

cept what were necessary for development of territory to supply their quota of coal to the market.

Pennsylvania Coal Company.

This company have sunk a new shaft in Dunmore borough on what is known as the Gilbert Dunning tract, called No. 1 shaft. Commenced sinking in rock on November 26, 1885, and finished on November 18, 1886. Shaft is $171\frac{3}{4}$ feet from surface to bottom of first Dunmore vein, $218\frac{5}{8}$ feet to bottom of second Dunmore vein, $272\frac{1}{2}$ feet to bottom of lower Dunmore vein, and $289\frac{1}{8}$ feet to bottom of sump. No coal has been shipped yet. They are opening up the mine and preparing to build a large breaker in connection with the shaft 600 feet east of it. No coal will be shipped until the latter end of year.

Spencer's Shaft.

Spencer Bros. have extended their underground slope 1,280 feet; angle of pitch, 3° ; sectional area, 90 square feet.

Richmond Shaft.

This shaft has been sunk 60 feet to a lower vein; size of shaft, 12×24 feet. They are opening out the mines at present.

Pancoast Shaft.

The company sunk a new slope 550 feet long in mines on a pitch or angle of 6° ; also had a new tunnel driven 128 feet long in rock from top to bottom split of 14-foot, or G, vein; sectional area of tunnel, 60 square feet.

Marshwood Colliery.

This is a new colliery, owned and operated by the Moosic Mountain Coal Company. It is located in Olyphant borough, and 3 miles southeast of Lackawanna river. It consists of one drift driven into crop of first Dunmore vein; slope sunk across the measures, cutting the second Dunmore vein, and to the bottom of the lower Dunmore vein. It is 292 feet long; angle of pitch, $19^{\circ} 25''$; sectional area, 8×12 feet = 96 square feet. The breaker is not finished yet. It will have a capacity of 1,000 tons of coal per day. There are eight boilers in place, also one pair of hoisting engines and one breaker engine. The company have also built several houses for their employés. From present appearances, it is intended for a first-class colliery. John R. Davis, general manager; B. F. Fillmore, assistant; James R. Wilson, mine foreman. The company will be ready to ship coal as soon as the main outside track is finished to the colliery. They are sinking an air shaft 12×16 feet to cut all the veins of coal.

Capouse Shaft.

A new plane has been graded at an angle of 15° and 450 feet long.

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.

Moosie 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.

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.*

I wish to call your attention to Bunker Hill breaker; while the breaker itself is situated in the Second anthracite district, the coal is prepared and accounted for in the Third or McDonald's district. The breaker for the present is used only to screen coal that has already been prepared in excess of the market's demands, the same coal having already been prepared at the several breakers near the mines and shipped to the company's dumping grounds near this breaker.

Yours very respectfully,

JAMES YOUNG,
Mine Superintendent.

Dolph Tunnel.—Inside slope or dip being driven to crop at south end of property, and operated by a pair of hoisting engines located on surface; rope through bore-hole. Opening being driven from crop, up to meet said slope. Electricity is used for signaling.

Marshwood Slope and Tunnel.—Additional traveling way made on eastern crop of vein for men and mules, thus avoiding the use of the air shaft by miners and laborers and the slope for mules. No. 3 drift in Upper Dunmore gangway and airway driven in 350'. No. 4 drift in Upper Dunmore gangway and airway driven in 125'. Pennsylvania slope, in new territory, acquired from Pennsylvania Coal Company, sunk 300'.

Jones, Simpson & Co.—Set new boilers at breaker.

Pancoast Shaft.—Continued tunneling vein towards old slope workings which were filled with water, when 80' from old workings, water was tapped from two headings with 2½" holes and is now being pumped out.

Rushbrook Mines.—Have graded and laid 1¼ miles of track, 3' gauge, with 40 pounds railroad iron; built new boiler house 21'×55', engine house 27'×34', and fan house 14'×31', with tower 13'×16' and 36' high.

Spencer's Shaft.—Driving slope through strata from middle to bottom vein on an incline of 15' to 100' horizontal.

There were no improvements reported from any of the other collieries except what were necessary to provide for keeping the workings in such a condition as to provide for the quantity of coal required.

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" x 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' x 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" x 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.

The latter is a second opening, having a depth of 350 feet on a grade of 20 degrees; area, 84 square feet. The shaft is 12x26 feet and 220 feet deep. Two good veins of coal are being opened, one at the bottom of the shaft, the other fifteen feet above. A new fan 14 feet in diameter, 6 feet face, run by an horizontal engine, cylinders 12x24 inches, was also erected.

This company is also sinking their Richmond No. 3 shaft to the Clark vein from the 14-foot, a distance of 150 feet; size, 11x24 feet.

The Blue Ridge Coal Company completed two new slopes, one 300 feet long, the other 210 feet; the area of each is 75 square feet; grade, 15 and 12 degrees respectively.

The Mt. Jessup Coal Company sunk a short air shaft near the face of the workings; depth, 25 feet; area, 60. A new slope, 538 feet long, on a grade of $8\frac{1}{2}$ degrees, was made through old workings, and another slope, 1,038 feet long, with an area of 60 feet is being continued towards the basin.

A tunnel from the surface to the lower Dunmore vein was driven by the Moosic Coal Company. It is 600 feet long, with an area of 72 square feet, and will be used as a water course.

At Carbondale a new breaker was built by the Boyer Coal Company on the foundations of the old Butler breaker; capacity, 200 tons a day.

A new breaker was also built by the Thomas Waddell Coal Company at Winton, Pa.; capacity, 500 tons a day.

Breakers Burned.

Two breakers were burned to the ground during the year. The Moosic Mount Coal Company's at **Marshwood**, and the Stroud and Chamberlain at Carbondale, neither of which will be rebuilt.

The Moosic Mount coal will hereafter be prepared for market at the Mt. Jessup breaker in Winton, which is being enlarged for this purpose. The coal formerly prepared by the Stroud and Chamberlain breaker will in the future be prepared for market by the new Boyer breaker.

Pennsylvania Coal Company.

A new shaft 12x24 feet and 55 feet deep was sunk by this company. It is used as an air shaft and also for hoisting coal from the third Dunmore vein, which is five feet thick. An exhaust fan 17½ feet in diameter, with a five-foot face, run by a horizontal engine having 14x26 cylinder has been put in.

A new tunnel was also driven from the surface to the second Dunmore vein which vein is also five feet thick.

Elk Hill Coal and Iron Company.

Completed the sinking of their Richmond No. 3 shaft from the 14-foot vein to the Clark. Also sunk their second opening from 14-foot to Clark vein, a distance of 160 feet. Dimensions 10x12 feet.

Moosic Mount Coal Company.

A new shaft was sunk by this company from the surface to the Lower Dunmore vein, a distance of 175 feet. Dimensions 14x20½.

The vein here is three feet eight inches thick.

They also drove a tunnel from the surface to the same vein, a distance of 1,000 feet. Dimensions 6x12 feet.

The tunnel will be connected with the shaft workings in course of time. In the meantime a new air shaft has been sunk to ventilate the tunnel workings.

Waddell & Son sunk a new air shaft to the Archbald vein. Depth 98 feet. Area 120 square feet.

Pancoast Coal Company.

This company sunk their main hoisting shaft, also their man shaft from the bottom split of the "14-foot" to the Clark vein, a distance of 160 feet. Dimensions of the former 10x34 feet; of the latter 10x14 feet. They are opening up the Clark vein, which is of excellent quality, and runs from five to five and a half feet thick.

Hillside Coal and Iron Company,
Scranton, Pa., April 10, 1895.

Mr. Edward Roderick,

Inspector of Mines, Scranton, Pa.:

Dear Sir: The following is a statement asked for about the drum and fan, the drawing of which I gave you some time ago:

The drum with fan attached, as shown in adjoining illustration, is for the purpose of handling coal on self-acting planes without the use of a brake, except for the purpose of holding up the trip when it ar-

MOUNT JESSUP COAL COMPANY, LIMITED

Mount Jessup Colliery.—Built new breaker at Peck shaft, started July 21, 1910. Installed one new 416 horse power Maxim boiler at Peck shaft; not yet in use.

MOOSIC MOUNTAIN COAL COMPANY

Marshwood Colliery.—Installed at shaft nest of two boilers, tubular 5 feet diameter, 14 feet long, each. Rated 100 horse power each. Carpenter and machine shop for general mine work erected at Marshwood. Reopened fan shaft; rebuilt fan house, and installed fan and engine at Marshwood.

STERRICK CREEK COAL COMPANY

Sterrick Creek Colliery.—The Sterrick Creek breaker, which was destroyed by fire October 26, 1909, was rebuilt and began preparing coal November 7, 1910. The structure is 92 feet by 107 feet, and 123 feet 6 inches in height. The entire frame of the breaker is of structural steel and the outside covering is of heavy galvanized corrugated steel, carried by steel angle studding. Fenestra steel standard window sash was used, and the breaker is usually well lighted. The old breaker was built over No. 1 shaft, and the new breaker was erected seventy feet from the shaft, necessitating the relaying and regrading of all tracks, and also the removal of both light and loaded scales.

A brick engine house, 60 feet by 48 feet 6 inches, with steel roof, has been erected, containing one pair of 20 by 42 inch Putnam-Corliss engines, which drive the breaker, the transmission being by ten wraps of 1 $\frac{3}{4}$ -inch manilla rope drive, American system. This engine house also contains one pair of 22 by 30 inch geared engines for the shaft hoist; one pair of 10 $\frac{1}{2}$ by 12 inch geared hoisting engines for the culm plane, and one 3 by 18 inch engine, with 1 $\frac{3}{4}$ -inch manilla rope drive to the head of the breaker, driving a rivetless chain conveyor, 282 feet centers, with flights 48 by 54 inch centers, which conveys the coal from a steam cross-over tip to the head of the breaker.

Adjoining this engine house and in course of erection is a brick and concrete fan house; containing a high speed fan, 10 feet by 3 feet, driven by a 14 $\frac{1}{2}$ by 15 inch automatic engine.

A new steel head frame has been erected over the No. 1 shaft.

The breaker is equipped with a B. G. Carpenter and Company exhaust fan system for removing the dust.

The breaker has a capacity of 2,600 tons per day.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held in the City Hall, Scranton, June 1 and 2. The Board of Examiners was composed of the following persons: L. M. Evans, Mine Inspector, Scranton; Frank G. Wolfe, Mining Engineer, Scranton; David R. Evans, Miner, Olyphant; William F. Malloy, Miner, Carbondale.

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