

Machinery.—They use 2 hoisting engines of 120-horse power, and 2 smaller hoisting engines of 30-horse power; they are now in the act of building a breaker, etc. I gave instructions when I last visited it to put a brake on the drum before they hoist any more men in or out of the shaft.

ROLLING MILL COLLIERY.

This colliery is located in the city of Scranton, and situated on Roaring Brook creek; it is operated by the Lackawanna iron and coal company. C. F. Mattes is general superintendent, and Evan Davis is mining boss.

Description.—The opening to the coal consists of a slope and tunnel; the slope is 1,023 feet long, and driven at an angle of 5° in a south-westerly direction; there is no breaker connected with these mines; all the coal mined here is consumed by the company's rolling mills and blast furnaces; they mine and prepare about 240 tons of coal per day; they employ 90 miners, 18 drivers, 13 door-boys and 7 company men in the mines; 1 head man, 2 drivers, 2 company men, 9 mechanics and 1 boss outside; in all 143 men and boys; they are working the Rolling Mill vein of coal, average thickness 4½ feet; they work headings 9, air-ways 30 and chambers 30 feet wide; they leave pillars 15 feet wide to sustain the roof; they leave cross-entrances 30 feet apart for the purpose of ventilation; the roof is good hard rock; the mines are in a good working condition.

Ventilation is produced by means of furnaces; the intakes are located at mouths of slope and tunnels; the area of intakes for the slope is 72, and for the tunnel 54 feet; the upcasts are located in furnace air-shafts; the area of the upcasts for the slope is 63, and for the tunnel 113 feet; the amount of air in the slope is 9,150, and in the tunnel 14,250 cubic feet per minute; the main doors are hung so as to close of their own accord; they have attendants at main doors; they have double doors on main travelled roads, and an extra one in case of an accident to any of the others; the air is conducted to the face of the workings in one volume in the slope and tunnel; the amount of ventilation has been measured and reported: ventilation is good.

Machinery.—They use two hoisting engines near mouth of slope, 40-horse power each; there is a double acting steam pump in mines, 80-horse power, and 1 feed steam pump; they have no metal speaking tube in the mines; they have an adequate brake, and flanges of sufficient strength and dimensions for safety attached to the hoisting drum; 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.

Remarks.—They have furnished a map of mines; 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 mines 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 mines; the parties having charge know their duty in case of death or serious accident; the stacks over furnace air-shafts are built of brick, 7 feet in diameter in the clear.

PINE BROOK SHAFT.

This shaft is located in the city of Scranton, and situated about 1,000 feet south-east of the Lackawanna river; it is 175 feet deep to the Clark vein; it is operated by the Lackawanna iron and coal company. Charles F. Mattes is general superintendent, Morgan Bowen is mining boss and Henry Hess is outside foreman.

Description.—There is a breaker attached to the shaft tower; they mine and prepare about 250 tons of coal per day; they employ 37 miners, 34 laborers, 14 drivers, 6 door-boys and 16 company men in the mine; 15 slate pickers, 1 head and plate man, 2 drivers, 8 company men, 6 mechanics and 1 boss outside; in all 140 men and boys. They are working the Clark vein; average thickness 6½ feet; they work headings 14, air-ways 21, and chambers 27 feet wide; they leave pillars 12 feet wide to sustain the roof; they leave cross-entrances 60 feet apart, for the purpose of ventilation; the roof is slate; the mine is in a good working condition.

Ventilation is produced by a fan and furnace; the in-take is located at mouth of shaft, area 140 feet; the up-cast is located in furnace air shaft, area 132 feet; the air shaft is located 2,700 feet south-east of main shaft, and the amount of pure air is 49,500 cubic feet per minute; inflammable gas is evolved in large quantities in this mine; the mine is examined every morning before men go to work, and every evening, to see that the main doors are closed; the main doors are hung so as to close of their own accord; they have attendants at main doors; they have double doors on main traveled road, and an extra one in case of an accident to any of the others; the amount of ventilation has been measured and reported good.

Machinery.—They use 1 breaker engine 30-horse power, 2 hoisting engines 60 horse power, 1 pumping engine 75-horse power, 1 fan engine 10-horse power, 1 donkey pump 15-horse power and 1 fire pump; they have a metal speaking-tube in the shaft; they have two safety-carriages with all the modern improvements; they have an adequate brake, and flanges of sufficient strength and dimensions for safety, attached to the hoisting drum; 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; there is a man and mule-way driven to the surface, where men and mules walk in and out; they have no house for men to wash or change in; the mining boss is a competent and sober man, and has the 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 sober men; they do not allow any person to ride on loaded carriages in the shaft; they do not allow over ten men to ride on the safety-carriages at one time; the parties having charge know their duty in case of death or serious accident; the shaft-opening is protected by safety gates.

FAIR LAWN SLOPE.

This slope is located in the city of Scranton and situated $\frac{1}{4}$ mile south-east of the Lackawanna river; it is a new slope just sinking; it is down 235 feet at an angle of 19 degrees; Hosie & Co. are sinking it; they are making preparations to build a breaker in connection with this slope.

GREEN RIDGE COLLIERY.

This colliery is located in the borough of Dunmore, lying $\frac{1}{4}$ of a mile south-east of the Lackawanna river. The opening consists of a rock slope; it is 318 feet long. It is operated by Filer & Co. Geo. Filer is general mine superintendent, Timothy Perfrey is mining boss and E. Brownell is outside foreman.

Description.—There is a breaker connected with this mine; it is located 240 feet away; they mine and prepare about 400 tons of coal per day; they employ 60 miners, 55 laborers, 18 drivers, 11 door-boys and 28 company men in the mine; 70 slate pickers, 7 head and plate men, 6 drivers, 23 company men, 4 mechanics and 2 bosses outside; in all 284 men and boys; they are working the Clark vein, average thickness 8 feet; they drive headings 14, air-ways 12 and chambers 28 feet wide; they leave pillars from 15 to 18 feet wide to sustain the roof; they leave cross-entrances 30 feet apart, and closer if necessary, for the purpose of ventilation; the roof is slate; the mine is in a good working condition.

Ventilation is produced by means of a furnace located about 560 feet from main opening; the in-take is located at mouth of slope, area 75 feet; the up-cast is located in furnace air-shaft, area 60 feet; the amount of fresh air is 22,000 cubic feet per minute; the main doors are hung so that they will close of their own accord; they have attendants at main doors; they have double doors on main traveled roads and an extra one in case of an accident to any of the others; the amount of ventilation has been measured and reported. Ventilation is good.

Machinery.—They use 2 hoisting engines, (100 feet from mouth of slope,) of 80-horse power, 1 breaker engine, (100 feet from mouth of slope—steam taken

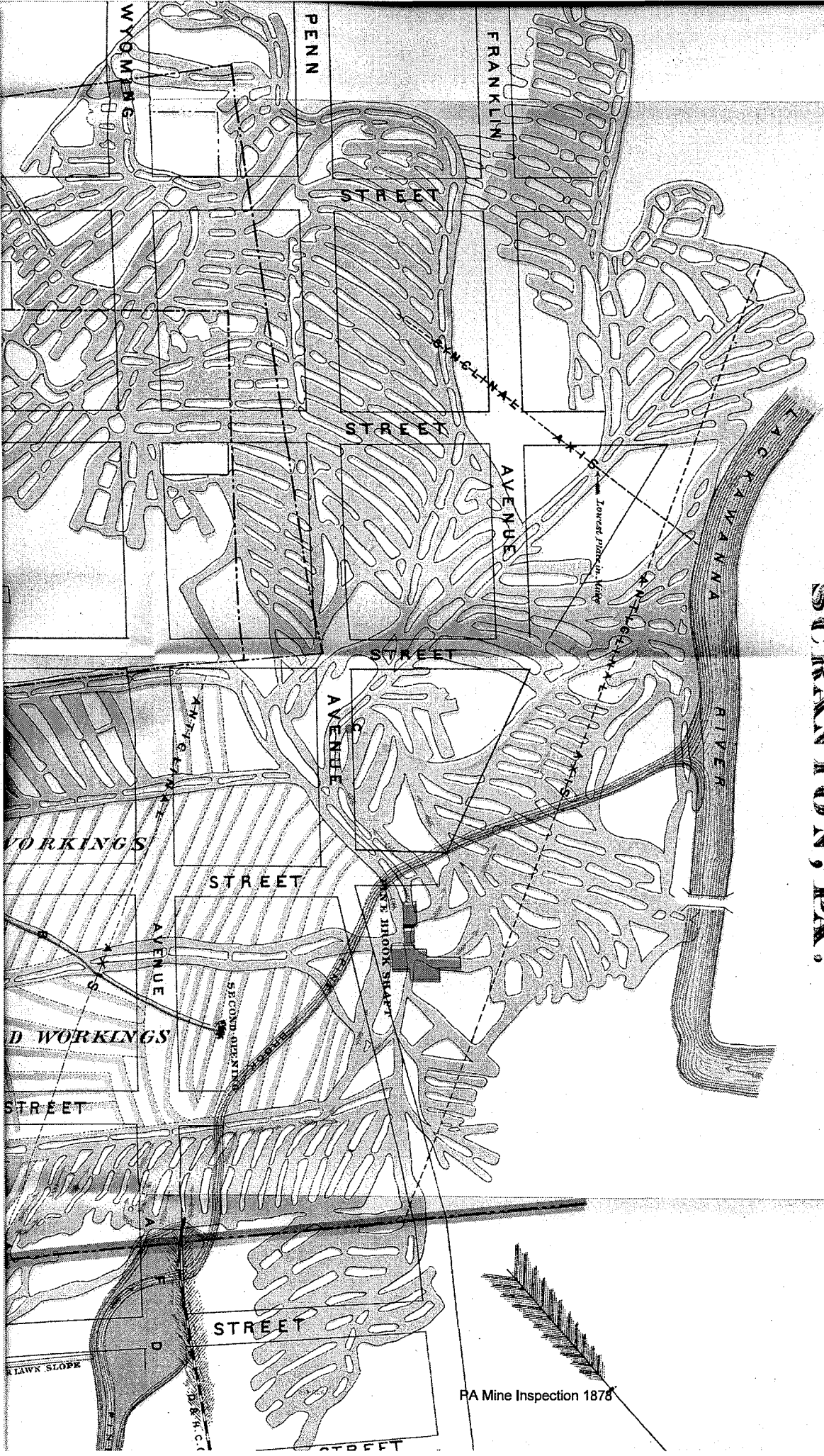
MAP

OF

PINE BROOK FAIRLAWN MINES,

Showing the FLOODING September 4th 1878,
Whereby FRANK FASSOLD was Drowned.

SCRANTON, PA.



AWANNA RIVER

Lowest Place in Mine

AVENUE

STREET

AVENUE

ONE BROOK SHAFT

STREET

SECOND OPENING

AVENUE

OLD WORKINGS

STREET

AVENUE

STREET

D. & K. C. Co. R. R.

FAIRLAWN SLOPE

NEW

VINE

OLIVE

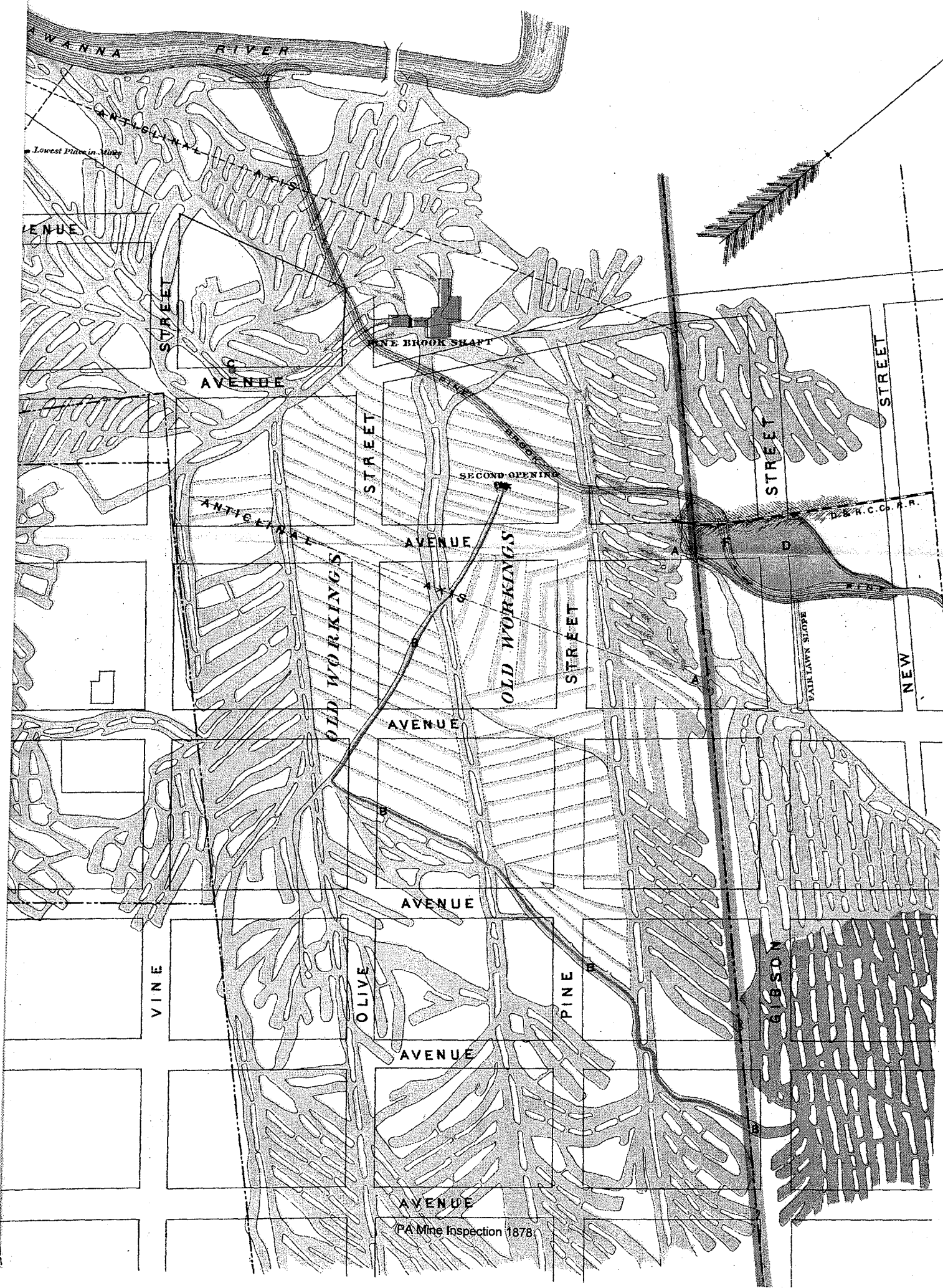
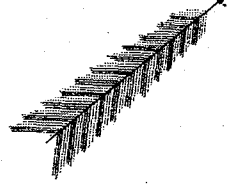
PINE

GIBSON

AVENUE

AVENUE

PA Mine Inspection 1878



Mosier Shaft Colliery.

They erected a new fan at this shaft sixteen feet in diameter by four feet face. They also placed in position three new boilers, thirty-five feet long by thirty inches in diameter.

Phoenix Shaft Colliery.

They are sinking this shaft, at present, to the lower seams of coal, and it will be in operation again about the 1st of next June.

Stetler Shaft Colliery.

This is a new shaft, located in Marcy township, Luzerne county, on the line of the Lackawanna and Bloomsburg division of the Delaware, Lackawanna and Western Railroad Company. They commenced sinking the shaft last August. The size of the shaft opening is ten by twenty-eight feet in the clear. The probable depth of the shaft will be one hundred and ten feet. The second opening shaft is ten by twelve feet in the clear.

MACHINERY.—There are two hoisting engines, two hundred horse-power; one breaker engine, eighty horse-power; and one fan engine, forty horse-power, to run a fan twelve feet in diameter by three and a half feet face. There are six boilers in place, forty feet long by thirty-four inches in diameter. The only work they are doing at present is sinking the shafts.

No. 1 Shaft, Greenwood Colliery.

This is a new shaft, located in Lackawanna township, and on the line of the Lehigh and Susquehanna division of the Central railroad of New Jersey. The shaft opening is eleven by twenty-eight feet, and they are now down to the coal, one hundred and fifty-five feet from the surface.

National Colliery.

A hoisting tower and chutes have been erected at this colliery, and the old shaft is being sunk to the No. 5 seam of coal. The shaft opening is eleven by twenty-seven feet, and it is down one hundred feet from the surface. It has cut the No. 3 or Clark seam of coal. The probable depth will be about two hundred and thirty feet.

Pine Brook Shaft Colliery.

This shaft has been sunk one hundred and twelve feet deeper from the Clark to the rolling-mill or four foot seam of coal. They have also located a circular shaft fourteen feet in diameter. It is sunk from the surface two hundred and eighty-seven feet deep to the same seam of coal. It is located two hundred feet northeast of the main shaft. The company intend erecting two fans, seventeen feet in diameter, over the opening of the second opening shaft, which will be used for an air shaft also.

Fair Lawn Sope Colliery.

This slope has been sunk eighty feet deeper to the seam of coal below the Clark.

diameter by three and a half feet face. Everything about this colliery is first-class.

Hillside Shaft.

A plane has been extended six hundred and fifty feet long and a slope three hundred feet.

Spring Brook Mines.

A self-acting plane six hundred and fifty feet long is in course of construction, and a slope three hundred and fifty feet long finished.

Pennsylvania Coal Company.

Are sinking a new shaft at Lackawanna, Old Forge township. It is down forty-five feet below the surface. They are also pumping out the water in the *Carbon Hill shaft*, preparatory to working the coal out of that property.

Dunn Colliery.

Is a new one, located in Old Forge township, about one thousand five hundred feet south of the *Sibley shaft*. It is owned by the Pennsylvania Anthracite Coal Company. There is a slope sunk to the coal, and are now sinking a shaft, which is down about fifty feet. There is also a new breaker in course of construction. Capacity, about six hundred tons per day.

Greenwood Colliery.

Shaft No. 1 is now down to the coal, and they are driving towards second opening. They have erected a new boiler, engine, and head house, and put in place new boilers and machinery. They have also built a new fan, fourteen feet diameter by four feet face.

National Mines.

The shaft has been finished and sunk to No. 5 seam of coal, which the company commenced in 1881. The second opening is not complete yet.

Pine Brook Shaft.

The second opening and air-shaft, fourteen feet circular, that was commenced in 1881, has been finished, and the company have erected over it a double or two fans on one shaft. They are seventeen and a half feet in diameter by four feet face. These fans are fastened on the same shaft, about eight feet apart. They are the first of this pattern erected in this district, and they give a larger volume of air than any others in it. The style and drawings of this fan are fully described in Mr. G. M. Williams' report of last year, page 148 to 151.

Lucas Shaft.

This is a new shaft, located at Green Ridge, city of Scranton—is owned and operated by the Lucas Coal Company, Limited. They are now working the G or big seam of coal. The shaft is 10×30 feet; depth one hundred and fifty feet to coal. The breaker is one of the largest in the val-

SCRANTON, PA., *March 24, 1884.*

The following improvements have been made in coal department of the Lackawanna Iron and Coal Company during the year 1883 :

At the **Pine Brook colliery** there has been driven a rock tunnel seven by sixteen feet, for a distance of five hundred feet at an angle of ten degrees; same has been driven from No. 4, or second, below Clark to Clark vein, cutting one vein of coal about midway. The object of this tunnel being to run all Clark vein coal to one common foot located in second vein below Clark. The tunnel or plane will be provided with double track for letting or lowering down coal in the ordinary way. Our connections have been made with old workings of Clark vein, hence with mule-way or man-way. The man-way upon the surface has been extended towards the breaker some distance by building side walls, and covering with large and substantial flag-stones, making a very complete and easy man-way from lower vein to surface. Above constitutes about all the important improvements made in coal department during year 1883.

R. G. BROOKS, *Superintendent.*

PATRICK BLEWITT, Esq.,

Inspector of Mines :

DEAR SIR: The New York, Susquehanna and Western Railroad Company have in the Lackawanna valley about seven and one half miles of railroad completed and in active operation, and about three and one half miles now under construction. When finished shipments will be made over this road from nine different collieries. Of these, the Greenwood and Sibley collieries have been for a long time in operation. The Dunn is a new operation completed during the last year at a cost of \$100,000, and is now rapidly increasing its out-put. Jermyn No. 6, also completed during the last year, is a shaft colliery, having a shaft two hundred and twenty feet deep, cutting two veins of coal, and a very fine, large breaker and commodious out-buildings have also been erected. The cost of this plant is about \$120,000. The Winton colliery is now being rapidly developed by a drift of about two thousand feet in length, one thousand four hundred feet of which have already been driven. The breaker foundations have been erected, and the timber for the breaker has been framed, and is ready to be raised. The Dolph colliery is now nearly ready for shipping coal. The plant consists of a very fine breaker and machinery, with suitable out-buildings, and the mine will be operated by a drift and inside gravity plain. The cost of development will be about \$80,000.

The Spencer colliery is partly a new operation, and being rapidly completed. The breaker has been framed and raised, and the machinery is now being put in. The mine opening consists of a shaft which has been sunk through four seams of coal—three of which are so far developed as to insure an out-put of eight hundred tons per day from the very start. Coal will doubtless be shipped from this colliery about the 1st of May. The

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 $1\frac{1}{2}$ 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'

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.

Diamond No. 2 Shaft has been enlarged from 10 x 40 feet to 12 x 40 feet from the surface to the New County vein, and extended from New County vein to the Clark vein at 12 feet by 33 feet 5 inches, and is now being sunk at these dimensions to the lower "Dunmore" veins.

A new fan has been erected, dimensions 6 x 16 feet.

Hyde Park Shaft. A new plane was driven on a grade of one and one-half inches on ten feet. Sectional area, 7 x 14 feet; length, 395 feet. Another plane was driven on a grade of one inch in ten feet; sectional area, 7 x 12 feet; length 310 feet.

Manville Shaft. A new slope of the following dimensions was driven: Length, 1,100 feet; sectional area, 84 square feet; gradient, two and one-half degrees.

Holden Shaft. A plane of the following dimensions was driven: Length, 112 feet; sectional area, 60 square feet; grade, 27 degrees.

Delaware and Hudson Canal Company.

This company is opening up No. 3 Dunmore vein, and preparing for the installation of an extensive system of tail top haulage at their "Dickson" mine.

Von Storch Mine. A plane of the following dimensions has been completed during the year: Length, 238 feet; sectional area, 14 x 7; gradient, 2 in 10.

Lackawanna Iron and Steel Company.

A tunnel has been driven from this company's "Pine Brook" mine from No. 2 Dunmore vein through a fault a distance of 820 feet, and it was intended to reach the same vein, but the vein they found resembles Dunmore No. 3.

William T. Smith.

Mount Pleasant Mine. A tunnel was driven from the four-foot to the five-foot vein; length, 200 feet; sectional area, 7 x 8 feet.

Pennsylvania Coal Company.

At No. 5 Dunmore shaft two planes have been driven, one in the Clark vein, 400 feet long, 90 square feet sectional area, 9 degrees gradient.

One in the Bottom vein 760 feet long; 90 square feet sectional area, 5 degrees gradient.

A slope is being driven in the Second Dunmore vein, and another in the Third Dunmore vein.

Three Babcock & Wilcox water tube boilers of 450 H. P. are in course of erection.

Pennsylvania No. 5 Colliery.—Erected new hay barn on the outside constructed of corrugated iron. One Duplex slushing pump 24x8x36 installed in a building constructed of corrugated iron on the outside; one 21x20 automatic engine with connections to a 240 K. W. and D. C. generator; one 8x10 McEwen generator with 100 ampere for lighting purposes. Installed on the surface in a building constructed of corrugated iron, one electric hoist, 30 H. P., to handle coal in the No. 1 Dunmore vein in the old No. 2 shaft section. At old No. 2 shaft one 18-foot fan was installed in a building constructed of corrugated iron, to ventilate the Clark No. 1 and No. 3 Dunmore veins. One electric hoist, 25 H. P., installed in No. 1 Dunmore vein to handle coal on slope. One electric hoist, 25 H. P., installed in No. 3 Dunmore vein to handle coal on slope.

Gipsy Grove Colliery.—Old Gipsy Grove breaker destroyed by fire on April 27, 1911. Erected a new head frame and constructed coal pockets of concrete and corrugated iron, from which the coal from the Gipsy Grove mine will be dumped and conveyed to the Pennsylvania No. 1 breaker. Erected a new engine house, carpenter shop and wash-house of wood on the surface.

SCRANTON COAL COMPANY

Pine Brook Colliery.—A rock tunnel 6x12x92 feet long on a pitch of 45 degrees was driven through fault from Dunmore No. 2 vein connecting Dunmore No. 2 vein. A rock tunnel 7x12x240 feet long on a pitch of 2 degrees was driven from Dunmore No. 2 vein connecting Dunmore No. 1 vein. Sunk a shaft for second opening 10x10x30 feet deep from Dunmore No. 1 to Dunmore No. 2 vein. Erected concrete fireproof barn. All pump-rooms, engine houses, emergency hospitals and foremen offices inside of mines are of incombustible material.

Mount Pleasant Colliery.—Erected new fireproof barn of iron and concrete. All pumphouses, engine houses, emergency hospitals and foremen offices inside of mines are of incombustible material.

West Ridge Colliery.—Erected a new second opening provided with 360 feet of steps to be used in an emergency in case the steam plant is put out of commission. Cleaned up and provided a new return airway along side of slope, 2,000 feet long, as a traveling way for men and mules.

Also added during the year fire escapes to the breaker, beginning in the tower and continuing down on the outside of the breaker to the ground; also installed other escapeways from the screen rooms making two escapes from this point.

PRICE-PANCOAST COAL COMPANY

Pancoast Colliery.—All barns, engine houses, pump-rooms and air-bridges have been made absolutely fireproof. Fire escapes have been built on both sides of the breaker. A tunnel has been driven from Dunmore No. 4 vein connecting with Dunmore No. 2 vein as an additional outlet from both veins and traveling way. Two 6-inch bore holes have been sunk from the Surface to the Clark vein 430 feet deep for slushing culm into the old workings. One new No. 10 Knowles pump has been installed at the No. 2 Dunmore vein to help take care of the extra water caused by slushing.

THE SPENCER COAL COMPANY

Spencer Colliery.—Ventilation good. Drainage and safety conditions fair.

CARNEY AND BROWN COAL COMPANY

Carney and Brown Colliery.—Ventilation, drainage and safety conditions fair.

BULL'S HEAD COAL COMPANY

Bull's Head Colliery.—Ventilation, drainage and safety conditions fair.

CLEARVIEW COAL COMPANY

Clearview Colliery.—Ventilation and safety conditions fair. Drainage good.

NO. 6 COAL COMPANY

No. 6 Colliery.—Ventilation and drainage fair. Safety conditions good.

IMPROVEMENTS

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Diamond Colliery.—Erected a new annex to the breaker. Installed boiler feed pump, four flat slate-pickers, rock pulverizer and fuel conveyor.

Brishin Colliery.—Rock tunnels were driven from Rock vein to Big vein; New County vein to Big vein; Four-Foot vein to Five-Foot vein. A duplex pump and 2 Jeffrey coal-cutting machines were installed.

Cayuga Colliery.—Erected new wash-house and new fan engine-house. A new fan 18 feet by 6 feet by 5 feet 6 inches was installed. Rock tunnel plane was driven from Clark vein to Diamond vein.

PENNSYLVANIA COAL COMPANY

Pennsylvania No. 1 Colliery.—Rock plane was driven 300 feet from the Fourteen-Foot vein up through the fault to the Fourteen-Foot vein above. Erected the following concrete fireproof buildings inside the mine: Mule barn, barn-boss's house, motor-house, foreman's office and hospital.

Additional slate-pickers were installed in the breaker.

SCRANTON COAL COMPANY

Pine Brook Colliery.—Installed 45 horse power electric hoist in the West tunnel. Tunnel was driven from Dunmore No. 2 vein to Dunmore No. 1 vein on the head of No. 4 plane, for a return airway from Dunmore No. 1 vein.

West Ridge Colliery.—Removed 400 feet of roof for grading purposes.

Mt. Pleasant Colliery.—Tunnel was driven from Dunmore No. 3 vein to Dunmore No. 2 vein for transportation purposes.

Nay Aug Drift.—Ventilation good. Drainage and safety conditions fair.

Nay Aug No. 3 Drift.—Ventilation good. Drainage and safety conditions fair.

CARNEY AND BROWN COAL COMPANY

Carney and Brown Colliery:

Carney and Brown Slope.—Ventilation, drainage and safety conditions fair.

NO. 6 COAL COMPANY

No. 6 Colliery:

No. 6 Slope.—Ventilation and drainage good. Safety conditions fair.

IMPROVEMENTS

PENNSYLVANIA COAL COMPANY

Pennsylvania No. 1 Colliery.—Extensive repairs are being made to the breaker to make it more efficient.

A hospital on the surface has been provided.

In the Clark vein slope electric haulage has been substituted for mules.

Hospitals have been built in both the Marcy and Clark slopes. Electricity has been introduced into the workings at No. 2 shaft, the motor being placed in the 3rd Dunmore vein. Also installed a hoist and substation. In the 2nd Dunmore vein an electric hoist has been installed to haul the coal to the dip. An electric motor barn of fire-proof construction has been built in the 3rd Dunmore vein.

Pennsylvania No. 5 Colliery.—1,000 feet of pipe line have been laid and a pump installed outside to pump the slush from the breaker into the old abandoned workings.

A hospital on the surface has been provided.

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Diamond Colliery.—Installed a new 18 by 16 foot ventilating fan. A new steel tower has been built over Tripp shaft and a rock plane driven from Rock to Diamond vein.

Installed one 7-ton electric locomotive, a rock crusher, boiler feed pumps, and four flat slate-pickers.

A second opening has been driven between No. 3 and No. 2 Dunmore veins.

A new steam line has been laid between boiler plant and shaft.

A surface hospital and a new wash house are being provided.

SCRANTON COAL COMPANY

Pine Brook Colliery.—A rock plane 7 by 14 feet was driven from No. 2 Dunmore vein to No. 1 Dunmore vein, a distance of 375 feet. This was done to shorten the haulage and to develop No. 1 Dunmore vein.

A second opening, 80 feet long, was driven through the strata between No. 2 and No. 1 Dunmore veins at an angle of 45 degrees. This

not only acts as a second opening, but also improves the ventilation. An air bridge or air "cross over" was cut in the rock in the west tunnel section in the Dunmore No. 1 vein, 6 by 12 feet by 37 feet, which gives an additional split of air in that section.

Mount Pleasant Colliery.—A rock plane from the 3rd or China vein to No. 1 Dunmore vein has been driven and fully equipped.

PRICE-PANCOAST COAL COMPANY

Pancoast Colliery.—Installed one steam duplex pump, 28 by 14 by 24 feet in No. 3 vein to pump water to surface. Steel support substituted for timber on foot branch in Dunmore vein.

A rock tunnel 90 feet long was made from Clark to New County vein for ventilation and second opening.

Engine plane 1,000 feet long was made from Clark into New County vein for transportation.

Installed one double inlet Jeffrey exhaust mine fan 20 by 7 feet, and one 28 by 28 inch Ridgway engine.

A surface hospital has been provided.

SPENCER COAL COMPANY

Spencer Colliery.—No. 1 and No. 2 shafts have been retimbered and a new tower built at No. 2 shaft. The tower at No. 1 shaft was cut down 20 feet during the year.

A surface hospital has been built, the washery retimbered and a new 125 H. P. engine installed in the washery to replace four small engines.

NAY AUG COAL COMPANY

Nay Aug Colliery.—Installed a 100-ton loading scale, jigs for egg, stove and nut coal, and new grates, blowers and boilers. A new washhouse has also been built.

CARNEY AND BROWN COAL COMPANY

Carney and Brown Colliery.—A rock tunnel was driven through 150 feet of fault in the Clark vein.

CARNEY AND BROWN COAL COMPANY

Carney and Brown Colliery:

Carney and Brown Slope.—Ventilation, drainage and safety conditions, fair.

NO. 6 COAL COMPANY

No. 6 Colliery:

No. 6 Slope.—Ventilation and drainage good. Safety conditions, fair.

IMPROVEMENTS

PENNSYLVANIA COAL COMPANY

Pennsylvania No. 1 Colliery.—A rock tunnel 5 by 7 feet and 250 feet long, was driven from the First Dunmore vein, No. 1 shaft, to the First Dunmore vein, through faulty ground, for the purpose of ventilation.

No. 5 Colliery.—Brick building erected, 41 by 150 feet, to take care of outside stock. A new and more modern pump room was finished in Third Dunmore vein near foot of shaft.

A rock tunnel about 500 feet long and 7 by 10 feet in cross-section was driven from the Third Dunmore vein through an upthrow in the Bunker Hill section.

Underwood Colliery.—This colliery was placed in operation April 28. The work of construction has been going on during the year. The boiler plant, power plant, engine house and other necessary buildings are about completed.

SCRANTON COAL COMPANY

Pine Brook Colliery.—Installed 300 Maxim water tube boiler.

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Diamond Colliery.—Built new washhouse and sub-station. Installed one 7-ton electric locomotive with reel, etc.

PRICE-PANCOAST COAL COMPANY

Pancoast Colliery.—A tunnel 600 feet long was driven from No. 3 to No. 2 vein.

NAY AUG COAL COMPANY

Nay Aug Colliery.—Built new washhouse. Also built addition to mule barn outside. Installed Hayes derailer above breaker as a safety precaution. A First Aid team was trained in the Y. M. C. A. and Bureau of Mines car.

SPENCER COAL COMPANY

Spencer Colliery.—Installed electric hoist in No. 1 shaft, 100 H. P. motor to replace steam hoist. Installed four 30 H. P. motors in mines, and new rotary pump for washery. Concreted 40 feet of No. 1 shaft from No. 1 to No. 2 Dunmore vein. Built 100 feet of new trestle and new scraper line at breaker.

CARNEY AND BROWN COAL COMPANY

Carney and Brown Colliery.—A second opening driven from Marcy vein to surface, a distance of 150 feet. A new hoisting tower was erected.

PA Mine Inspection 1914