

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 149 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.

but that, as I have already shown, is no defence. In the three collieries first named they have relied entirely through all these long years on natural ventilation for a supply of air for their workmen. They have done literally nothing to assist nature to do the work, and as the workings extend from year to year the ventilation gets worse and worse.

Soon after I entered upon the duties of my office, I gave No. 3 shaft, Carbondale, my particular attention; and after making a thorough examination of the workings I immediately called the attention of A. H. Vandling, Esq., general agent for the company, to the condition of the colliery, and in reply to my communication Mr. Vandling assured me that the matter would be attended to immediately. His note is couched in the following words:

"Noting your favor of the 4th inst. (December, 1876,) concerning ventilation in our Carbondale mines—the results of your examinations and conclusions are surprising, for the reason that I was not previously aware of such deficiency or sufficient cause for complaint. The matter will have our due and immediate attention."

I am happy to state that improvements were projected immediately after this correspondence, which, when perfected, will remove all cause for complaint, and will put those collieries on an equality, regarding ventilation, with the best ventilated collieries in the district. An air-shaft is to be sunk for No. 3 shaft, and a fan is to be placed there; and I expect this will be followed with another fan for No. 1 shaft, and another for the Coal Brook colliery in place of the miserable little furnaces they now have there at the bottom of very shallow shafts, and hence almost worthless. I feel under great obligation to A. H. Vandling, Esq., general superintendent, for his prompt co-operation and manly course in relation to my efforts to enforce the mine ventilation law; and I am certain that the miners at Carbondale, before another year ends, will have cause to bless him for his prompt action in the premises.

MISCELLANEOUS COMPANIES AND OPERATORS.

The collieries of the smaller companies, in regard to ventilation, may be divided into three classes—the first class having good and satisfactory ventilation, the second class having middling, and the third class having poor and very unsatisfactory ventilation. The first class consists of the following collieries: Roaring Brook colliery, Dunmore; Jermyn's shaft, Green Ridge; Mt. Pleasant slope, Hyde Park; Pine Brook shaft, Scranton; Green Ridge slope, Dunmore; Capouse shaft, Hyde Park; and Meadow Brook collieries, Scranton. The second class consists of the following: Erie shaft, Carbondale township; Phoenix shaft, Ravine shaft, Twin shaft, Seneca slope, and Butler shaft, Pittston; Hillside colliery, Pleasant Valley; Filer & Livey's collieries, Winton; Greenwood colliery, Lackawanna township; Columbia colliery, and Beaver mines, Pittston. The following make up the third class: Sibley shaft, Old Forge township; Everhart colliery, Jenkins township; Jermyn's slope and shaft, Jermyn; Park coal company's slope, Hyde Park; Fair Lawn slope, Scranton; Jones & Simpson's colliery, Archbald; and Tompkins shaft, Pittston. All are graded, as regards merit, in the order in which they are named in each class. The collieries which are not named in the above classification, I as yet know comparatively nothing about. I have suggested important improvements in many of the collieries in the third class, and the owners and agents have shown a ready disposition to act on the suggestions given. Some of them, it is true, complain of the hard times and consequent lack of funds to provide themselves with the necessary mechanical power to properly ventilate their mines, but all admit that the improvements demanded are sorely needed. I deeply sym-

11 MINE R.P.

Church Mine.

A new slope has been sunk from the surface to the coal.

Grassey Island Mines.

They have driven a new drift to open up the slope vein of coal.

Dolph Colliery.

There have been new lump coal schutes built on breaker.

Edgerton Mine.

Two air shafts have been sunk, one 35 feet deep, the other 41 feet deep; sectional area of each, 100 square feet.

Peckville Colliery.

This is a new colliery, located in Winton borough, on the south-east side of the Lackawanna river. Coal can be shipped by the Delaware, Lackawanna and Western railroad or the Delaware and Hudson Canal Company's railroad. It is owned and operated by the Peckville Coal Company. They have one drift driven 200 feet into the coal, and opening right and left of the main heading. There is another drift 600 feet south of breaker. A new breaker is being built which will have a capacity of 600 tons per day. They will be ready to ship coal in about three months. An air shaft is also being sunk.

Pierce Mines.

The slope from the surface has been sunk 700 feet in 1886. Sectional area, 100 square feet.

Erie Colliery.

On November 16, 1886, Erie breaker was destroyed by fire. It is now being rebuilt, and will be ready for the preparation of coal about March 1, 1887. Sunk one pumping shaft 225 feet deep; sectional area, 48 square feet. Two new shafts are being sunk, one to top vein and one to bottom vein. Size of shafts, 12×30 feet. A breaker is to be erected for the preparation of coal and is now ready for the superstructure.

Keystone Mine.

One self-acting plane, 450 feet long, sectional area, 96 square feet, has been built and in operation.

Brennan's Mines.

A new breaker has been erected; a drift has been opened and an air shaft has been sunk in 1886.

Belmont Mines.

A new drift has been driven for a distance of 300 feet, for the purpose of drainage. Sectional area, 42 square feet.

vein. Headings and air-ways have also been driven, but the greatest progress has been made in the top or first Dunmore seam. A new breaker has been built 1,160 feet east of Shaft No. 1, but there has been no coal run through it yet, owing to the dullness of the coal trade.

Shaft No. 4, "Gypsey Grove."—We are grading a new plane to cut off Hale's upper gangway. It is located about seven hundred feet from the D. & H. C. Co. line on the Horsefield tract, in bottom seam of coal.

Shaft No 5.—We have about completed a plane on the northeast side of shaft in No. 3 seam. It will be about 800 feet long and driven on a course of S. 50° E. We have also commenced grading another plane in No. 2 seam driven on the same course as the plane in No. 3 seam. It is located on the southwest side of shaft. An incline was driven through the anticlinal that exists between shafts Nos. 2 and 5 for the purpose of a second opening and drainage. This passage connects the bottom seam of No. 2 Shaft with the first Dunmore seam in Shaft No. 5. This does away with all pumps and other machinery at Shaft No. 2, which was abandoned September 1, 1888.

Hillside Coal and Iron Company.

Clifford Colliery, with a capacity of 1,000 tons of coal per day, was completed. This plant is made up of a breaker with the latest improvements, simplified as much as possible, keeping in view three essentials, sufficient height to pick out slate and rock before the product reaches the rolls, and to avoid putting through the rolls anything that had been broken in the process of mining; a shaft 12'x30' opening and 300 feet deep has been finished. It is operated by a pair of 22"x36" direct acting engines equipped with two Dickson safety carriages; a slope for second opening 360 feet long to hoist rock, of which, owing to the thinness of the seam, there is a great quantity, and for a manway. The breaker is located 700 feet from the shaft. The coal is hauled from the shaft to the breaker, and the empty cars hauled back by a wire rope haulage.

Erie Shaft.—A slope 250 feet long for a second opening and for a manway has been finished on the west side of the Lackawanna river.

Glenwood Shaft No. 2, to the Archbold vein was completed; the total depth from the head to the foot is 350 feet. A pair of direct acting engines, 22x48, with two Dickson safety carriages, is the motive power. A fan 18 feet in diameter by six feet face has been erected to ventilate Glenwood No. 1 Shaft, and it is run by an engine 16x36. Rope haulage is used at this colliery. At all the collieries of this company electric lights are in use in and around the breakers. They were first put in as an experiment at the Erie breaker and they were so complete a success that their general introduction soon followed. The arc light is used, and coal can be cleaned by its light even better than by daylight.

Clifford Colliery.—Finished one plane in mines.

Erie Colliery.—Graded planes on west side of shaft from Bengough's heading through old chambers to Gilhool's heading.

Shaft No. 2, Forest City.—Finished plane in mines.

Glenwood No. 1 Shaft.—This shaft has been sunk through the "Grassy Island" to what is known as the Carbondale top vein, 60' below the Grassy Island Vein. Permanent mining has not yet commenced.

Keystone Tunnel.—We are improving the breaker by enlarging it, also by putting in place one pair of rolls 26" x 22" and one pair 26" x 12", for the purpose of breaking coal down to small sizes. They will be in place January, 1891.

Elk Creek Mines.—Have sunk a shaft to third vein of coal.

Marshwood Mines.—Finished one inside plane

Ontario Mines.—Finished one inside plane 300' long.

Pancoast Mines.—Finished rock tunnel and proved good coal.

Richmond No. 3.—Shaft down to the "G" vein of coal, they have not commenced opening out the mines yet. A breaker is in course of construction. They have not commenced to open up any of the veins of coal yet.

MT. JESSUP COAL COMPANY, LIMITED,
WINTON, PA., *January 8, 1891.*

Mr. PATRICK BLEWITT, *Inspector of Mines, Scranton, Pa.:*

DEAR SIR: Herewith I hand you our yearly report for 1890.

Regarding explosion of boiler at our fan shaft on night of January 21, 1890, by which Michael J. Murley lost his life, I would respectfully refer you to the evidence at coroner's inquest, of which you doubtless have a copy, and also to the verdict of coroner's jury.

As to our improvements for the year, we have concentrated all of our boilers at the breaker and abandoned the old plant at fan shaft, having put in three (3) new steel boilers 30" diameter by 36' long, and two iron boilers 40" diameter by 35' long, all in first class condition. Steam is conducted through a new line of 5" gas pipe to our big pump, a distance of 2,000', and from thence through four and three inch branch lines to our hoisting engines and pumps and up the fan shaft to fan engine.

The total distance from boiler house to our lowest pump on underground slope is 3,900'. We made connection with the Olyphant Water Company's main by laying 2,500' of 2" gas pipe and have now a good supply of pure water.

We put in a line of perpendicular elevators in our breaker for hoisting screenings and pickings, also put in a set of small "pony" rolls for reducing pickings. Besides which, we have made other minor improvements on breaker.

Yours truly,
ELI T. CONNER, *Superintendent.*

Hillside Coal and Iron Company.

At Glenwood a new air shaft was sunk to the Archbald seam, a distance of 136 feet. Three new planes were also completed, the length of which are 425, 500 and 525 feet respectively.

At Erie a new air shaft was sunk, sectional area of which is 64 square feet, and a depth of 19 feet.

At Keystone a new tunnel was driven from the surface to the Archbald seam, a distance of 175 feet.

At Forest City a new air shaft was sunk, having an area of 144 square feet, and a depth of 180 feet. A new "Broadbent" fan was also erected at this place 25 feet in diameter, driven by an horizontal engine, cylinder 20" × 36" directly connected to the fan shaft.

At Clifton a new plane 300 feet long, with a sectional area of 84 square feet, and a gradient of 15° has been completed.

Murray Carney and Brown.

A new plane 2,500 feet long with a grade of 6 feet to the 100 feet has been completed; they have also enlarged their breaker thereby increasing its capacity from 75 tons to 250 tons per day. Three new boilers have also been placed in position.

Pancoast Coal Company.

This company sunk its main shaft to the bottom split of "G" vein, a distance of 295 feet, area 10' × 34'. It is intended to sink the main shaft to the same seam this year for a second opening.

Northwest Coal Company.

At Simpson slope a new fan 15 feet in diameter was erected to ventilate the coal slope workings, exhausting 75,350 cubic feet of air per minute, with a working speed of 70 revolutions per minute. It is run by an horizontal engine cylinder 12" × 24".

Moosic Mt. Coal Company.

At Marshwood a new slope has been sunk a distance of 850 feet on a gradient of 10½ degrees, with an area of 72 square feet.

Elk Hill Coal and Iron Company.

At Richmond No. 3 a new air shaft, which was also a second opening, was sunk from the surface to the 14-foot vein, a distance of 155 feet. Sectional area 63 square feet.

This company is also sinking a new shaft and building a breaker in Fell township.

Mt. Jessup Coal Company, Limited.

At this company's colliery a new slope has been sunk through old workings to an abandoned levee opening up work in solid coal and pillars. Eight boilers were replaced by new ones.

Table Showing the Occupation and Percentage of Persons Killed and Injured while Following these Occupations During the Year 1893.

Occupation.	Killed or fatally injured.	Per cent.	Injured.	Per cent.	Total.	Per cent.
Miners,	18	35.3	35	36.45	53	36.0
Miners' laborers,	20	39.2	28	29.16	48	32.7
Runners,	2	3.9	3	3.12	5	3.4
Drivers,	3	5.9	18	18.80	21	14.3
Door boys,	2	3.9	3	3.12	5	3.4
Company laborers,	4	7.9	1	1.04	5	3.4
Foot men and head men,			5	5.20	5	3.4
Shaft sinkers,			1	1.04	1	0.7
Slate pickers,	2	3.9	2	2.07	4	2.7
Total,	51	100.0	96	100.0	147	100.0

IMPROVEMENTS MADE IN 1893.

Delaware and Hudson Canal Company.

At the Marvine shaft a new plane was made, 1,430 feet long, area 98 square feet, grade 8 degrees.

At No. 1 shaft, Carbondale, two new air shafts were sunk a distance of 20 feet, which greatly improved the air at the extreme end of the workings.

At Grassy Island a second opening was driven at the extreme end of the plane working from the "Grassy" vein to the surface; length, 275 feet; area, 84 square feet.

Hillside Coal and Iron Company.

At Glenwood three new planes were made, the length of which are 400, 600 and 600 feet, respectively; sectional area of each 84 square feet, on angles of 12, 18 and 19 degrees.

At Erie two new planes were completed, one 150 feet long, with an area of 112 square feet; the other has 98 feet area, and is 175 feet long, on a pitch of 14 degrees.

At Forest City, No. 2 shaft, a new plane, 600 feet long, 6 feet high and 14 feet wide was put in operation.

A new plane, 275 feet long, 14 feet wide and 6 feet high was also put in operation at the Clifford shaft.

No. 1 plane has been extended 500 feet, new air bridges have been built, and new air ways have been driven.

Clark vein No. 1 plane has been extended 1,200 feet, and a pair of 10x12 inch engines placed at the bottom to take the place of gravity wheels. This plane is now 2,300 feet in length.

No. 2 plane was extended 200 feet.

Dunmore vein, a slope, has been sunk 350 feet on the west side of shaft and a pair of engines 10x12 inch put in for hoisting the coal. An engine plane has been made on the east side of shaft 700 feet in length and a pair of engines 10x12 inch put in to operate it. The hoisting shaft and also the main shaft have been thoroughly repaired. A new steel tower was erected over the man shaft. The inside and outside have been converted into a new colliery.

HILLSIDE COAL AND IRON COMPANY

Erie Colliery.—An air shaft put down on the west side of the Lackawanna river from the surface to the new county vein, area 10x10 and 35 feet in depth. A Guibal fan 12 feet in diameter has been installed to be driven by a 40-horse power electric motor. Near the breaker a brick electric power house 30x35 feet has been erected, and an additional 90 K. W., 275 volt generator, driven by a 145 H. P. Armington and Sims engine, is being erected. An additional 7½ ton electric motor with cable reel attachment has been added to the inside equipment.

Keystone Colliery.—A tunnel 7x10 feet area and 100 feet in length, has been driven from the surface to the new county vein. A new track has been laid 2,000 feet in length from the tunnel to the head of a new plane 900 feet in length which has been constructed.

BLACK DIAMOND COAL COMPANY

An electric plant which consists of a building 16x30 feet, with a 25 horse power high speed McEwen engine, a 7½ K. W. dynamo, switch-board complete. This furnishes the power necessary for driving two-electric rotary drills for mining purposes inside.

FINN COAL COMPANY

Erection of new breaker, dimensions of which are 54x60 feet. One large screen, two sets of elevators, one pair of big rolls, one pair pony rolls, one pair of crushers. Breaker engine 16x24 inch cylinder, 75 horse power. Capacity of breaker 300 tons daily.

No. 2 Shaft, Inside.—The new engine plane that was commenced in 1904, has been completed and is now in operation. A new air-bridge has been built on engine plane, sectional area, 120 square feet.

STERRICK CREEK COAL COMPANY

Sterrick Creek.—The Dunmore fan, which was located above the Clark vein water level, about 4,000 feet east of breaker, was removed to the Clark vein air shaft, a distance of 3,000 feet south westerly. The new location is 400 feet from the Dunmore haulage engines and the fan receives its steam from the pipe line which supplies these engines. The friction is reduced by this change, three thousand feet, and the efficiency of the fan increased.

A ten inch bore hole was driven from the surface to the Clark vein, depth 265 feet, and 2,000 feet of 6 inch wooden pipe laid to carry the culm from the breaker to the Clark vein workings. Eight new shaking screens were installed in the breaker with decks ranging from 18 to 24 feet in length, to take the place of eight 12 foot shakers, which were inadequate with the increased output.

Three balance planes above the water level in the Dunmore vein were changed to one plane, and a pair of 12x12 inch engines installed to operate the same.

DOLPH COAL COMPANY

Air shaft completed from the surface to the Clark vein. A new ventilating fan, 20 feet in diameter, erected at head of air shaft. Extensive improvements were made outside. Previous to 1905, no box cars could be run under the breakers, owing to their height. With the improvements made, this condition is changed. The new chain hoist at head of breaker works very satisfactorily, and with the electric motor which conveys the mine cars to and from the "chain hoist," a great many mules are dispensed with, and all trouble in this line eliminated.

MT. JESSUP COAL COMPANY

A new ventilating fan has been erected at the head of the "North pitch" air shaft to ventilate the Clark vein workings. The diameter of fan is 14 feet.

HILLSIDE COAL AND IRON COMPANY

Erie.—One new 900 H. P. Sterling type water tube boiler plant with Sturdevant cold air blast and exhaust steam boiler feed heater.

Two 12x6x12 inch duplex plunger pumps for boiler feed and fire protection in boiler plant. One new washery; capacity 800 tons per day. New steam plane 7x12 inch in area and 4,200 feet in length. The same is equipped with a pair of engines 16x20 inch cylinder.

Erie Colliery.—A slope is being driven in the New County vein 6x12 feet in area, from head of Rock Plane towards the basin; its length is now 400 feet. Two 10x18 hoisting engines, formerly used in the Clark vein, have been installed, and the slope is continuing toward the outcrop as an engine plane. A 7½ ton chamber haulage electric motor has been installed on the west rise in New County vein. Ventilation good, drainage and safety fair.

Glenwood Colliery.—A Jeanesville Duplex Plunger pump, 24x12x-18, has been installed, delivering water from Clark vein to surface. Condition of colliery, fair.

SCRANTON COAL COMPANY

Raymond Colliery.—The main shaft was sunk from the Clark vein to the Dunmore vein, a distance of 90 feet, cutting a vein 3½ feet of coal of good quality. Two slopes have been sunk to the New County vein, thereby increasing the output of that vein. The general condition of the colliery is good.

Riverside Colliery.—Condition fair.

Black Diamond Colliery.—Ventilation good, other conditions, fair.

NORTHWEST COAL COMPANY

Northwest Colliery.—Ventilation, bad. Other conditions, fair.

FINN COAL COMPANY

Finn Colliery.—General condition, fair.

CARBONDALE COAL MINING COMPANY

Carbondale.—New slope in progress of sinking from surface to Dunmore vein; length at present 150 feet. General condition, fair.

MORSS HILL COAL COMPANY

Morss Hill Colliery.—Installed two Lehigh jigs with 20 horse power upright engines for operating same. One new 150 horse power tubular boiler; one 50 ton track scales enlarged screen and shaker capacity. Re-timbered the breaker; built new mule barn, blacksmith shop and oil house; new railroad switch from Erie main line to breaker. Inside.—New slope from surface to 3 feet vein. The condition of mine improved generally.

NORTHEAST COAL COMPANY

Northeast Colliery.—A new breaker erected, equipped with the latest improved machinery; capacity 600 tons daily. Two new boilers, tubular type, 90 horse power each, new boiler-room, office and weigh scales, new 12 foot ventilating fan, Guibal type. Condition of mine, fair.

CLINTON FALLS COAL COMPANY

Clinton Falls Colliery.—General condition of mine, fair.

SUNNY SIDE COAL COMPANY

Sunny Side Colliery.—General condition of mine, fair.

EAST MOUNTAIN COAL COMPANY

East Mountain.—Condition of mine, fair.

Jermyn Colliery.—Plane in Grassy vein driven 800 feet. Plane in Archbald vein extended 600 feet. Rope haulage in Archbald vein extended 2,200 feet. A 17 foot Guibal fan has been built to ventilate the Grassy vein. A Dickson engine, 16 by 30 inch cylinder, operates the fan. An 8-inch bore hole driven 147 feet from the surface to the Archbald vein to convey steam to operate fan on the surface.

White Oak Colliery.—Tail rope haulage in Dunmore vein straightened and graded for a distance of 1,600 feet. No. 2 slope Dunmore vein extended 400 feet. Tunnel in Dunmore vein driven through fault 150 feet. No. 6 Tunnel re-opened, and 2,200 feet of tracks laid to operate it. No. 8 Tunnel to Dunmore vein re-opened and tracks laid preparatory to robbing.

HILLSIDE COAL AND IRON COMPANY

Erie Colliery.—A two-story building of reinforced concrete 29 x 74 feet was erected for storehouse purposes. Three tubular boilers were installed equal to 300 horse power, or 1,200 in the aggregate. One $7\frac{1}{2}$ ton electric motor. West side steam plane extended 400 feet. East side plane extended 1,400 feet. One 6-inch bore hole from surface to the Grassy vein for slushing purposes to recover pillars.

SCRANTON COAL COMPANY

Raymond Colliery.—The Raymond shaft has been sunk from the Clark to the Dunmore vein, a distance of 86 feet, cutting a four foot vein of excellent coal. The second opening has also been sunk from and to the same vein.

TEMPLE IRON COMPANY

Northwest Colliery.—An air shaft was sunk to Mills vein, a distance of 32 feet. A Guibal fan was erected on this shaft 20 feet in diameter for ventilation. It is driven by an electric motor. A 75 K. W. generator driven direct by a Taylor-Chandler engine was installed to generate current to supply the motor.

HUMBERT COAL COMPANY

Sunnyside Colliery.—A new vein of coal has been opened near top of mountain about 2,000 feet from the breaker. A new mule barn and a fireproof stone powder house were erected. Additional railroad tracks have been laid in order to meet the increased capacity of the colliery.

MORSS HILL COAL COMPANY

Morss Hill Colliery.—A slope was sunk from the surface to top vein, a distance of 125 feet, the average pitch twenty degrees and a steam hoist was installed. Water way was driven to Third vein. The breaker and trestle thoroughly repaired and new breaker engine, jigs, screen, etc., installed. A 65 K. W. generator, electric hoist, two motors for shop purposes and a complete system of electric lighting for breaker and offices were installed.

locomotive to dispense with the dumping of coal at the chutes and transportation by means of large cars. A pump shaft was sunk 80 feet to the Top split of the Clark vein, where a single Goyne pump 22x16x36 inches was installed at the foot.

Jermyn Colliery.—A rock plane 700 feet in length was completed from the Archbald to the Grassy vein. To improve transportation on the inside, a 6-ton electric motor was installed. New hoisting engines with double drums of the Flory type, size 14x20 inches, were placed in the Archbald vein haulage extension and Grassy vein plane. *Outside.* A plane for rock dump was built, operated by a 25 horse power electric motor. To drain the upper veins of the West side workings, a concrete culvert 300 feet long, and an open ditch 350 feet in length were built. A new electric power house, 36x50 feet, was built of brick.

White Oak Colliery.—From the Archbald vein No. 6 tunnel a second opening or tunnel 250 feet long, 7 feet high and 12 feet wide, was driven to the surface, and a new return was driven for the installation of a fan. The rope haulage at the head of No. 8 plane, Dunmore vein, was extended 2,500 feet.

HILLSIDE COAL AND IRON COMPANY

Forest City Colliery.—A rock tunnel was driven 7 by 10 feet in section and 275 feet in length, to serve for a second opening for the "Ring" vein. A new 16-inch bore-hole was put down a depth of 225 feet, located 540 feet east of the shaft, and a 12-inch casing pipe inserted, to get rid of the excess water from the 2nd and 3rd Dunmore veins in rainy seasons. The same kind and size of bore-hole was put down near the Forest City Washery to supply the washery with water from the mine. One new 7½ ton cable reel electric motor was installed for the purpose of increasing the output.

The fan and air shaft at No. 2 Shaft are undergoing extensive repairs which have not yet been completed. A new concrete locomotive house was built, size 45 feet 2 inches x 57 feet 3 inches.

Erie Colliery.—The colliery has been shut down since August on account of extensive repairs to the breaker. The result will be better preparation and a larger output. New shaking screens and patent pickers are being added.

The shaft was overhauled, new buntings and guides placed, also new carriages installed. The East side fan was remodeled and rebuilt entirely on the old foundation.

Glenwood Colliery.—The breaker was abandoned May 3, 1909, and has been torn down, with the exception of the North wing, which will be used for a washery. The coal from the Glenwood mine will be transported underground to the Erie shaft and hoisted to the Erie breaker, where it will be prepared.

HUMBERT COAL COMPANY

Sunnyside Colliery.—Two new drifts were opened to the Dunmore vein. A new breaker is in course of erection, with a capacity of 800 tons per day, to replace the one destroyed by fire July 3, 1909. A new boiler plant has been erected of concrete 120 feet from new breaker.

HILLSIDE COAL AND IRON COMPANY

Forest City Colliery.—A new brick hose house has been built for a meeting place for the officials of the company and First Aid Society, size 52 by 32 feet. A brick supply house has been erected. A new engine house has been built and a pair of engines for operating Clark vein slope installed; also a pair of 14 by 30 inch cylinder engines erected near head of rock slope, Clifford shaft. These engines will be used to operate a new steam plane recently completed in Bottom Dunmore vein, east side, and also to drop the coal from the first Dunmore vein to the Bottom Dunmore vein by way of rock slope. The fan house, air duct, etc., at Clifford shaft have been improved, resulting in improved ventilation. The fan previously ventilating the Clark vein, No. 2 shaft was connected to the Dunmore vein, alone, improving the ventilation. The fan formerly ventilating the Forest City slope is connected to the Clark vein, which is an improvement. Two batteries of return tubular boilers, 600 horse power, installed at No. 2 shaft boiler plant and housed by a corrugated iron building. A rock slope has been driven from the top to bottom split Clark vein No. 2 shaft, and an electric hoist installed, to eliminate a heavy grade on haulage road and relieve a section of pillars. A new motor road to a point near foot of Clifford shaft has been graded and completed. The purpose is to take all the Clifford shaft coal to foot of No. 2 shaft.

Erie Colliery.—The extensive repairs to the breaker begun in 1909 were completed and operations resumed February 16, 1910. The two shafts at the Glenwood that had been abandoned were filled with rock and culm to protect the workings from danger from the Lackawanna river at this point. A number of air bridges and walls have been built with a view of improving the ventilation, which was badly needed.

I expect that in the near future, the collieries of the Hillside Coal and Iron Company, which have been in a condition far from satisfactory relative to ventilation, will be among the best ventilated mines in the district, and credit will then be given the officials who are endeavoring to bring this change about.

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.

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-g geared 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.