

GREENWOOD BREAKER COLLIERY.

This breaker is located in Lackawanna township, and situated $\frac{1}{2}$ mile southeast of the Lackawanna river; it is operated by the L. S. C. & I. Co. Thomas B. Williams is general superintendent, William Eynow is mining boss and M. L. Corne is Outside foreman.

Description.—The coal that is prepared at this breaker is mined at No. 6 tunnel, which is situated about $\frac{1}{2}$ mile south; they mine and prepare from 200 to 300 tons of coal per day; they employ 37 miners, 31 laborers, 19 drivers, 7 door-boys and 7 company men in the mine; 38 slate pickers, 5 head and plate men, 7 drivers, 6 company men, 5 mechanics and 2 bosses outside; in all 164 men and boys; they are working the "Old" vein; average thickness $6\frac{1}{2}$ feet; they work headings 15, air-ways 15 and chambers 27 feet wide; they leave pillars from 8 to 14 feet wide to sustain the roof; they leave cross-entrances 60 feet apart for the purpose of ventilation; the roof is good; the mine is in a good working condition.

Ventilation is produced by a furnace; the in-take is located at mouth of tunnel, area 50 feet; the out-cast is located in furnace air-shaft, area 50 feet; the main doors are hung so as to close of their own accord; they have attendants at main doors; the amount of ventilation has been measured and reported; ventilation is good.

Machinery.—They use 1 steam engine at the breaker of 40-horse power; the breaker machinery is boxed and fenced off so that operatives are safe; they use no machinery at the tunnel.

Remarks.—They have furnished a map of mine; they have a second opening; they have no house for men to wash or 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; the parties having charge know their duty in case of death or serious accident.

STAFFORD BROOK COLLIERY.

This colliery is located in Lackawanna township and situated 500 feet southeast of the Lackawanna river. It is operated by the W. V. R. R. and coal company. William Connell is general superintendent, James Connell is mining boss and W. Thomas is outside foreman.

Description.—The opening to the coal consists of a shaft and two tunnels; the shaft is 70 feet deep to No. 2 vein, which is the bottom bench of the Big vein; there is a breaker connected with these mines; they mine and prepare about 200 tons of coal per day; they employ 41 miners, 10 laborers, 24 drivers, 4 door-boys and 19 company men in the mines; 20 slate pickers, 4 head and plate men, 4 drivers, 11 company men, 4 mechanics and 2 bosses outside; in all 143 men and boys; they are working the No. 2 vein of coal; average thickness about 8 feet; they work headings and air-ways from 12 to 15 and chambers 25 feet wide; they leave pillars about 15 feet wide to sustain the roof; they leave cross-entrances about 60 feet apart for the purpose of ventilation; the roof is rock; the mines are in a good working condition.

Ventilation is produced by furnaces; the intakes are located at mouths of tunnels; area about 96 feet; the outcasts are located in furnace air shaft; area about 96 feet; the amount of pure air is 23,200 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 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 one breaker engine of 25-horse power and one hoisting engine of 40-horse power; 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; there is no machinery required at the tunnels.

Remarks.—They have furnished a map of the mines; they have second openings; they have a house for men to wash and change in; the mining boss seems to be a practical and competent man; he has a fire-boss to assist him; there are no boys working in the mines under twelve years of age; the engineers seem to

angle of inclination is $9^{\circ} 35'$. The slope was driven part of the way through coal, at a cost of \$364, but there were $28\frac{3}{4}$ yards of rock to cut, from nought up to eight feet, which cost \$283 33, and 77 yards driven through sandstone, which cost \$3,080. The whole cost for sinking the slope was only \$3,952 33. They have a pair of engines, 13-inch cylinder and 18-inch stroke; estimated horse power, 50; the size of their drum is six feet diameter, which has an approved brake attached to it. There is no second opening to the slope, but they are driving for one toward No. 1 drift, and expect to make a connection soon.

OTHER NEW OPENINGS AND CONNECTIONS.

The Delaware, Lackawanna and Western railroad company have made connections between the Hampton shaft and the Oxford shaft, at Hyde Park, and between Tripp's slope and the Brisbin shaft, in the Third ward, Scranton. They have also sunk an air shaft, at Hyde Park, into the workings of the Oxford shaft, and connects also with the Hampton shaft workings. A fan is to be placed at this air shaft which will assist in ventilating both collieries named.

The Pennsylvania coal company have completed a new slope at No. 1 tunnel, in Pittston township, which is intended for hoisting coal. They have also made a second opening for No. 4 slope, in Jenkins township, which is to be used also for ventilation; and the workings of old No. 10 shaft in the 14-foot seam, have been connected with the new No. 10 shaft, in Pittston. No. 2 shaft, Dunmore, was sunk to the lower seam.

The Delaware and Hudson canal company have made a connection, in the 14-foot seam, between Marvine and Leggetts Creek shafts, Providence; and at No. 1 shaft, Carbondale, an air shaft has been sunk, and two more air shafts at No. 3 shaft, and still another at the Coal Brook colliery. These air shafts are only poor-make shifts, unless mechanical means are used to produce ventilation. There are too many of them in Carbondale. What is needed there is a system of air courses inside of the collieries.

At the Filer colliery, Winton, a drift has been driven from a ravine into the workings, for a traveling way for the men to go to and from their work. A new drift has been opened at the Greenwood colliery for mining coal, and the same company have made an additional opening for coal at the Sibly colliery, in Old Forge township. An opening has been made at the Green Ridge slope for ventilation. The above are all the openings and connections made in the district during the year, so far as I am informed.

IDLE AND ABANDONED COLLIERIES.

The Archbald shaft, Lackawanna township, and Oxford shaft, Hyde Park, owned by the Delaware, Lackawanna and Western railroad company, were idle all through the year; the last work done at the Hyde Park shaft was done in February, and the Scranton coal company's drifts at Bellevue were idle. Bellevue slope and shaft worked only $22\frac{1}{2}$ days.

No. 1 shaft, Pittston township, owned by Pennsylvania coal company, was idle; No. 2 and No. 3 shafts were abandoned as hoisting shafts, and are now used as pumping shafts.

The Marvine shaft, Providence; Powderly slope, Carbondale township, and Breaker, Forrest and Jefferson tunnels, Carbondale City, all owned by the Delaware and Hudson canal company, were idle.

The following collieries have also been idle: Rolling Mill colliery, Scranton, consisting of a slope, tunnel and drift; the Ontario colliery, Pleasant Valley, and the Heidelberg colliery, Pleasant Valley. Spring Brook No. 1

Of the smaller companies and operators, I have two to report who have replaced furnaces with fans during the year. Messrs. Jones, Simpson & Co., have put in a twelve feet diameter fan at the Pierce colliery, in Archbald borough, and Messrs. William Connell & Co. have replaced their furnace with a fourteen feet diameter fan, which commenced running October 28, 1879. The Butler Coal Company have replaced a six feet diameter Patterson fan with a sixteen feet Guibal fan, and the little one has been removed to the Twin shaft, Pittston Coal Company, and the Hillside Coal and Iron Company have removed their fan from the Powder Mill shaft, in which the coal is exhausted, to a new air shaft sunk for the Spring Brook tunnel.

All the miscellaneous collieries are in a satisfactory condition at present, excepting the following: Jermyn's shaft and slope, Jermyn borough; Eaton colliery, Archbald borough; Filer colliery, Winton borough; Greenwood colliery, Lackawanna township; Hillside colliery, Pleasant Valley borough; Columbia mines, Pittston township, and the Beaver mines, Pittston borough. The first three named, the Greenwood, and the two last named, are the only very bad ones, and each of these must receive particular attention during the current year. The larger number of the collieries of the small operators, are in very good condition as to ventilation.

Taking the whole of my district, I think that it can be safely said, that the progress made during the year in bringing the condition of the collieries up to what it should be, is highly encouraging and satisfactory, and the work accomplished can be taken, no doubt, as an assurance that what is still wanting, will be done in due time.

Prosecutions for Violations of Law.

It is one of the most unpleasant duties of the position of an inspector, that he feels compelled, in certain instances, to enter criminal proceedings against mine bosses or workingmen, for violations of law. I have often felt that I would prefer to suffer the penalty myself than do this, if I could escape my oath-bound duty by doing so. Whenever I have been forced to prosecute, I have done it "with malice towards none and charity towards all," and have never asked the courts to inflict any but a nominal punishment. But I have been sorely grieved at the course pursued by the operators, superintendents, and workingmen, in defense of the unfortunate parties prosecuted. I do not complain at their availing themselves of all legal and honorable means in defense of the accused, but when they assail the motive of the inspector, and attribute his action to a feeling of spite and a desire for revenge, in retaliation for some real or imaginary wrong they may be conscious of having perpetrated against him, they make the cross a very heavy one to bear. I cannot account for this, only as a verification of the old maxim, that "The guilty fleeth when no one pursueth him." But it grieves me that any one, who claims an intimate acquaintance with me, can imagine it possible for me to be capable of indulging in a low and mean desire for retaliation and revenge; for I thank God that

been abandoned. They are also developing the Marcy vein at No. 4, and No. 11 shafts, in Jenkins township. But the main enterprise of the year, was the sinking of the Barnum shaft, on what is known as the Waddell farm, near Pittston. This shaft is one hundred and seventy-three feet and five inches in depth, from the top of the stone work at the surface, to the bottom of the "fourteen feet" vein, and is forty-seven feet long by twelve feet wide in the clear, giving a sectional area of five hundred and sixty-four square feet. It is to be divided into six compartments, one, eight feet five inches by twelve feet for an upcast, four hoisting ways, six by twelve feet each, and a pump-way, twelve feet square.

The sinking was commenced in October, 1878, by the company, who drove it down 36.5 feet by day labor. The balance of the work was done under contract, by James C. Smythe & Co., between the 1st of July, 1879, and January 1, 1880. The nature of the strata penetrated by the shaft is as follows: First, There is earth, slate, and rock for 49 feet and 5 inches, when a vein of coal three feet thick is met with; then there is 63.75 feet of fire clay and rock to the "seven feet" or "checkered" vein, which, at this point, proves to be 11.33 feet thick, and is said to be of good quality; then there is 27 feet and 11 inches of rock to the top of the "fourteen feet" vein, which, however, at this point is only 9 feet thick.

No timber is yet on the ground for the breaker, and it is, therefore, rather premature to venture any prediction as to what its capacity will be when built, but it is not likely to be less than one thousand tons per day. The time when shipping of coal will commence cannot at present be approximated, as there is a vast amount of work yet to be done before the colliery will be ready to commence operations; and the dispatch with which the work is driven will depend, in a great measure, on the demand for coal. They must make their connection with their second opening, which is eight hundred feet distant in both veins, and must drive their gangways, &c., in each vein before they can do much in the way of shipping coal.

The second opening is another new shaft eight hundred feet distant from the main shaft which is now being sunk, but is not yet over half way down. There is a large tract of land to be worked through these shafts; but the number of acres cannot be stated, as there are other collieries that will take in more or less of the territory. But it is very evident that when this colliery is completed and opened, it will be the model colliery of the company.

The Butler Coal Company is about to sink a new shaft, and the Lehigh Valley company is commencing to sink a shaft on their property adjoining the Butler colliery, in Pittston township; and the Pennsylvania Anthracite Coal Company are also sinking a shaft at their Greenwood colliery, in Lackawanna township, but neither of these are yet anywhere near the coal.

An Association of Mine Bosses Recommended.

There are about one hundred and fifty mine bosses, mine superintendents,

charged to the account of years in the past, long before Mr. Vandling assumed the control of the mines, and this fact should be credited to him. He has always been found ready to admit the necessity of improving the mines, and has shown a desire to do everything possible for the health and safety of the workmen.

The Pennsylvania Coal Company's collieries stand about as they did one year ago. No material improvement has been effected in any of their old collieries. The new No. 1 Barnum shaft, however, is provided with a fan which will produce ample ventilation for this new colliery, and another fan will be provided for the No. 2 shaft. I am very sorry that I cannot report all the collieries of this company in as good condition as could be wished. John B. Smith, Esquire, the general agent of the company, has always treated me with uniform kindness, and has always professed a desire to improve the condition of the mines under his charge; but the mine superintendents have not seemed so ready to do what is needed. My remarks on the condition of these collieries in my report for 1879, will apply to them still.

The collieries of the smaller companies and operators in the district are in excellent condition as to ventilation, excepting the following: Everhart colliery, Jenkins' township; Beaver colliery, Pittston borough; Columbia mines, Pittston township; Hillside colliery, Pleasant Valley borough; Greenwood colliery, Lackawanna township; Elk Hill colliery, Dickson City borough; Filer colliery, Winton borough; Jermyn's shaft and slope, Jermyn borough; Brennan colliery, Fell township; and Forest City colliery, Forest City. Some of these have been improved during the year, but none of them will ever have good ventilation until they are provided with a fan in place of the miserable furnaces now in use in them. The workings are so shallow in these collieries that furnaces cannot ventilate them. None of these can be classed as very bad, excepting the Jermyn shaft and slope and the Brennan colliery.

An air shaft has been sunk for the Hillside colliery, Pleasant Valley, and as soon as connection is made with the workings a fan will be placed on this shaft, which will remove all cause for complaint in this case.

A new fan has been erected by Messrs. Jones, Simpson & Co., at the Eaton colliery, Archbald borough, which was sorely needed. This improvement will place the Eaton colliery in the first class as soon as the air courses are put in proper shape inside.

The main roads and traveling ways have been improved in many of the collieries, but there is a great deal yet to be done before they are all satisfactory in this respect. The importance of having clean and unobstructed roads is not realized by many of the mine bosses, but I am more convinced of it every day, and I am positively certain that many accidents to drivers and runners would be averted if the roads were kept reasonably clear of obstructions. All places where drivers are obliged to hitch and unhitch their mules from cars in motion, such as passing branches, the approaches to the foot of shafts or slopes, and inside at the chambers, should be cleared

if needed at any time, they can, by building a strong partition, cut off a hoisting way in the slope without interfering with its safety as a traveling way.

The plans for hoisting and breaker engines and other necessary machinery are not yet fully completed, but I am assured by Fred. Mercur, Esq., the general superintendent of the Lehigh Valley company, that this new colliery shall not bring discredit on my district. From the reputation of the company and that of Mr. Mercur, I have no fear but the colliery will be first class in all its parts when completed. My present understanding is, that the old Heidelberg breaker will be fitted up with improved machinery, and that the coal will be run on the surface from the shaft to this breaker for preparation for market. The shaft and slope have been sunk without a single accident, which is very gratifying.

GREENWOOD SHAFT.—In my report for 1879 I mentioned that the Pennsylvania Anthracite Coal Company proposed sinking a shaft at the Greenwood colliery, in Lackawanna township. They commenced sinking the shaft in January and suspended work on it in July, 1880, after sinking it one hundred feet deep, leaving thirty-five feet yet to go to strike what is known as the No. 4 vein. The shaft is eleven by twenty-eight feet, and the cause of its abandonment is not known outside of the parties in charge. It is my humble opinion that it was a great mistake to put a shaft down where this is located, for the great body of the coal lays to the dip from the shaft. Two shafts should have been sunk at the lowest practicable point on the property, near the breakers, which would open up the whole property at once and put it in good shape. But it is to be presumed that those in charge have reasons which are satisfactory to them for locating the shaft where it is, and it may not be justifiable to doubt their wisdom. I certainly do not desire to interfere with their affairs in any manner, but I would like to see the company prosper. It is not known when the sinking of the shaft will be resumed.

NEW TWIN SHAFT.—This new shaft is located close to the junction of the Lackawanna and Bloomsburg and Lehigh Valley railroads at Pittston, and sunk by the Pittston Coal Company. It has an area of one hundred and forty (140) square feet which is to be divided into two equal sized hoisting ways, and the shaft is two hundred and nineteen (219) feet deep to the bottom of the "Marcy" or "Clark" vein. This will be hereafter the main shaft and the downcast for ventilation, the old shaft being the upcast upon which it is proposed to erect a good sized fan in place of the small one now in use. The old shaft will also be the second opening and is already in communication with the new shaft. The coal at this point is from four and a half to five feet thick and of excellent quality, free from slate and bone. There are one hundred and forty-five acres to be worked, and a large part of the land, judging from adjacent collieries, is underlaid with coal of an average thickness of ten feet. The fourteen feet and seven feet veins have been exhausted through the old shaft. From a point near the foot of the

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-

COLLIERY IMPROVEMENTS FOR 1883.**Everhart Mines.****P. BLEWITT:**

DEAR SIR: We have made the following improvements at this colliery since we took possession in April, 1883: Sunk slope opposite breaker two hundred and sixty-eight feet to basin of Macey seam; opened tunnel near plane at breaker (is in about fifty feet) to same seam coal, five feet thick bottom part, with four feet fire-clay parting, and four feet top coal above; put in three new boilers at old slope, also put one new hoisting engine at the slope near breaker; built and bought forty new mine cars; erected trestle work one hundred and fifty feet long over main track to slope near office; have driven through fault on north side, find a good vein of clean coal eight feet thick, opened airway and traveling road to same.

ALLEN & POOLE,
Operators.

Fairmount Shaft.

Have sunk main shaft 16'×13' to the bottom or Red Ash seam two hundred and twenty-feet, and have commenced second opening shaft 8'×10', which was partly sunk in 1882; have put in a new safety-carriage, making two in main shaft; also got one-and-one-fourth-inch new wire rope in place of old one-and-one-eighth-inch.

A. MORRIS & Co.

Florence Shaft.

This has been finished, and it is in good working condition.

Stetler Shaft.

There has been a new slope finished in the mines, also the air-currents have been changed, making an improvement in ventilation.

Spring Brook Mines.

There has been a new breaker built at this mine, with a capacity for preparing and shipping six (600) hundred tons of coal per day.

Dunn Colliery.

Has been completed and is in good working condition.

Greenwood Colliery.

All the improvements are completed in No. 1 shaft, and are now sinking a slope on the north-west side of shaft.

Sibley Colliery.

Has been improved by putting in an additional steam-pump and four more steam boilers.

National Mines.

There has been a connection made between the shaft and slope, which is used for a second opening.

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

The Seneca shaft was extended to the Red Ash vein, a distance from the surface of 492'. The second opening has been completed in this vein with the Ravine shaft.

Greenwood Coal Company (Limited).

A new shaft 11'x26' was sunk by this company, from the surface to the "New County" and Dunmore No. 2 vein, a distance of 232'. The shaft is located convenient to the breaker, and opens a large field of coal which could not be got conveniently from the old shaft. A new 17-foot fan has been erected on this shaft to ventilate the workings of both seams. A slope was extended from the surface down to the seams for second opening. A new shaft was sunk by this company on the lands of the east-side "Bondholders" near the intersection of the C. R. R. of N. J. with the Delaware and Hudson Canal Company at Minooka, Lackawanna county. The breaker was completed in July, 1889, and has a capacity of 800 tons per day. It had not started to prepare coal for market at this writing.

Butler Mine Company (Limited).

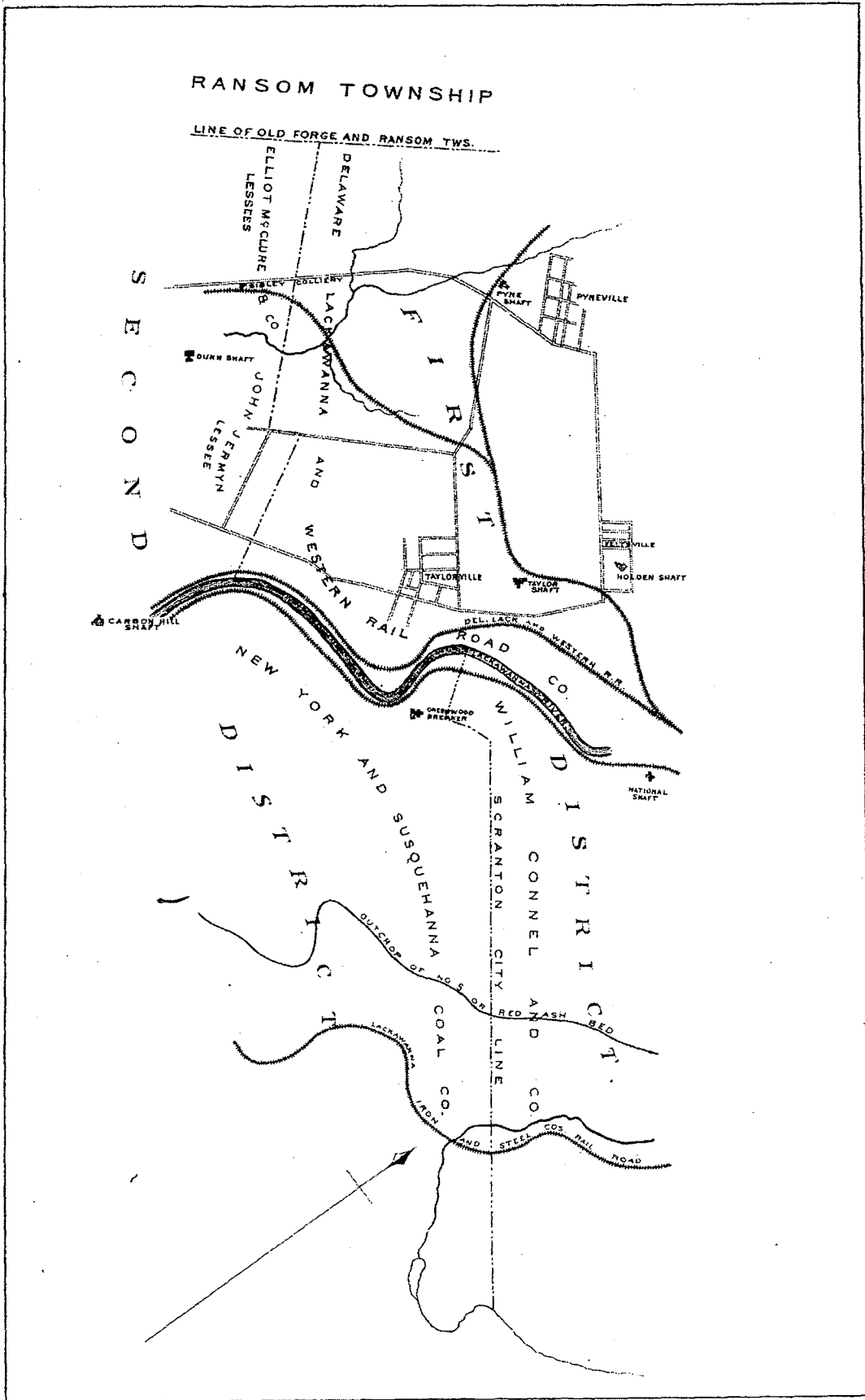
At the Schooley colliery a new 18-foot Guibal fan was erected on a part of the second opening. This makes the second fan used in ventilating these shaft-workings, which gives very good results.

Avoca Coal Company.

The old Swoyer shaft located in Avoca borough, and which was abandoned for a number of years, has been re-opened by this company. The shaft is 11'x19', depth 70', sunk on the Stark vein. The workings are ventilated by the consolidated fan which is connected with the workings of this shaft. A new breaker has been built to prepare the coal for market, with a capacity of 400 tons per day. It is heated throughout by steam, and everything in and around the breaker is in as safe a condition as possible.

Lancliffe Coal Company.

The old No. 12 shaft which was sunk to the Red Ash seam located in the borough of Avoca, has been re-opened by this company after having been abandoned for a number of years. They are mining the bottom split of the vein which was left by the Pennsylvania Coal Company, who mined the upper seam. The rock between the seams is very thin, so that great care will have to be exercised with the roof so as to keep it up as they advance. A new 15-foot fan has been erected on the shaft to ventilate the workings. A new breaker, having a capacity of 600 tons per day, has also been built to prepare the coal for market. It is heated by steam and all the dangerous parts of the machinery boxed, or fenced off.



The old frame tower on coal shaft has been replaced with a substantial structure of yellow pine.

The steam plant consisting of 18 cylinder, 1 return tubular and 1 return porcupine boiler is being replaced with sterling boilers. This work is now under way, four batteries of sterling boilers being in place.

Babylon Colliery.—A tunnel has been driven from the middle to bottom split of Red Ash vein, near foot of shaft.

JERMYN AND COMPANY

Jermyn No. 2.—Slope driven from outside to the Top vein.

Jermyn No. 1.—Installed Jeanesville pump at Jermyn No. 3, 3,500 gallon capacity.

Removed four tubular boilers from Jermyn No. 3 to No. 1 boiler plant, thereby making one plant of tubular boilers instead of heretofore three tubulars and three cylinders at No. 1 and four tubulars at Jermyn No. 3.

A slope 300 feet long was driven from Clark vein to 1st Dunmore vein for ventilation and transportation.

Tunnel driven from No. 1 to Jermyn No. 3 in the Baltimore vein.

PENNSYLVANIA COAL COMPANY

The new breaker that was being built in 1903 started up work on February 1, 1904. There is being built at present a new steam plant at the breaker, Sterling boilers, capacity 1,704 horse power, to replace the 900 horse power Babcock and Wilcox boilers, these to be removed elsewhere.

ELLIOTT, McCLURE AND COMPANY

Installed rope haulage in the Clark vein. Enlarging the second opening which has resulted in a great improvement in the ventilation. The operation of small pumps and engine in No. 1 Dunmore vein by compressed air.

A new Jeanesville compound duplex pump 17x28x16x36 inch, located in the Clark vein now pumps all the water to the surface.

The cribbing in the up-cast has been replaced by 22 feet of concrete.

They have also erected four stacks 48 inches by 80 feet, furnishing them with good draft for their boilers.

DELAWARE AND HUDSON COMPANY

Greenwood No. 2.—Rope haulage road No. 1 driven 1,200 feet to
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old workings of **Greenwood** No. 1 in No. 8 drift. Rope haulage road No. 2 driven 300 feet to its limit. No. 2 slope, Checker vein extended 900 feet.

Spring Brook.—No. 2 slope Red Ash vein driven 300 feet to limit of workable coal. No. 1 plane Red Ash vein extended 350 feet.

JERMYN AND COMPANY

Jermyn No. 1 Colliery.—The main shaft was sunk from No. 2 Dunmore to No. 3 Dunmore, a distance of 55 feet. A "Tail Rope" engine was installed outside to haul coal up slope to outside from top vein and east middle vein. No. 3 or Nickle Plate shaft was recribbed.

Jermyn No. 2 Colliery.—A slope was driven from Marcy vein to Clark vein, a distance of 300 feet on a 12 degree pitch. A rock plane tunnel was driven from Dunmore No. 2 vein to Clark vein, a distance of 328 feet on a pitch of 17 degrees.

DELAWARE AND HUDSON COMPANY

Greenwood Colliery.—No. 2 slope in Checker vein extended 430 feet for development. New drift to New County vein opened, and surface railway constructed from mouth of same to head of No. 2 slope. Bore hole 256 feet deep put down for compressed air.

ELLIOTT, McCLURE AND COMPANY

Sibley Mine.—The shaft has been sunk 115 feet from the Clark vein cutting No. 2 and No. 3 Dunmore veins and are now at work opening No. 3, the No. 2 being developed from an inside slope. Rope haulage has been installed in the bottom split of the Clark and in No. 2 Dunmore, and are at present installing a rope haulage in the New County vein. The mountain plane in the Clark vein has been extended 750 feet. A new stable has been built in the Clark vein. The breaker has been equipped with additional Emory slate pickers; a new 50 ton Barker track scale has been placed owing to the increased capacity of railroad cars.

Taylor Colliery.—General repairs in breaker and bracing tower. Installed electric lights in breaker and buildings. Concreted and timbered pump shaft. New brick hoisting house. New supply engine house. New brick and concrete oil house. New water line for fire purposes.

Holden Colliery.—General breaker improvements. New set bony rolls. Braced breaker tower. New brick fire pump house and mine foreman's office. Fuel conveyor line from breaker to boiler plant.

National Colliery.—Installed new scales for light and loaded tracks. Concreted main shaft. Erected new scale house and office. New washery annex. Now in course of construction new boiler house and heater and pumps.

DELAWARE AND HUDSON COMPANY

Greenwood Colliery.—No. 1 slope in No. 2 Dunmore vein driven 375 feet.

SCRANTON COAL COMPANY

Capouse Colliery.—Sunk main shaft from Clark vein to bottom vein, distance 194 feet. Sunk No. 2 shaft from Clark vein to bottom vein, distance 194 feet. A water level tunnel was driven on west side of shaft from Clark vein to Dunmore vein, distance 794 feet.

Sloan.—One 100 H. P. electric hoist on Dunmore vein slope, induction motor. Three 6½ ton electric locomotives installed to operate in the Surface and New County veins.

One 200 K. W. rotary converter at water shaft to supply power to Sloan New County vein. One 4x14 feet dust fan, in progress of erection, to take the dust from the breaker.

Bellevue.—One 450 gallon capacity electric pump installed in Clark vein. Electric pumps installed in Nos. 1 and 2 slopes and No. 3 tunnel. Electric chain hoist installed at foot of main shaft. Four electric locomotives to operate in the Clark and Dunmore veins, and one rotary converter. A new concrete wash house with lockers erected. New fire pump and fire line.

Dodge.—One 30 H. P. motor for endless rope, three electric locomotives inside, one rotary converter sub-station installed.

Taylor.—Lighting breaker and buildings with electricity, one 300 K. W. rotary converter and sub-station building.

Holden.—Four electric locomotives installed in Clark vein and one electric pump in Clark vein.

National.—One electric hoist in Clark vein, three electric locomotives, and a new water reservoir outside.

DELAWARE AND HUDSON COMPANY

Greenwood.—Checker vein plane at No. 1 new shaft extended 600 feet. No. 1 slope in No. 2 shaft driven 125 feet and completed. No. 1 plane in No. 2 shaft driven 900 feet.

The general condition of almost all the collieries in the district, as to ventilation, drainage and general safety, is good.

One rock slope from the No. 2 to the No. 3 Dunmore vein, 7 x 12, to a depth of 193 feet.

One 4 x 4 x 14 ventilating fan on the surface vein, driven by a 10 H. P. electric motor, was installed; one 50 H. P. electric motor to drive the ventilating fan at the Central Air Shaft to replace the steam engine, and one 35 H. P. electric hoist to replace the steam hoist to operate the Central Air Shaft.

Hampton Colliery, Outside.—Installed one 750 gallon steam pump for fire protection.

Sloan Colliery.—Installed one 150 H. P. electric hoist on the rock slope sunk from the Clark vein to No. 2 Dunmore vein.

Continental Colliery.—One rock tunnel, 7 x 12, in length 218 feet, from the Clark to the New County vein on the pitch, for the purpose of shortening the haulage.

The main shaft and the air shaft were concreted, replacing the old wood cribbing.

Bellevue Colliery.—New concrete barn in slope. Rock tunnel from New County to Big vein, and a second opening to the same tunnel. Rock tunnel from No. 2 to No. 1 Dunmore vein, and a second opening to the same tunnel.

Built new concrete blacksmith and carpenter shop, outside.

Dodge Colliery.—Concrete partition in main shaft.

Holden Colliery.—Installed electric hoist on plane to Surface vein.

National Colliery.—Installed dust fan in breaker. New brick blacksmith and carpenter shop, concrete barn built, inside. New fire pump and fire line installed. Outside.

DELAWARE AND HUDSON COMPANY

Greenwood Colliery.—Drift opened from outside to Checker vein. Haulage road built from breaker to head of plane, outside, distance 1,000 feet. A plane 400 feet in length, equipped with 10 x 12 engines, was built to hoist coal from mouth of drift to the Surface railroad.

CONDITION OF COLLIERIES

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Bellevue.—Ventilation, drainage and condition as to safety, good.

Dodge.—Ventilation, drainage and condition as to safety good.

Holden.—Ventilation, drainage and condition as to safety good.

National.—Ventilation, drainage and condition as to safety good.

Archbald.—Ventilation, drainage and condition as to safety good.

Continental.—Ventilation, drainage and condition as to safety good.

Hyde Park.—Ventilation, drainage and condition as to safety good.

Hampton.—Ventilation, drainage and condition as to safety good.

Sloan.—Ventilation, drainage and condition as to safety good.

DELAWARE AND HUDSON COMPANY

Greenwood.—The ventilation where fans are in use is good. In the openings where natural causes are depended upon the quantity is a variable one, but sufficient to maintain a healthy condition. Drainage fair, and condition as to safety good.

SCRANTON COAL COMPANY

Capouse.—Ventilation, drainage and condition as to safety good.

PEOPLES COAL COMPANY

Oxford.—Ventilation good; drainage fair; condition as to safety good.

MINOOKA COAL COMPANY

Minooka.—Ventilation, drainage and condition as to safety good.

IMPROVEMENTS

DELAWARE AND HUDSON COMPANY

Greenwood Colliery.—No. 1 plane in the No. 2 Dunmore vein was completed by driving 280 feet and connecting with No. 12 drift workings. No. 2 slope in No. 3 Dunmore vein was extended 260 feet. No. 7 drift in Marcy vein was reopened. An 8-inch bore hole was driven to the Checker vein, 70 feet. A 50,000 gallon tank was erected and service pipes laid for the improvement of the boiler water supply.

Holden Colliery.—Cleaned the shaft to the No. 2 Dunmore vein and installed an electric signal system. Sunk air shaft from the surface to the Rock vein. Installed a fan and engine and are building fan house. Completed tunnel through fault in the Diamond vein to develop the top split of Diamond vein.

Sloan Colliery. At Sloan shaft a water tunnel, 7 by 10 by 850 feet, was driven to carry water from the Holden and other places to Hampton water shaft.

Installed fire escape on breaker, and railed off all hoisting engines.

HUDSON COAL COMPANY

Greenwood Colliery.—A new washery has been added to the breaker.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held in Scranton, June 16 and 17. The Board of Examiners was composed of Jenkin T. Reese, Mine Inspector, Scranton; Joseph P. Jennings, Superintendent, Moosic; James W. Reese, Miner, Scranton; and William J. Jenkins, Miner, Scranton.

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

MINE FOREMEN

James Alexander, John Davies, James Degnall, Thomas Goodfellow, Luther E. Harris, Evan Jones, Henry Jones, George Jones, John Jones, Richard Jones, Stephen Martin, William Mildiz, Isaac Morgan, Frank Mulrooney, Rees T. Reese, Scranton; Hugh B. Garvin, Old Forge.

ASSISTANT MINE FOREMEN

Nelson Anderson, Evan R. Davis, Myron Albert Evans, John P. Gallagher, Benjamin F. Hughes, William King, William Knox, Philip McAndrew, Edward E. Roberts, James Sharples, Ernest Telford, William Witzel, Thomas Robson, Scranton.

Holden Colliery.—Cleaned the shaft to the No. 2 Dunmore vein and installed an electric signal system. Sunk air shaft from the surface to the Rock vein. Installed a fan and engine and are building fan house. Completed tunnel through fault in the Diamond vein to develop the top split of Diamond vein.

Sloan Colliery. At Sloan shaft a water tunnel, 7 by 10 by 850 feet, was driven to carry water from the Holden and other places to Hampton water shaft.

Installed fire escape on breaker, and railed off all hoisting engines.

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CONDITION OF COLLIERIES

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Bellevue, Dodge, Continental, Archbald, National and Sloan Collieries.—Ventilation, drainage and condition as to safety, good.

DELAWARE AND HUDSON COMPANY

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

SCRANTON ANTHRACITE COAL COMPANY

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

CARLETON COAL COMPANY

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

SPRUKS COAL COMPANY

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

IMPROVEMENTS

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Bellevue Colliery.—Installed 5 7-ton electric locomotives, wing reel device, etc.

Dodge Colliery.—Completed roof cut from New County to Big vein. Installed 3 7-ton electric locomotives, and 3 200 KW transformers, cable, bore hole, etc.

National Colliery.—Installed 2 7-ton electric locomotives.

Sloan Colliery.—Completed second opening from Diamond gangway, No. 2 Dunmore vein, into the No. 2 Dunmore vein, at Bellevue Colliery.

DELAWARE AND HUDSON COMPANY

Greenwood Colliery.—Completed a plane in Dunmore No. 3 bed, from old No. 1 shaft and New No. 1 shaft, to lower coal to New No. 1 shaft, thereby doing away with old No. 1 shaft.

Stripping of New County bed started.

Installed two 1200-gallon pumps at foot of New No. 1 shaft, one centrifugal and one plunger. Direct motion engines installed at No. 2 shaft, and 18 Lehigh Valley jigs in the breaker.

A great deal of interest is manifested in this district in the workings of the Greenwood Colliery Safety Institute which gives splendid promise of producing results.

These are some of its characteristics:

1. The colliery is the unit of the safety movement.
2. Its employes assemble once a month in a community hall.
3. Its meetings are partly social.
4. The accidents of the previous month and means to prevent similar accidents are discussed by the officials and employes.
5. Any suggestion of merit is reported at the following meeting and due credit is given to the person making it.
6. Prizes are to be offered for the best attendance, best suggestions, etc.

Too much credit cannot be given the originator of this movement, Mr. Joseph Linney, superintendent of this colliery.

Thirteen hundred and fifty men and boys have already attended the two meetings which have been held.

CONDITION OF COLLIERIES

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Bellevue, Dodge, Archbald, Continental, Sloan and National Collieries.—Ventilation, drainage and condition as to safety, good, except in a few places where conditions should be improved.

HUDSON COAL COMPANY

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

SCRANTON ANTHRACITE COAL COMPANY

Oak Hill Colliery.—Ventilation and drainage, good. Condition as to safety, fair.

CARLETON COAL COMPANY

Carleton Colliery.—Ventilation and drainage, good. Safety conditions, fair.

SPRUKS COAL COMPANY

Spruks Colliery.—Ventilation and drainage, good. Safety conditions, fair.

JOHN GIBBONS COAL COMPANY

Gibbons Colliery.—Ventilation and safety conditions, fair. Drainage, good.

IMPROVEMENTS

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Bellevue Colliery.—Completed two rock tunnels from New County vein to Big vein, each 200 feet long, on a grade of 5 per cent. Erected a new engine and rotary house, of brick, with concrete roof.

Archbald Colliery.—Completed a rock plane from New County vein to Big vein.

Continental Colliery.—Completed a rock tunnel from Rock vein to Diamond vein.

Sloan Colliery.—Completed a rock tunnel from No. 2 Dunmore vein to No. 1 Dunmore vein, 500 feet in length.

Hampton Washery.—Installed two Simplex jigs.

HUDSON COAL COMPANY

Greenwood Colliery.—Installed a car pull at the coal tipple; a lump coal shaker in the breaker; also stationary hoist at No. 2 shaft to eliminate mule haul. A new addition was built to the office building. Completed a connection from No. 1 shaft to No. 2 shaft for water, which eliminates the danger of No. 2 shaft being flooded in case of high water.