

**LEGITT'S CREEK COLLIERY.**

This colliery is located in the city of Scranton and situated  $\frac{1}{4}$  mile north-west of the Lackawanna river; the shaft is 340 feet deep to the G or 14 feet vein. It is operated by the Delaware and Hudson canal company. J. C. Simpson is assistant mine superintendent. Thomas Bamford is mining boss of the Diamond and Finley Ross is mining boss of the G or 14 feet vein, and J. L. Atherton is outside foreman.

*Description.*—There is a double breaker attached to the shaft tower; they mine and prepare about 500 tons of coal per day; they employ in the Diamond vein 41 miners, 35 laborers, 15 drivers, 21 door-boys and 18 company men; in the G vein 46 miners, 35 laborers, 18 drivers, 8 door-boys and 23 company men; 63 slate pickers, 8 head and plate men, 3 drivers, 6 company men, 10 mechanics and 3 bosses outside; in all 352 men and boys; they are working the Diamond and G veins of coal; average thickness of the Diamond 6 feet, and of the G vein 8 feet; they work headings 9, air-ways 12 and chambers 30 feet wide, except where the roof is very bad; they leave pillars 18 feet wide to sustain the roof; they leave cross-entrances 50 feet apart for the purpose of ventilation; the roof in the Diamond vein is fire clay next to the coal, then rock, and in the G vein it is bony coal; the mines are in a good working condition.

*Ventilation* is produced by a fan; the in-take is located at mouth of shaft, area 240 feet; the up-cast is located in air-shaft, 500 feet from main opening, area 93 feet; the amount of pure air is 103,925 cubic feet per minute; there is noxious and inflammable gas evolved in these mines; the mines are examined every morning before the 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 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 six splits; the amount of ventilation has been measured and reported. Ventilation is good.

*Machinery.*—They use 1 breaker engine of 77-horse power, 2 hoisting engines of 123-horse power, 1 hoisting engine for outside plane of 62-horse power, 1 pumping engine of 105-horse power at second opening, 1 hoisting engine of 77-horse power and 1 fan engine of 49-horse power; they have a metal speaking-tube in the shaft; they have 3 safety carriages with all the modern improvements; they do not allow any persons to ride up or down the main shaft, they are all hoisted and lowered by a safety-carriage in the second opening; 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 and safety-valve to indicate the pressure of steam; the breaker machinery is boxed and fenced off so that operatives are safe.

*Remarks.*—They have furnished maps of mines; they have no house for men to wash or change in. Finley Ross, mining boss, is a practical and competent man; Mr. Thomas Bamford seems to be a practical and competent man; they have a fire boss to assist them in each vein; there are no boys working in the mines under 12 years of age; the engineers seem to be experienced, competent and sober men; they do not allow over 10 persons to ride on the safety-carriage at one time; the parties having charge know their duty in case of death or serious accident; they are working a gravity plane in the Diamond vein; the air is conducted systematically, by the aid of check-doors, &c., to the face of the workings by 3 air-splits in each vein; they do not work over 50 men in any one split of air; the fan is 21 feet in diameter by 5 feet face and it runs at the rate of 68 revolutions per minute; the shaft-opening is protected by safety-gates.

**MARVIN SHAFT.**

This shaft is located in Scranton city, and situated about 500 feet north-west of the Lackawanna river. This is a new shaft just sinking; it is sunk down to the Diamond vein, which is 155 feet below the surface, average thickness of coal 7 feet; the opening is 10 feet wide by 41 feet long; they are putting up very substantial brick buildings around the shaft for engine house, etc.

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 shafts, 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

gressing slowly. It is not developed enough at present to give it an extended notice here. It will be fully reported next year.

**DELAWARE AND HUDSON CANAL COMPANY.**

**No. 3 Jermyn's Shaft, Green Ridge.**

This colliery is operated by the Delaware and Hudson Canal Company and the Delaware, Lackawanna and Western Railroad Company, in partnership. They are now grading a slope in coal inside, which will be eight hundred feet long, when completed, on the northwest side of the shaft, also a new gravitation plane, four hundred feet long, on the east side of the shaft.

**Von Storch Slope.**

They are erecting another ventilating fan at this colliery in addition to the fan which they have there at present. The new fan is seventeen feet diameter by four feet face. This is to ventilate the fourteen feet and Diamond seams of coal. The old fan, which is twenty feet diameter by five feet face, will be used exclusively for the Clark seam of coal. They have just finished a slope, six hundred feet long, in coal in the Clark seam, on the southeast side of shaft.

**Legitt's Creek Shaft.**

They have re-opened the Diamond seam of coal, which has been idle for four years. They are now ready for operation.

**Marvine Shaft.**

They are now building a gravitation plane, six hundred feet long, in the fourteen feet seam of coal, on southeast side of shaft. Also sinking a slope in coal on northwest side of shaft, which will be about twelve hundred feet long when finished. They are also driving for second opening in Diamond seam, by connecting with Diamond seam in Legitt's Creek shaft. The connection is now made.

**Olyphant, No. 2.**

They have built a new breaker over second opening shaft of this colliery, and call it Eddy Creek breaker. They have cut and graded a new gravitation plane to bring coal to foot of shaft from the northwest side of the property.

**Grassy Island Shaft.**

They are sinking a new air shaft at this colliery. It is timbered down to the rock, a distance of twenty feet from the surface. The size of shaft opening is eleven by fourteen feet. They are now drilling a bore-hole in the air shaft to let the water down through to the mine workings. They expect to finish bore-hole in a few days. The contract for sinking shaft is already let. The intention is to put up two fans on the same shaft, seventeen feet diameter by four feet face, each. They are to be run by two

Have put up a 20-foot fan, by 5-foot face, run direct by two engines, one on each end of fan-shaft.

**Eddy Creek Shaft.**

New breaker all ready. Expect to start on February 15th. Have sunk a new slope in south dip 600 feet long to first basin.

**Marvine Shaft.**

Finished sinking slope on north dip. Finished second opening to Leggett's Creek in Diamond vein. Put three drill-holes down from Diamond vein to 14-foot to take water from small basin—saves one steam-pump.

**Leggett's Creek Shaft.**

Put new buntings and guides in hoisting shaft. Are now taking 100 cars per day of coal from the Diamond vein. Put three drill-holes down from Diamond to 14-foot vein, to take water from basin—saves two steam-pumps.

**Von Storch Mines.**

Have driven under the river from foot of slope in 14-foot vein, to open coal on south-east side of river. Are cutting up the north-west rise in Diamond vein to outcrop to get air-shaft for intake air; also put in new 17-foot fan.

Yours, etc.,

ANDREW NICOL,

*General Superintendent of Mines.*

*Per A. B. NICOL.*

## COLLIERY IMPROVEMENTS FOR YEAR 1888.

**Delaware, Lackawanna and Western Railroad Company.**

*Bellevue Shaft.*—A new fan was erected close to the old one, size 16 feet diameter by 4½ feet width of face. A pair of new hoisting engines were put in place at head of inside slope 12"x30" to replace old ones removed.

*Bellevue Slope.*—A new tunnel was driven from Rock to Diamond vein, 150 feet long.

*Cayuga Shaft.*—A new shaft was sunk for second opening about one mile north from main shaft, size 10'x37½'; area of opening 375 square feet, and sunk to G or Big vein, a distance of 436 feet.

*Central Shaft.*—A new slope driven in G or Big Vein 500 feet long on a dip of 1' in 6'. Also a new pair of first motion hoisting engines 24"x60".

*Hyde Park Shaft.*—A new tunnel was driven from New County to Clark Vein.

*Pyne Shaft.*—A new fan 14 feet diameter by 4 feet face was put in to replace old fan which was not sufficient to ventilate the mine.

*Tripp Shaft.*—A new slope was driven in Clark vein about 500 feet in length. Dip is 1' in 6'. A new pair of engines, second motion, dimensions 10"x30", was placed outside at Diamond for hoisting culm.

**Delaware and Hudson Canal Company.**

*Dickson Shaft.*—Built new fan 20 feet diameter by 5 feet face, closed periphery, run by direct motion engines, one on each end of shaft to replace a fan of 12 feet diameter and 3 feet face, which was not of sufficient capacity to ventilate the mines. They sunk a slope in Clark vein 600 feet in length and placed in position a pair of hoisting engines 12"x16" at head of slope.

*Leggetts' Creek Shaft.*—Sunk main shaft 10x26 feet, 177 feet from 14 feet or G to Clark vein and made connection with Von Storch mine workings for second opening.

*White Oak Mines.*—Reopened old No. 5 drift near head of No. 27 plane on the Gravity railroad with a tunnel through hard pan 365 feet in length to coal. Sunk an air-shaft in rock 11 feet in diameter and 36 feet deep to coal. Built a furnace with a fire surface of 64 square feet. Built 3,900 feet of railroad track to head of plane which plane is 1,328 feet long, having a gauge of 2½ feet, to take coal to the breaker, for which a small locomotive is used.

**Pennsylvania Coal Company.**

*Shaft No. 1.*—A second opening has been made in "Top Vein" by making a connection with Shaft No. 3 or Gypsy Grove. An air-shaft was sunk from top to "Second Vein," giving a second opening to this

There are also 75 fans and 14 furnaces for the purpose of ventilation. There are four mines where they are drawing back pillars, that are not ventilated mechanically.

Respectfully submitted.

PATRICK BLEWITT,  
*Inspector of Mines.*

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### COLLIERY IMPROVEMENTS FOR YEAR 1892.

#### DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY.

*Hyde Park Shaft.*—Sunk an air shaft from Big vein to New County vein  $6' \times 10' = 60'$  and 28' deep; also sunk an air shaft from New County to Clark vein  $6' \times 10' = 60'$  and 78' deep, and drove a tunnel from Big to New County vein  $7' \times 11'$  and 146' in length.

*Tripp Shaft.*—Extended slope towards the river 700' in length.

*Dodge.*—Opened from New County from Big vein.

*Brisbin Shaft.*—Drove new plane up the west mountain in Clark vein 700' long.

*Storrs No. 1 Shaft.*—Driving a slope south; also opened a drift in the Richmond vein and put up a new fan, but they will not get much coal as it is too near the outcrop; also sunk No. 3 Storr's, formerly called Cayuga No. 2, from G or Big 155' deep to the Clark vein, and they are opening in the Clark and Diamond veins.

*Pyne Shaft.*—Opened a new plane in the New County vein 530' long.

#### DELAWARE AND HUDSON CANAL COMPANY.

*Leggett's Creek Shaft.*—Are now working coal in Clark vein.

*Olyphant No. 2 Shaft.*—Finished a new lowering plane in 14' vein.

*Jermyn No. 1 Shaft.*—Drove a new second opening from daylight and connected inside with both veins.

#### PENNSYLVANIA COAL COMPANY, DUNMORE, PA., 1891.

Mr. PATRICK BLEWITT,

*Mine Inspector of Second Anthracite District:*

We have during the year started a slope on a grade of  $7^\circ$ , to open up what is known as the Sawyer vein. Mouth of slope situated N.  $74^\circ$  E. and 235' from east corner of No. 1 breaker boiler house and 450' north of Old Smith tunnel. Course of slope N.  $79^\circ$  W. We have driven on above grade and course 175'. Uncovered the coal at a distance of 137' from mouth of slope. When finished it will be from 900' to 1,200' long.

## CLASSIFICATION OF ACCIDENTS.

Causes of Accidents.	Killed or fatally injured.	Injured.	Total.
By falls of coal and bone, .....	11	9	20
By falls of ordinary roof rock, .....	12	26	38
By falls of bell-shaped rocks, .....	7	2	9
By falling down shafts, .....	3	1	4
By premature explosion of blast, .....	1	11	12
By explosions of gas, .....	2	2	2
By cars inside, .....	6	27	33
By cars outside, .....	2	1	3
Kicked by mules, .....	2	1	3
Struck by flying coal from blasts, .....	2	3	3
By explosions of powder, .....	1	2	3
By falls of dividing rock, .....	2	2	2
Miscellaneous, inside, .....	3	3	3
Miscellaneous, outside, .....	2	8	10
Total, .....	47	98	145

## OCCUPATION OF PERSONS KILLED AND INJURED.

Occupation.	Killed or fatally injured.	Injured.	Total.
Miners, .....	15	33	48
Miners' laborers, .....	16	27	43
Drivers, .....	7	10	17
Runners, .....	8	8	8
Door tenders, .....	1	6	7
Company laborers, .....	5	5	5
Footmen, .....	1	1	1
Headmen, .....	2	2	3
Slate pickers, .....	4	1	4
Shaft sinkers, .....	1	1	2
Driver boss, .....	1	1	1
Stable boss, .....	1	1	1
Rock man, .....	1	1	2
Locomotive firemen, .....	1	1	1
Locomotive engineers, .....	1	1	1
Plane men, .....	1	1	1
Carpenters, .....	1	1	1
Total, .....	47	98	145

## NATIONALITY OF PERSONS KILLED AND INJURED.

	Irish.	American.	Polish.	Austrians.	Russians.	Italian.	German.	Slavish.	English.	Welsh.	Haytian.	Hungarian.	Greek.	Total.
Killed or fatally injured, .....	8	2	13	2	1	2	2	2	7	6	1	2	1	47
Injured, .....	26	13	13	5	1	2	4	3	9	9	1	8	1	98
Total, .....	34	20	26	7	2	2	6	5	16	15	1	10	1	145

## Improvements of 1894.

## Delaware and Hudson Canal Company.

At the **Leggetts Creek shaft** a new plane 500 feet long, with a sectional area of 112 square feet and a grade of one in fifteen, was completed.

low visible, coupled with the fact that McDonough's road was used for hauling purposes and therefore a number of men and boys were constantly passing, it was decided to suggest to the company's officials that work along the road be discontinued, owing to the dangers already described. The officials took immediate steps to act on the suggestion. Their prompt action under the circumstances is worthy of commendation.

The remaining coal will be worked from the same company's adjoining colliery, the Leggitts Creek, in the First inspection district, and prepared for market at the breaker.

The Von Storch shaft will in the future as in the past, be used as the second opening to the Von Storch slope workings, and as a pumping station.

#### Lawrence Breaker.

During the latter part of 1897 the Connell Coal Company discontinued operating its Lawrence breaker. The mining operations will be continued as in the past, with some material changes in the transportation, and preparation of the coal. Instead of hoisting the coal mined in the Lawrence colliery to the breaker of the same name, it will in future be run through to the same company's "William A." colliery and then hoisted to and prepared at that breaker. The coal mined in the Lawrence drifts will be lowered through the Lawrence shaft and handled and prepared in the manner already described.

#### Bull's Head Colliery.

During the year 1897 one operation only has been re-started, namely the Bull's Head colliery, in the Second ward, Scranton city. The Rock vein is being worked in this mine. The company is also engaged in opening a small surface vein from a higher level on the slope. Some years ago this mine was owned and operated by the Providence Coal Company. The colliery does not promise to become very extensive.

#### Improvements During 1897.

The improvements for the year 1897 are such as the description given in some of the reports already printed would apply. They consist principally of various connections made either by sinking shafts of small depths from one vein to another, or tunnel or plane connections for the purpose of ventilation, or the development of parts of properties. In short, the improvements may be described as such as become necessary from year to year in order to keep up the out-

TABLE F—Nationality of Persons Killed and Injured.

	Poles.	American.	Irish.	English.	Welsh.	Austrian.	Hungarian.	Russian.	Slavs.	Greek.	Italian.	Scotch.	German.	French.	Totals.
Killed, .....	16	10	10	9	6	5	5	2	1	1	3	...	...	...	63
Injured, .....	24	19	22	12	15	2	7	...	4	...	5	3	2	1	116
Total, .....	40	29	32	21	21	7	12	2	5	1	8	3	2	1	184

### Examination.

The annual examination of applicants for mine foremen and assistant mine formemen certificates of qualification was held at Carbondale on July 18 and 19, by the Board of Examiners, consisting of Edward Roderick, Inspector; Chas. P. Ford, Superintendent; James E. Morrison and Joseph T. Roberts, miners, and Lewis H. John, clerk.

Fifteen applicants entered for mine foremen certificates and the following named persons were successful and were recommended: Thomas C. Boylan and Patrick F. Tigue, of Carbondale; J. W. Parfrey, Dunmore; John D. Jones and Edward Scharar, Scranton; Paul Bright, Throop; John J. Williams, Olyphant, and William T. Powell, Plymouth.

The following persons were recommended to receive assistant foremen certificates: John Robinson and Thomas C. Hodgson, Scranton; Thomas Johns and Benjamin Milton, Vandling; James H. Swift and Martin Murphy, Archbald; David B. Thomas, Peckville, and David J. Morgan, Carbondale.

### Improvements Made During the Year 1899.

#### Delaware and Hudson Company.

At the **Leggett's Creek Colliery** a new breaker of 2,000 tons a day capacity has been erected and the old one, which was built over the shaft, has been razed.

Two new air locomotives have been installed in the mine.

Also, at the Marvin, a twelve-ton air locomotive has been installed.

At Eddy Creek two new planes have been built in Grassy Island vein, and a slope has been sunk in Diamond vein.

In Olyphant No. 2 a chain hoist has been placed in rock vein to take empty cars from foot of shaft, doing work which formerly required three mules. Also, a new Jeanesville pump has been installed, making two pumps delivering water to surface through an 18-inch bore hole.

## DELAWARE AND HUDSON COMPANY

The workings of the Marvine have been connected with Marvine No. 2 shaft by driving 1,300 feet of narrow work. No. 2 shaft has been concreted to a depth of 70 feet from the surface, and concrete buntons put in place.

**Leggitts Creek.**—A rock plane was driven from the Rock vein to the Fourteen Foot vein, a distance of 350 feet.

A Jeffries pulverizer has been installed to crush refuse from breaker and flush into the mine workings.

A new engine 14x16 and scraper line has been installed to feed culm from the dump into washery.

Dickson.—A rock plane 450 feet long has been driven from Dunmore No. 4 to Dunmore No. 3 vein.

During the year an addition measuring 24x50 feet was made to the breaker. New towers were erected over the main hoisting and man shafts.

Von Storch.—A 6-inch bore hole 260 feet in depth was drilled into the workings of the Clark vein. This will be used for flushing purposes.

Von Storch Washery.—Two 78-inch locomotive type boilers, and a 14 inch x 16 inch engine and conveyor line were installed during the year.

The ventilation and drainage of the mines are good.

## SCRANTON COAL COMPANY

Mines are well ventilated, roads are good and properly drained.

## PRICE-PANCOAST COAL COMPANY

A new air shaft, 10x14 and 300 feet deep, is being sunk. On this shaft a 20 foot diameter Guibal fan will be erected. This arrangement will not only provide and increase quantity of air all around, but it will also allow the ventilation of the Dunmore veins being duplicated.

A tail rope system of haulage has been installed in the Diamond vein workings. A similar system of haulage is being installed in the Dunmore vein workings.

A new gravity plane 600 feet long has been made in No. 3 vein, and another 350 feet in the Clark vein.

In the Diamond vein a slope has been sunk 800 feet, and a 40 horse-power engine installed to hoist the coal.

The condition of the workings as to ventilation and drainage is good.

## PENNSYLVANIA COAL COMPANY

No. 5 Shaft.—Ventilation and drainage good.

## GREEN RIDGE COAL COMPANY

Ventilation and drainage good.

The remaining mines in the district are ventilated by natural means. The employes work for the most part in scattered groups. Good ventilation is provided under the circumstances.

## A. D. AND F. M. SPENCER

No. 1 Shaft.—Abandoned April 1.

## A. D. AND F. M. SPENCER

Spencer.—Ventilation, roads and drainage good. Condition as to safety good.

## CARNEY AND BROWN

Carney and Brown.—Ventilation, roads and drainage good. Condition as to safety good.

## J. J. GIBBONS

Gibbons.—Ventilation, roads and drainage good. Condition as to safety good.

## BULL'S HEAD COAL COMPANY

Bull's Head.—Ventilation, roads and drainage good. Condition as to safety good.

## NAY AUG COAL COMPANY

Nay Aug.—Ventilation, roads and drainage good. Condition as to safety good.

## MOUNTAIN LAKE COAL COMPANY

Mountain Lake.—Ventilation, roads and drainage good. Condition as to safety good.

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 IMPROVEMENTS

## DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

New breaker at the Diamond was built and was in operation for a few days the latter part of year. Abandoned Tripp Slope and concentrated all of the work at Tripp Shaft. Built an addition to the boiler plant at the Manville mine.

## DELAWARE AND HUDSON COMPANY

**Legitts Creek.**—Rock Plane driven from 5 foot vein to surface for second opening. Installation of 16 inch x 48 inch compound Duplex Jeansville pump in Clark vein. Lining of 20 inch water hole necessitated by settling of the strata through which hole was bored. Securing the roadways and sump in Clark vein, by substituting I beams in place of timber which had broken down.

Dickson.—Engine plane in Clark vein extended.

Von Storch.—6 inch hole driven from 14 foot vein to Clark vein for drainage.

## PRICE-PANCOAST COAL COMPANY

Pancoast.—The tail rope system has been extended 1,000 feet into the workings of the Dunmore vein.

A new slope 400 feet long has been driven in the Dunmore vein, and at the present time a tunnel is in course of construction.

Another slope has been driven over the anticlinal in the Diamond vein and a pair of 12 inch x 12 inch hoisting engines installed.

Rock plane 300 feet from Four Foot to No. 2 vein.

Eddy Creek Colliery.—Tunnel, 500 feet from Diamond to No. 2 vein was completed.

In the Miles Slope, a combined pipe and traveling shaft was sunk 45 feet from surface to Rock vein.

Birds Eye Drifts.—A 12-inch water hole and an 8-inch cable bore hole were drilled 130 feet, and an electric pump installed.

**Legitts Creek Colliery.**—A new sump completed 600 feet in Four Foot vein; foot of shaft rebuilt in No. 3 Dunmore vein; pumping plant completed in Clark vein. Began grading and driving tunnel from Four Foot vein, for the development of Five Foot vein, north of Legitts Creek fault.

#### DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Storrs Colliery.—Installed a Duplex pump, capacity 3,500 gallons; also a 12-inch column line from pump to surface.

A rock slope, 7x12 feet, driven 700 feet, from Clark vein, is now being completed to No. 2 Dunmore vein.

A tunnel, 7x12 feet, driven 400 feet but not yet completed, through "fault" on the east side of Storrs No. 1 Shaft. Considerable repairs were also made to the breaker.

#### SCRANTON COAL COMPANY

On the 15th of June a new breaker commenced operations at Johnson Colliery. This was to replace the old breaker, which was considered beyond repair.

### 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 29 and 30. 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:

#### Mine Foremen

Edward R. Edwards, Robert L. Taylor, Thomas D. Thomas, John J. Barrett, John Johns, Nathan Dodgson, Hugh Archbald, Thomas J. Kennedy, George Watkins, Joseph Dodgson, John S. Thomas, Patrick A. Walsh, David J. Davies, Sydney Owens, William J. Gilroy, James J. Deeble, David J. Thomas, Richard Bowen, David Bowen, Thomas M. Owens, John Brooks, John Murrin, Frank Murrin.

#### Assistant Mine Foremen

Richard T. Williams, Frank B. Newlands, John J. Thomas, Frank Bennie, Michael J. Collican, Roy C. Craig, E. W. Searing, Thomas S. Williams, Richard Evans, Jr., Frederick Goyne, Charles F. Beecham, Samuel R. Nichols, Thomas Griffiths, William J. Myrick, Lewis A. Jones, John Richards, John Metters, William J. Evans, John J. Griffiths, Jerry F. Stantor

Grassy Island No. 2 Shaft.—Completed grading motor road about 3,000 feet toward No. 1 shaft in Dunmore vein.

Installed 4 air motors, 2 in Clark vein and 2 in Dunmore vein, for haulage.

Completed 12 inch reinforced concrete partition wall between intake and return compartments of No. 4 shaft, about 760 feet.

Bored 8 inch hole to flush ashes from boiler house directly into Rock and 14 Foot veins.

Installed new 22-36 by 25-16.5 by 12.5-7.5 by 42 inch stroke Laidlaw-Dunn-Gordon four-stage air compressor for use in motor haulage.

Miles Slope.—Replaced 150 feet of timbering with concrete and I beams, at mouth of main slope, under O. and W. Railroad.

Eddy Creek Colliery.—Placed 12 inch reinforced concrete partition wall between intake and return compartments of shaft, about 690 feet.

Completed rock plane for return of Clark vein.

Olyphant Shaft.—Completed rock plane 200 feet. Four Foot to No. 2 vein east of plane to fault.

Completed No. 12 rock slope, Rock vein to Clark vein 800 feet, cutting New County vein and 14 Foot vein.

Installed 16-25 by 25-16 by 24 inch two-stage Laidlaw-Dunn-Gordon air compressor for general use, pumping, haulage and rock-cutting.

Installed 24 by 24 first motion winding engine on surface in Smoke-town to operate No. 12 rock slope.

Birdeye.—Completed No. 7 rock tunnel, 200 feet from surface to bottom split 14 Foot vein.

Installed 5 by 4 Buffalo fan, and fan house, to ventilate bottom split of 14 Foot workings.

Drove rock tunnel 225 feet from Clark vein to New County vein off No. 3 slope and also rock return from same 75 feet.

Legitts Creek Colliery.—Rock plane, 12,300 feet long from Dunmore No. 3 to Dunmore No. 2 vein, for the purpose of opening Dunmore No. 2 vein.

Headings Nos. 42 and 39 to Rock vein graded to foot of No. 13 plane, for transportation.

Gangway from landing in Clark vein to pumping plant was bricked and I beams set. The same improvement was also begun in pipe-way from No. 2 pump.

#### DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Storrs Colliery.—Installed fan engine; hoist, motor, etc., at Storrs No. 3 shaft, Clark vein.

Remodeling Jeffrey locomotives. New waterway, West slope, No. 1 shaft. New plane in Fourteen Foot vein, No. 2 shaft.

Throughout the district there has been a decided improvement in the equipment. Fireproof barns have been erected at the various collieries.

#### MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held in City Hall, Scranton, June 5 and 6. The Board of Examiners was composed

plane and branches. A car haul, steam driven, 140 feet long, is in course of construction in the Clark vein for the same purpose. Extended Rock slope No. 14, 300 feet on pitch of 12 degrees, in Dunmore vein, through big fault from top of Eddy Creek anticlinal into Miles basin. An air shaft, 10 by 10 feet, 40 feet deep, and fan drift 75 feet long were completed, connecting with up-cast of Eddy Creek shaft for proposed emergency fan.

Olyphant Shaft.—A second opening and return airway, 7 by 18 feet, was driven from Clark vein to Rock vein, 700 feet on 28 degree pitch. An intake shaft, 12 by 12 feet, to Rock vein, was sunk through 60 feet of wash at face of No. 25 plane near crop.

Bird Eye.—Extended No. 4 slope 150 feet through fall and graded 1,200 feet of slope in Clark vein.

Olyphant Breaker.—Installed a central power plant, comprising one 1,000 K. V. A., 25 cycle alternating generator, directly connected to a Hamilton-Corliss cross compound engine. The voltage is 2,300, and power will be furnished to mine motors in Archbald, Olyphant and Scranton districts. Steam for the plant is provided by two batteries of Sterling boilers, yielding 1,800 H. P. The whole is housed in a brick and steel structure.

Marvine Colliery.—Extended Rock plane 7 by 12 feet, from 14 foot vein to the Diamond vein 1,000 feet on a pitch of 12 degrees to lower coal to 14 Foot landing at shaft. This plane is operated by a 14 by 20 inch Flory engine, located on surface. Extended Rock plane 400 feet on pitch of 12 degrees from No. 4 Dunmore to No. 3 Dunmore vein. Built a new pump room in Clark vein, 17 by 32 by 11 feet, for locating plant to deliver water to 14 Foot vein level.

Legitts Creek Colliery.—Extended Rock plane from Rock to Diamond vein 350 feet on 12 degree pitch for handling coal in latter vein on northwest end of property.

#### DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Storrs Colliery.—Installed one 18 by 6 foot fan, including engine and fan house. Remodeled scales. Added two 5 by 6 inch plunger pumps with motors, and one haulage electric motor with reel.

Brisbin Colliery.—Installed one 18 by 6 foot ventilating fan, including engine and house. Built brick and concrete oil house. Made second opening shaft from four foot to five foot vein.

Cayuga Colliery.—Installed one 7-ton electric motor with reel in Dunmore No. 2 vein.

#### SCRANTON COAL COMPANY

Johnson Colliery.—Built a hospital, 12 by 14 feet, equipped with steam heat, electric lights, hot and cold water, cots and First Aid outfit.

Richmond No. 3 Colliery.—Built a hospital, 14 by 15 feet, equipped with steam heat, electric lights, hot and cold water and First Aid outfit.

West Ridge Colliery.—Built a hospital, 10 by 12 feet, equipped with steam heat, hot and cold water and First Aid outfit.

## CONDITION OF COLLIERIES

## DELAWARE AND HUDSON COMPANY

Eddy Creek and Marvine Collieries.—Ventilation, roads, drainage and condition as to safety, good.

Dickson, Von Storch and Legitts Creek Collieries.—Ventilation, roads and drainage, fair. Condition as to safety, good.

## DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Diamond and Cayuga Collieries.—Ventilation, roads, drainage and condition as to safety, good.

## BULLS HEAD COAL COMPANY

Bulls Head Colliery.—Ventilation, roads and drainage, fair. Condition as to safety, good.

## CLEARVIEW COAL COMPANY

Clearview Colliery.—Ventilation, roads and drainage, fair. Condition as to safety, good.

## SCRANTON COAL COMPANY

West Ridge Colliery.—Ventilation, roads and drainage, fair. Condition as to safety, good.

## IMPROVEMENTS

## DELAWARE AND HUDSON COMPANY

Eddy Creek Colliery.—Completed tunnel, 300 feet long, through fault in Diamond bed; tunnel, 285 feet long, from Clark to New County vein; tunnel, 110 feet long, from Fourteen Foot bed to Rider; tunnel, 230 feet long, from Four Foot to Twenty Inch bed; and rock plane, 185 feet long, through fault in Fourteen Foot bed, Birdseye, and rock plane, 65 feet from Four Foot to Twenty Inch bed.

**Legitts Creek Colliery.**—The New County vein was opened in No. 3 shaft. Completed a tunnel, 450 feet long, driven through the fault in the Rock bed, and a rock plane, 160 feet long, from Rock to Diamond vein.

Dickson and Von Storch Collieries.—At Dickson mine a rock plane was driven 150 feet, from No. 2 Dunmore to connect with the Clark vein.

In the Von Storch section, a rock plane, 140 feet long, was driven from Top Rock to Diamond vein, and an air shaft 40 feet deep was sunk from Top Rock to Rock vein.

## DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Diamond Colliery.—Installed a new ventilating fan.

Cayuga Colliery.—Installed a new simplex jig; one new Hazleton jig; one new conveyor line and one 50 H.P. motor.

## CONDITION OF COLLIERIES

### DELAWARE AND HUDSON COMPANY

Eddy Creek, Dickson, Von Storch, Legitts Creek and Marvine Collieries.—Ventilation, drainage and condition as to safety, good.

### DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Diamond and Cayuga Collieries.—Ventilation, drainage and condition as to safety, good.

### MID CITY COAL COMPANY

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

### SCRANTON COAL COMPANY

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

## IMPROVEMENTS

### DELAWARE AND HUDSON COMPANY

Eddy Creek Colliery.—Completed a rock tunnel 96 feet long, from Rock to Rock vein, as a second opening. Renewed timber in Olyphant shaft between hoisting and air shaft, also placed new timber at foot of branch at Rock landing.

Dickson Colliery.—Completed rock plane 410 feet long, from Dunmore No. 2 to Clark vein; also Rock plane 175 feet long, from Dunmore No. 2 to Clark bed, to be used as an air return. Installed rope haulage in Dunmore No. 3 bed for a distance of 5000 feet.

Von Storch Colliery.—Completed rock plane 90 feet long, Top Rock to Diamond vein, also a plane 50 feet long, to be used as an air return. A rock tunnel was driven from Rock top split to bottom split bed, a distance of 120 feet. A plane 60 feet long to be used as an air return was driven from the Rock bottom split to the top split of the Rock bed.

Legitts Creek Colliery.—Completed a shaft, 2nd opening, 30 feet deep, from the surface to the eight foot bed; rock plane 575 feet long, from Dunmore No. 3 bed to Dunmore No. 2 bed. Installed a rope haulage in Rock bed for a distance of 4600 feet; electric haulage in Rock bed to Von Storch, a distance of 4200 feet.

Marvine Colliery.—Completed a rock plane from Diamond to Rock bed, a distance of 80 feet; another plane from the 14 Foot Top split to Diamond bed, a distance of 98 feet; also one from Dunmore No. 3 bed to Dunmore No. 2 vein.

### DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Diamond Colliery.—In No. 2 Shaft a haulage road has been constructed in the New County vein, together with a new arrangement at the bottom of the shaft to save hauling the New County vein coal to the Clark vein. Completed an emergency hospital in the New County vein. Installed one 7-ton electric locomotive.

In drift No. 1 a 7-ton electric locomotive was installed.