feet. Tunnel was driven from Top Clark to Top Clark vein, 100 feet; and another tunnel was driven from and to same veins, 300 feet. Installed 2500 feet of rope haulage. Tunnel was driven from Archbald to Top Clark vein, 500 feet. Air shaft was sunk from surface to Top Clark vein, 100 feet.

Powderly Colliery.—Rock plane was driven from Archbald to Top Clark vein, 150 feet. Tunnel was driven from Archbald to Top Clark vein, 400 feet. Air shaft was sunk from surface to Top Clark vein, 60 feet. Plane was driven to Top Clark vein, 250 feet. Two rock planes were driven from Clark to New County vein, each 200 feet. Two air shafts were sunk from Clark to New County vein, each 20 feet.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held in the Carbondale High School, Carbondale, May 8 and 9. The Board of Examiners was composed of P. J. Moore, Inspector, Carbondale; Thomas J. Kennedy, Superintendent, Jermyn; David Evans, Miner, Olyphant, and Michael McCann, Miner, Carbondale.

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

MINE FOREMEN

Lewis Roberts, Peckville; John Dewey Costolneck, Simpson.

ASSISTANT MINE FOREMEN

Harry Schwartztrauber, Archbald; Thomas Harrison, Peckville; Luther Whitbeck, Olyphant.

Powderly Colliery.—Installed 10-foot electrically driven fan; also jigs and shakers in breaker.

Jermyn Colliery.—Installed two 2,500-gallon electric centrifugal pumps.

Gravity Slope Colliery.—Installed 112-hp. electric hoist on No. 12 plane; also 10-ton electric locomotive running from the tunnel to the breaker.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held in Stone's Hall, Carbondale, April 23 and 24. The Board of Examiners was composed of the following persons: P. J. Moore, Mine Inspector, Carbondale; Thomas J. Kennedy, Superintendent, Jermyn; Michael McCann, Miner, Carbondale; David Evans, Miner, Blakely.

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

MINE FOREMEN

James J. Cleary, Forest City; Frank Moon, William J. Henry, Jermyn; Edwin B. Charlton, Archbald; Patrick J. White, Mildred.

ASSISTANT MINE FOREMEN

Frank J. Holmes, Michael J. Barrett, Michael F. Munley, James T. McAndrew, Archbald; James F. Malia, James Arrow Smith, Forest City; William Simpson, William Hill, Peckville; Hayden Bennett, Richard Seymour, Edwin N. Stuart, William H. Rowe, George Woodward, Jermyn; Frank Herst, Mildred; Frank J. Kutarnia, Simpson.