

*Jessup Coal Company—Filer's Slope.*—This company is sinking a new slope in coal; it is now down 900 feet. Sectional area, 96 feet.

*Hillside Coal and Iron Company—Glenwood Shafts.*—The work on the two shafts and breaker, reported in last year's report, 1886, under the head of Erie colliery improvements, has been advanced as follows: The shaft to top vein has been completed at a depth of 100 feet. The shaft to bottom vein has reached a depth of 160 feet. Work is being pushed rapidly forward in this shaft. The breaker to prepare the out-put of these two shafts for market is about finished, and is expected to prepare coal from the top vein about February 1, 1888. This Company is also sinking the Clifford shaft, at Forest City, as rapidly as possible.

*John Jermyn—Jermyn No. 4 Shaft* has built a new reservoir for spring water to supply the boilers. Started sinking a new slope November 5, 1887, and are down 170 feet. Slope opening, 14'x7'; pitch, 1 foot in 3 feet. Has set three new boilers in place; one pair of engines, 10'x10"; one fan engine, 12'x12", and one pumping engine.

*Wm. T. Smith—Mount Pleasant Slope.*—Sinking a new shaft to Clark vein. Size of shaft opening is 30'x11'. Depth of shaft from surface to bottom of little vein, 27 feet; Diamond vein, 139 feet; Rock vein, 171 feet; G or Big vein, 241 feet; new County vein, 292 feet; and to Clark vein, 365½ feet.

*Moosic Mountain Coal Company—Marshwood Colliery* have everything ready to ship coal when branch track to breaker is finished. Are now pushing the work rapidly forward.

*William H. Richmonds—Richmond Shaft.*—Finished sinking shaft reported in 1886, and are now mining coal in No. 2 vein.

*Winton Coal Company—S. V. White Mine* has sunk a new shaft and built a new furnace.

*Pennsylvania Coal Company—Shaft No. 1 Dunmore.*—The second opening of this shaft is not yet completed.

*William Connell & Co.—Stafford Shaft* has been put in good working order. A new hoisting tower and new engine and boiler houses have been erected. A new nine foot diameter fan has been put in place, and a new railroad track has been laid connecting this shaft with the National breaker, where the coal is prepared for market.

*Watkin's Son & Co.—Watkin's Colliery.*—This company has erected a new breaker, having a capacity to prepare 500 tons of coal per day of ten hours. Have also erected a boiler house, blacksmith shop, barn and office, etc. Also sunk slope, opened a tunnel, sunk air shaft, and built air stack and furnace for ventilating purposes.

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.

face at shaft and roadbed of tunnel, at which point it is dumped and the coarse coal separated from the fine, the coarse coal to be shipped direct to market and the fine to Bunker Hill breaker. A 90 horse-power engine will be used for hoisting the coal. Three boilers are in place, each 36' long and 30" diameter for the present furnish sufficient steam for hoisting and for one No. 4 Knowls pump at bottom of shaft.

Yours, very respectfully,

JAMES YOUNG,  
*Mine Superintendent.*

*Capouse shaft, Lackawanna Iron and Coal Company.*—Have constructed a new plane between G and Rock veins 369' long; sectional area equal 96 square feet and on an angle of 15°.

*Pine Brook shaft.*—Finished plane 1,500' long; sectional area, 6'x14', equal 84 square feet on a pitch of 15°.

*Clifford shaft.*—Finished one new plane 887' long; sectional area equal 72 square feet on an angle of 6°.

*Forest City mines.*—Finished a new slope 400' long; sectional area, 84 square feet on an angle of 9°.

*Glenwood mines.*—Constructed a slope 400' long; sectional area, 48 square feet on an angle of 14°.

*Keystone tunnel.*—Finished a new plane 1,100' long; sectional area equal 98 square feet on a pitch of 7°.

*Elk Creek drifts.*—Constructed a plane 80' long; sectional area, 5'x16', equal 80 square feet on an angle of 38°.

*Eaton tunnel.*—Extended slope 500 feet; sectional area, 6'x14', equal 84 square feet on a dip of 1 in 9.

*Edgerton Coal Company* is opening a new drift into bottom coal  $1\frac{7}{8}$  miles north of Edgerton No. 2, close to where the old Hendricks breaker stood and on the same tract of land.

*Dolph tunnel.*—Finished plane No. 5, 525' long and on a pitch of 3°; also plane No. 6, 300' long on an angle of 3½°.

*Grassy Island colliery.*—Sunk second opening shaft from Grassy island to Clark vein, a depth of 157' feet; sectional area, 308 square feet; also new air shaft for drift workings and built a new furnace.

*Jermyn No. 3 slope.*—This colliery is located in Dickson City borough about 2,000' northwest of Jermyn shaft No. 4; it consists of a slope and breaker; the slope is sunk. From surface to first vein of coal is 600' and to second vein of coal 800'. It is connected with mine workings of Jermyn No. 4 and is ventilated at present by the fan at Jermyn No. 4. They are sinking a fan shaft northeast from mouth of slope; it is now down about 175'; they are also erecting a fan. The breaker is new and located 200' southeast of slope mouth; it has a capacity of 1,000 ton of coal per day and is furnished with all the modern improvements.

*Lackawanna shaft.*—Finished a plane 300' long; sectional area, 8'x18'

*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.

rives at the foot. This is now in use at the Hillside Coal and Iron Company's **Glenwood** colliery.

The plane is 1,100 feet long with a grade of 28 feet to the hundred. The trip consists of five mine cars, each containing 5,600 pounds of coal. The rope used is 1 1-8 steel with hemp center. The speed of the trip is about 1,100 feet per minute, or about 12 1-2 miles per hour. While the trip is run, no brakes are used, although there are two on the drum to be used in an emergency.

The drum is the ordinary type 8 feet in diameter, with three spiders, as are commonly used on balance planes. On the drum shaft there is a 90 cog steel gear which runs with an 18 cog gear on the fan shaft. The fan is eleven feet outside diameter with six blades each, being 4 feet by 4 feet 6 inches, made of three-quarter-inch pine flooring. The arms of the fan are 4x4 inch oak attached to spider, as shown on the sketch.

This was introduced by Mr. M. M. Walsh the inside foreman at Glenwood colliery.

Very truly yours,  
MONTROSE BARNARD,  
Engr. H. C. & I. Co.

#### Pillar Robbing.

The robbing of pillars has been and is being done in several of the mines of this district previous to their abandonment.

The veins in which this work has been going on during the year run from three to fourteen feet thick and are all perfectly flat or nearly so. Veins of this kind are, in my opinion, the safest, most convenient and economical to do "robbing" in, and especially so when the veins are not very deep in the ground, as is the case in most of the mines in this locality. It is true that every occupation in the coal mines, as well as other callings, has its own peculiar danger which must at all times be cautiously guarded against so as to avoid as far as possible serious or fatal accidents.

The dangers of pillar robbing in most cases are no greater than those of ordinary coal mining, but the general belief is that they are greatly in excess of those of mining. But this is not correct so far as this district is concerned, for where pillars are taken out carefully and systematically in flat veins, the proportion of accidents to the number of tons produced in this way is far less than by the ordinary every day methods of mining.

During the year not one person lost his life by a fall of roof where pillars were being taken out, but three were killed by falls of top coal while thus engaged.

of new hoisting engines, 22x30, have been erected, and 1½-inch ropes, with heavy shieves, placed in shaft. Two new carriages with pneumatic fans have also been placed in the shaft. A road has been graded and built from No. 1 shaft, in Grassy Island vein, a distance of 5,500 feet, to reach certain numbers of pillars from this vein.

At Edgerton, a road 5,250 feet long has been graded and built from what is known as the Edgerton drift to the coal upon the Pierce Coal Co. property. A tunnel is now being driven to reach coal in what is known as the Russell tract, and two planes are now being built to reach this coal.

At Lackawanna colliery eight jigs of the Reading pattern have been placed in the breaker.

#### Hillside Coal and Iron Company's Improvements.

A washery at Clifford breaker has been erected to wash fresh-mined culm, all sizes above birdseye having been taken out. It was started about May 1. The capacity is 300 tons a day.

Forced draft plant with Sturtevant blower, 7x4 feet, to increase the capacity of the Clifford boilers. The blower is capable of furnishing blast for 900 horse-power.

Savory's plane, on the Ontario tract, Clifford mine, 1,500 feet long, 7x14 feet in area, has been finished.

No. 6 plane, on the Ontario tract, Clifford mine, 600 feet long, 7x14 feet, in area.

One hundred horse-power electric hoist, west plane, No. 2 shaft, Forest City. This plane is 1,800 feet long. The hoist has a capacity of 500 loaded cars per day. There are four headings and two lifts. The hoist pulls the loaded cars out of the headings and draws up the empty cars.

A tunnel in No. 2 shaft, Forest City, from the upper split of the shaft vein to the lower split, 750 feet long, 7x10 feet in area. This tunnel is two-thirds completed.

A curved self-acting plane at **Glenwood** breaker. The plane is 990 feet long, 780 feet of which is in the Archbald seam, and 120 feet on the curve carrying the plane into the rock in an easterly direction toward the small seam above the Archbald, which was reached at a distance of 90 feet after the curve was made. The plane was projected in this way because of the pitch of the two seams. The curve has a radius of 50 feet, and the cars pass around it without difficulty, and I see no reason why it cannot be operated as easily as the ordinary straight line self-acting plane. It is 7x16 feet.

#### Remarks on Accidents.

A few brief notes on fatal accidents, made from actual observations by visiting, for the purpose of investigation, the scene of each one,

*Stinson*

When these mines were opened, the robbing of pillars was one of the important considerations, and with this in view a system of mining was adopted which has been strictly adhered to. An engineer was kept at the mines, to put up all chamber lines, and see to it that they were driven accordingly.

All chamber roads, gobs and props, conform strictly with the engineer's lines, the road being on one side, and the general success attending the mining at this colliery, is the best evidence of the successful methods there in vogue.

While the robbing of pillars is such an important part of the work at these mines, it can be said that not a single accident can be attributed to it.

Clifford Colliery.—The ventilation is, and has been, undergoing a thorough overhauling, and will soon be in a satisfactory condition.

Glenwood.—The ventilation is in fair condition; they are robbing pillars in a thick vein, and on this account it is very difficult to maintain systematic ventilation, but the employes do not suffer in any way for the want of air.

#### TEMPLE IRON COMPANY

Lackawanna.—The chambers of this mine are well ventilated, and have been very much improved lately. A new shaft is being sunk, which will improve their haulage and do away with using the main haulages as return, which, under present conditions, would be impossible.

Northwest.—The ventilation is fair; they are robbing pillars in a thick vein, but the men appear to have a full and adequate supply of air.

#### NORTH END COAL COMPANY

North End.—This mine has been under development, and is not sufficiently far advanced to be considered.

### Improvements

#### SCRANTON COAL COMPANY

At the Johnson colliery a 30 foot Guibal fan has been installed as an alternate to the present fan now in use, which fully meets the requirements of this gaseous colliery.

The engine room and fan drift are built of substantial masonry, and the arrangement of operating the doors that turn the air currents to either fan, is very effective and complete.

At Raymond Shaft a 250 horse power locomotive boiler has been set up in addition to the present equipment. This will do away

The improved haulage and equipment at this colliery, is in a condition second to none in the region.

#### HILLSIDE COAL AND IRON COMPANY

At Forest City colliery a 7x12 inch Quintuplex Electric plunger pump, equipped with a C. C. 90 H. P. motor, the pump having a capacity of 600 gallons per minute against a head of 450 feet, has been installed in the Red Ash vein at No. 2 shaft.

An additional 7½ ton electric motor, with cable reel attachment, has been added to the Red Ash vein; also a 7½ ton with cable and reel attachments, added to the equipment of the Clark vein.

Also at Forest City (outside) a very modern supply house, 35x50x18, has been constructed, with a fire-proof addition 18x21x18, used for an oil house.

The interior arrangement—equipment for handling oil by the use of pumps, manner of storing supplies, and method of keeping a record of the same—is indeed of great value to the colliery, and reflects credit on its designers.

At Clifford colliery a steam plane, 900 feet in length, area 7x12, has been driven up the west rise.

At **Glenwood** colliery a new cold air blast for the boiler plant, with fan and engine, has been installed, and a new 6" steam line from Glenwood boiler room to the pump shaft, a distance of 3,000 feet, has been erected, which will allow the shutting down of the boiler plant at the pump shaft the greater part of the year, when the pumping is not excessively heavy.

#### TEMPLE IRON COMPANY

At Northwest colliery a plane 417 feet long has been driven from the Clark to the New County vein.

#### Remarks

A review of the operations in this district for the year 1904, shows an unsatisfactory condition regarding accidents.

The high percentage of accidents caused by falls of roof, is no exception to records of former years. The attention of those interested, has been repeatedly called to the irregularities that cause this class of accidents, but a reduction can never be looked for until the employes see that it is better to observe and obey the law concerning the examination and securing of the roof of their working places than it is to disregard it.

There were 36 fatal accidents, 17 of the victims were English speaking persons, and 19 foreign speaking. From this it will be seen that the increase in the number of accidents in the mines is not wholly due to the "foreigner," as is very often asserted.

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.

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.