

Depth of main shaft to new county vein 370', size of shaft 10x40. Pair of first-motion hoisting engines 24"x60." Open fan for ventilation 16' diameter, 4½' blades. Eight feet diameter intake, driven by a 20"x36" engine, second-motion belt connection.

The breaker being 200' from main shaft, the loaded and empty mine cars are handled between shaft and breaker by a locomotive. The cars are hoisted at the breaker by a pair of second-motion engines 16"x36" up a tower 85' to dump chute. The rolls, screens, etc., in breaker are driven by a 16"x42" engine, wire rope connection with main driving shaft. Steam is furnished for all the above engines by a battery of 12 cylinder boilers, 34" diameter, 40' long.

The second opening shaft about 900' from breaker. Size 35'x10' and 302' deep to Big vein, is operated by a pair of first-motion engines 24'x60' and has an open fan for ventilation 16' diameter, 6' wide blades, 12' diameter intake, driven by a 20"x36" engine second-motion, belt connection. The coal for this shaft is handled between breaker and shaft by locomotive, same as between main shaft and breaker. Steam is furnished to these engines by a battery of three tubular boilers. The water accumulating in the mines is taken care of by Knowles' piston and plunger pumps.

Both main shaft and second opening have walls of concrete 3' in thickness from surface to rock, a depth of about 40'.

Both the Big vein and New County vein are being opened up so that in the course of the coming year the breaker can be worked to its full capacity.

Water for steam purposes is supplied by the Providence Water Company, and stored at the mines in a brick reservoir 45' diameter and 9' deep.

DELAWARE AND HUDSON CANAL COMPANY.

Clinton colliery.—Consists of a slope which is now being sunk, and two tunnels which are already opened. The slope is sunk 600' on an angle of 6° at a distance of 500', the first lift is turned off and connections made with the fan tunnel for the purpose of ventilation. It is expected that on or about the first day of June there will be sufficient coal opened to commence mining operations.

The coal from these openings will be prepared for market in the new breaker just completed, it is situated in Clinton township, Wayne county, on the line of the Jefferson branch of the Erie railway, at a distance of one thousand feet from the head of the slope. The superstructure of the breaker was commenced in the month of June, 1889. It has a capacity of 1,000 tons of coal per day, and is constructed on the most modern plans, containing all the latest improvements which are so essential to the preparation of coal, together with the necessary machinery for transporting the coal from the mouth of slope to the dump

by a system of rope-haulage, sectional area of slope is 6'x12' equal 72 square feet.

Jermyn No. 1 shaft.—Finished new plane 400' long on a grade of 1' in 5'.

No. 1 shaft, Carbondale.—New tunnel driven from daylight to top coal 550' long, sectional area 63 square feet.

White Oak mines.—Opened up old No. 5 mines by means of two tunnels one 300' long, sectional area equal 60 square feet; also, another 100' feet long, area of opening 56 square feet; these openings are made to the Archbald vein of coal.

OFFICE OF THE PENNSYLVANIA COAL COMPANY,
DUNMORE, PA., February 8, 1890.

MR. PATRICK BLEWITT:

DEAR SIR: The following are some of the improvements made during the year ending December 31, 1889:

No. 5 shaft.—A slope was started from northeast heading in second vein (First Dunmore) angle of slope located about 250' from shaft landing in this seam, we drove slope in vein on north 50 west course for a distance of 900' at which point we encountered a fault. The width of fault was ascertained by boring from top or Clark vein, and the slope again resumed in rock same course as above mentioned, and on a grade of 1' in 20', for a distance of 160', at which point we again opened up vein. The slope will terminate at the lower one, west end of Wilkins' tract. One pair small engines 40 horse-power, Pennsylvania Coal Company's make, located between heading and angle of slope will be used to hoist the coal. The plane on northeast side of shaft in third seam was finished and put in successful operation in February, 1889. The one in second seam was finished in June.

No. 1 shaft.—We resumed operations at this shaft in November, since which time we have been trying to increase the length of our headings and the capacity of lodgment.

Bunker Hill No. 1.—This new working is situated on line of Taylor tract near end of the E. & W. V. truss and about 600' east of Roaring Brook. At or near the point at which the shaft is sunk, a tunnel had been driven (about thirty-five years ago) into what is known as the Dunmore middle vein, and from this tunnel two narrow passages were driven in coal, one to the rise, south 39° east, and abandoned in coal, the other driven to daylight on a course of south 7° west. At this point, a furnace has been built for the purpose of ventilating this seam, our second opening will also be at this point. The shaft is 44' 8" deep and sunk to the Dunmore bottom vein. A second opening to shaft workings has been made close to the bank of Roaring Brook and almost directly under the track of the E. & W. V. railroad, driven in the coal of the Dunmore bottom vein about 500' feet east of shaft. The coal from both shaft and tunnel will be hoisted to an elevation of 30' above sur-

Number of children left as orphans from accidents in 1890,	132
Number of tons of coal produced for each orphan,	<u>67,669</u>

There were 280,200 kegs of powder used in mining 8,932,235.07 tons of coal in 1890, which would give 31.88 tons of coal for each keg of powder used.

There are 2,753 horses and mules working in and about the mines in this district. There are also 34 mine locomotives with a horse-power of 1,799, making in all a total horse-power of 4,552 for transportation of coal in mines and between mines and breakers.

There are 905 steam boilers which supply steam for 385 hoisting, fan and breaker engines, which have a horse-power of 23,809; also 301 pumping engines and steam pumps with a horse-power 10,665.

There are 68 breakers which have a capacity for preparing and cleaning 53,045 tons of coal per day for shipment to market.

There are also 4 chute buildings for cleaning and dividing coal into various and different sizes, shipping some to market direct and some to breakers to be prepared for market.

Respectfully submitted.

PATRICK BLEWITT,
Inspector of Mines.

COLLIERY IMPROVEMENTS FOR 1890.

Delaware, Lackawanna and Western Railroad Company, has made no improvements except driving headings and airways, so as to have their mines in proper condition for opening out their mine workings when necessary.

DELAWARE AND HUDSON CANAL COMPANY.

This company has made but very few improvements during the year.

Clinton Colliery.—Has finished one outside slope.

Eddy Creek Colliery.—Has built an addition to breaker for the purpose of making chestnut, pea and buckwheat coal.

Olyphant No. 2 Colliery.—Put in place one fan engine, 18" x 22"; size of fan 17' diameter by 4' width of face, also placed three boilers 34' long by 36" in diameter.

Jermyn No. 3 Colliery.—Finished sinking air shaft to "G" or 14' vein. Machinery is on the ground but not put in place yet.

Capouse Colliery.—Have finished one plane from "G" to Rock Vein.

Pine Brook Colliery.—Drove one slope in coal and one tunnel in rock.

Two new tunnels have been driven at Coal Brook, one from the top vein to the surface, a distance of one hundred and sixty feet, and one from the third vein to the surface, a distance of one hundred and seventy-five feet.

At **Clinton** two new slopes have been driven; one is 3,100 feet long, the other 700 feet. The first has an average grade of 8 feet in 100, the other 6 feet in 100.

Richmond No. 3 shaft has been sunk from the Clark to Dunmore Nos. 1 and 2 veins, a distance of 132 feet. Its size is 10x22 feet.

At Richmond No. 4 a new plane 800 feet long has been made.

At Mt. Jessup a tunnel 464 feet long has been completed from the Clark to the No. 3 Dunmore vein.

Near their No. 1 colliery the Pennsylvania Coal Company has erected six Babcock and Wilcox water tube boilers of 900 horse power. The pressure carried per square inch is 110 pounds.

Steam is supplied for No. 1 colliery breaker and shaft, to Gypsy Grove colliery breaker and its two shafts, and have supplanted the 27 cylindrical boilers 36x30 feet formerly used at these places.

The Lackawanna Coal Company has sunk an air shaft, having a sectional area of 120 feet and a dept of 55 feet.

A new air shaft was sunk from the surface to the Dunmore vein by the Johnson Coal Company. Its depth is 310 feet and has 1200 feet area.

A tunnel 7x14 feet and 1,300 feet long has been driven from the big vein to the Dunmore.

At Pancoast a new slope 800 feet long has been sunk in Clark vein and another is being sunk in No. 3 vein.

The Dolph Coal Company has sunk two new slopes, one 350 and the other 650 feet deep. One is 6x16 and the other 6x12. They have also made a new plane 500 feet long, and sunk two new air shafts each 62 feet deep.

The Riverside Coal Company has made a new slope 900 feet long.

Many other small air shafts, tunnels, slopes and planes have been made during the year for the purpose of properly ventilating the workings and to keep up the output of coal, but they are not reported.

A FEW REMARKS ON THE STATISTICS FOR FIVE YEARS.

By a retrospective glance at the mining statistics of this district for the five years ending December 31, 1896, we find that there were 30,702,284 tons of coal produced and 29,367,733 tons shipped; 79,645 persons were employed for 939 days, during which time 1,056,055 lbs. of powder of 25 pounds each, were consumed.

Of the total number employed 243, or a small fraction more than three-tenths of one per cent. were killed. Of the 243 killed, 154 lost

At **Clinton** colliery a new tail rope system of haulage has been introduced 2,500 feet long, which hauls cars from eight different stations and replaces at least eight mules and drivers.

A new slope has been sunk in Clifford or lower vein, and an air shaft 200 feet deep has been sunk.

Delaware, Lackawanna and Western Railroad Company.

At Storrs No. 2 a rock tunnel through "fault," in Big Vein, has been driven. It is $6\frac{1}{2}$ x10 feet, and 435 feet long.

Elk Hill Coal and Iron Company.

At Richmond No. 3, main shaft has been sunk to Dunmore No. 3 vein, a distance of fifty feet. The air shaft has been enlarged and a fan erected at head of it, with very good results.

Pancoast Coal Company.

The main shaft is being sunk to lower veins and is now down about 121 feet. Commenced sinking about the middle of June.

Also, drove slope in Clark vein, about 1,600 feet through "fault" to coal, and two rock planes through "fault."

The Temple Iron Company's Improvements.

During the year 1899 the following improvements have been made at the collieries north of Scranton:

At Sterrick Creek colliery there has been erected a 20-foot fan, with 16x26 engine, and an air shaft 12x12 sunk in order to properly ventilate the Dunmore vein. There has been erected a double culm plane 300 feet long and 100 feet high, with a pair of 100 horse-power engines. There has been built a $22\frac{1}{4}$ x22x24 air compressor and 8,000 feet of 8x10-inch cast pipe laid from this air plant to the Dunmore vein workings, where there has been erected a pair of 100 horse-power engines to operate the slope in this vein, and with this air they are also doing the necessary pumping. A compressor house, 40x38, of brick has been built; also, a blacksmith and car shop, 30x60, with a 30x30 addition. A locomotive house, 20x40 has been built and there has been graded and built 5,880 feet of track and switches connecting the colliery with the Nay-Aug, D., L. & W. branch.

Two 225 horse-power Stirling boilers have been erected, with a boiler house 50x42. There have been placed in the breaker 24 jigs, 8 shakers and 8 screens, 2 sets of rolls, 2 sets elevators and 4 sets of conveyors, and an addition has been built to accommodate the machinery from the north and south sides of the breaker, 27x42. A pair

TABLE F—Nationalities of Persons Killed or Injured.

Nationalities.	Killed.	Injured.	Totals.
Pole,	6	24	30
American,	6	22	28
Irish,	5	17	22
English,	6	14	20
Welsh,	2	13	15
Slavs,	2	9	11
Italian,	3	6	9
Austrian,	2	4	6
Hungarian,	2	4	6
Russian,	4	1	5
German,	2	2	4
Scotch,		2	2
Totals,	40	118	158

Improvements at Collieries.

Delaware and Hudson Company's Improvements.

At **Clinton** a new air shaft 10x12 feet and 240 feet deep was sunk for ventilating purposes, and a new fan was installed to ventilate the East Side tunnel.

At Coal Brook a rock plane 300 feet long was driven from bottom to top vein, and an air shaft sunk. A new air compressor was installed and three new air motors added for haulage. A new drift was opened on East Mountain; and an air shaft sunk.

At Jermyn No. 1 a new 22-foot fan was installed, to replace the old one. A rock plane 600 feet long, driven to shorten transportation, and improve ventilation, was made.

Grassy Island.—The rock vein was opened and air connections made.

At Eddy Creek a slope was sunk from surface to rock vein to improve ventilation on Mills tract workings.

Hillside Coal and Iron Company.

A new breaker was built at Forest City to replace the old one, which was destroyed by fire in early part of the year.

The Price Pancoast Coal Company has sunk the main shaft to Dunmore veins; also, installed a new fan 35 feet in diameter.

The Johnson Coal Company has driven a 1,000-foot tunnel from prove ventilation on mills tract workings.

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.

MT. JESSUP COAL COMPANY

Mt. Jessup.—Ventilation bad. Roads and drainage bad. Condition as to safety, fair.

EDGERTON COAL COMPANY

Edgerton.—Ventilation fair. Roads and drainage fair. Condition as to safety, fair.

CARNEY AND BROWN COAL COMPANY

Murray.—Ventilation, roads and drainage fair. Condition as to safety, fair.

BLACK DIAMOND COAL COMPANY

Black Diamond.—Ventilation good. Roads and drainage fair. Condition as to safety, fair.

FINN COAL COMPANY

Finn.—Ventilation fair. Roads and drainage fair. Condition as to safety, fair.

IMPROVEMENTS

DELAWARE AND HUDSON COMPANY

Clinton.—New slope in Grassy vein sunk to a depth of 1,000 feet. Also a second opening completed. Three thousand six hundred feet of track laid from Grassy slope to breaker with 40-lb rail. One 6-wheel, 12-ton locomotive added to haul the coal from Grassy slope to breaker. Three new cylinder boilers 30 inches by 50 feet added to boiler plant. Two thousand feet of tail rope for haulage in the main slope completed.

No. 1 Carbondale.—One 10 foot Guibal fan installed driven by direct engine 8x10 inch to ventilate third vein in No. 3 shaft. One 16 inch bore hole from foot of slope to surface for delivering water from slope pumps.

White Oak.—Three thousand six hundred feet of tail rope for haulage from the Clark vein to the surface completed. One pair of double engines 14x20 inch cylinders to operate the same. Slope in Dunmore vein sectional area 7x10 feet driven through "anticlinal" 250 feet completed.

Jermyn.—Rock plane section 7x14 feet driven from Grassy vein to the Clark vein, a distance of 400 feet. Also a second opening 600 feet in length driven to the surface.

Grassy Island.—The old shaft is being sunk from the 14 foot vein to the bottom split, a distance of 45 feet. The purpose is to make a second opening for the same vein in the new shaft. A large sump is being made to be used in emergency. A new brick engine room has been erected at new shaft for shaft engines, which are on the ground.

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.

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CARBONDALE COAL COMPANY

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

BARTON COAL COMPANY

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

CLINTON FALLS COAL COMPANY

Clinton Falls Colliery.—Ventilation good, drainage fair, condition as to safety fair.

FINN COAL COMPANY

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

ARCHBALD COAL COMPANY

Tappans Colliery.—Ventilation and general condition good.

 IMPROVEMENTS

DELAWARE AND HUDSON COMPANY

Clinton Colliery.—Plane in Clifford vein extended 2,300 feet cutting off 1,800 feet of rope haulage. Steam plane in Clifford vein driven 2,400 feet, dispensing with mule haulage, operated with a Flory engine, 12½ by 16 inch cylinders. A new Guibal fan, 20 feet in diameter, driven by a Dickson engine 16 by 36 inch cylinder, has been installed to ventilate No. 8 slope, Clifford vein, in place of Riverside slope fan. In the Bottom vein a water course is being driven a distance of 3,800 feet to drain the Clinton mine through Coal Brook. 3,300 feet of this water course has been completed. When finished the pumping plant now in use in Clinton will be abandoned. An eight inch bore hole driven from the surface to the Clifford vein a distance of 259 feet for conveyance of steam for plane and pumps. One 12 inch bore hole from surface to Clifford vein a distance of 195 feet for pumping water.

Coal Brook Colliery.—One 6 ton electric motor with drum attached, for hoisting and lowering cars in chambers, has been installed. One 12-foot Guibal fan, driven by electric power, to ventilate the New County vein has been installed. A large sump has been made at the foot of Stanton shaft for electric and steam pumping plant. A new outside culm plane of wooden structure has been erected 1,800 feet in length. One 8-inch and one 6-inch bore hole driven from surface to bottom vein for conveyance of air to operate slope. Depth of bore hole 230 feet.

No. 1 Carbondale Colliery.—No. 5 Tunnel driven from surface to Archbald vein, distance 400 feet. No. 4 Tunnel driven from surface to Archbald vein, distance 250 feet. Tail rope haulage road driven and graded from No. 1 Tunnel to No. 4, a distance of 3,050 feet. A new engine house built, and a 14 by 20 inch cylinder engine of the Flory type installed to operate the haulage.

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

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 Goyne 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.

Bottom Dunmore Vein.—A new motor road from the foot of Clifford shaft to the foot of Dunmore slope has been completed; Clifford shaft has been abandoned as a hoisting way and hereafter all the coal will be transported to the foot of Dunmore slope by motor and hoisted to the surface by way of No. 2 shaft.

A rock tunnel has been driven in a southerly direction through a fault south of the Dunmore slope, which will develop the 3rd Dunmore vein beyond the fault.

HUDSON COAL COMPANY

Clinton Colliery.—Inside: New haulage road driven about 2,000 feet and is in operation.

Outside: A washery, 62 by 80 feet, has been built and is nearly ready for operation. Two and one-half miles of poles and wiring completed for electrifying the colliery.

Twelve-inch pump hole 400 feet deep to Clifford vein.

NORTHERN ANTHRACITE COAL COMPANY

Murray.—Installed a 24-inch cast iron column pipe in air shaft, through which to pump mine water to the surface.

Also installed two piston pumps, capable of discharging 1,200 gallons per minute to the surface, with a piston travel of 137 strokes per minute.

Replaced 25 feet of old cribbing on the air shaft with new timber and backed it with a concrete wall 2 feet thick. All wooden buildings in the mine are also being replaced with concrete buildings.

IMPROVEMENTS

HUDSON COAL COMPANY

Clinton Colliery.—Completed a 12-inch pump hole 400 feet deep to deliver water from Clifford vein to surface; also a drift 200 feet long to surface to drain No. 11 slope. Installed a triple pump 12 by 12 driven by 100 horse power motor, and a 20 foot fan and a 17 foot fan equipped with electric power. Also installed $2\frac{1}{2}$ miles of pole line and wire to carry electric power to Clinton washery and pumping plant, etc.

CONNELL ANTHRACITE MINING COMPANY

Connell Colliery.—Built a new breaker, replacing the one burned in February, 1902; and installed an electric pump of 400 gallons per minute capacity. The work of driving a new drift known as "water drift" is nearly completed.

NORTHERN ANTHRACITE COAL COMPANY

Murray Colliery.—Completed the work of replacing all wooden buildings inside with buildings of concrete construction. Also installed a gasoline mine motor of the George D. Whitcomb make.

O'BOYLE-FOY ANTHRACITE COAL COMPANY

O'Boyle-Foy Colliery—Inside.—Installed a 30 horse power engine and scraper line in the "C" vein for the purpose of working out this vein. Built a solid concrete mule barn.

Outside.—Built a solid concrete oil and powder house.

O'BOYLE-FOY ANTHRACITE COAL COMPANY

O'Boyle-Foy Colliery.—Ventilation and drainage, fair. Condition as to safety, good.

CLINTON FALLS COAL COMPANY

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

WACHNA-TAYLOR ANTHRACITE COAL COMPANY

Wachna-Taylor Colliery.—Ventilation and drainage, fair. Condition as to safety, good.

IMPROVEMENTS

DELAWARE AND HUDSON COMPANY

Clinton Colliery.—Installed an 800-gallon triplex pump in the Clifford vein, pumping through a 10-inch bore hole to the surface; also a 10-ton electric locomotive in the same bore. Completed a tunnel 300 feet long, and a second opening 160 feet, from the surface to open the Grassy bed.

The course of Wilson Creek was changed for 1,500 feet to deflect the stream from surface workings.

RACKETT BROOK COAL COMPANY

Rackett Brook Colliery.—Installed electric haulage motor and coal cutting machines.

Outside: Completed repairs to breaker, enlarging it to a capacity of 1,000 tons per day. Completed a new carpenter shop and general office building.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held in the Borough Building, Forest City, June 6 and 7. The Board of Examiners was composed of Benjamin Maxey, Mine Inspector; Harry Yewens, Superintendent; David Davis, Miner, and Patrick Cleary, Miner; all of Forest City.

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

MINE FOREMEN

T. Stanley Cartright, Peckville; Joseph J. Cleary, Carbondale.

ASSISTANT MINE FOREMEN

Evan Roberts, Peckville; Joseph M. Anderson, Vandling.

TIP TOP COAL COMPANY

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

PENN CENTRAL COAL COMPANY

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

BRIGHT COAL COMPANY

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

ELK BROOK COAL COMPANY

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

IMPROVEMENTS**DELAWARE AND HUDSON COMPANY**

Clinton Colliery.—A tunnel 350 feet long was driven from the surface to the Grassy vein, and a slope 150 feet long was made from the surface to the Grassy vein.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held in the Borough Building, Forest City, May 8 and 9. The Board of Examiners was composed of Benjamin Maxey, Inspector, Forest City; Arthur Wrightson, Superintendent, Forest City, and Patrick Cleary, Miner, Forest City.

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

MINE FOREMEN

Winfred R. Taylor, Forest City.

ASSISTANT MINE FOREMEN

Richard Bainbridge, Peckville; Ralph Shoop, John A. Mayers, Fred McCabe, Guy Carpenter, John W. Jones, Forest City; Patrick J. White, Bernice.

ELK BROOK COAL COMPANY

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

CAMBRIA AND EASTERN COAL COMPANY

Schaad Colliery.—Ventilation and condition as to safety, good. Drainge, fair.

CLINTON FALLS COAL COMPANY

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

THORNTON COAL COMPANY

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

J. W. KIRBY AND SON

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

IMPROVEMENTS

HUDSON COAL COMPANY

Clinton Colliery.—Repaired the mouth of No. 3 slope by removing all timber and putting in concrete. Installed one 7-ton electric locomotive in the Top Clark bed, and one 7-ton electric locomotive in the Bottom Clark bed.