

Two new tunnels have been driven at Coal Brook, one from the top vein to the surface, a distance of one hundred and sixty feet, and one from the third vein to the surface, a distance of one hundred and seventy-five feet.

At Clinton two new slopes have been driven; one is 3,100 feet long, the other 700 feet. The first has an average grade of 8 feet in 100, the other 6 feet in 100.

Richmond No. 3 shaft has been sunk from the Clark to Dunmore Nos. 1 and 2 veins, a distance of 132 feet. Its size is 10x22 feet.

At Richmond No. 4 a new plane 800 feet long has been made.

At Mt. Jessup a tunnel 464 feet long has been completed from the Clark to the No. 3 Dunmore vein.

Near their No. 1 colliery the Pennsylvania Coal Company has erected six Babcock and Wilcox water tube boilers of 900 horse power. The pressure carried per square inch is 110 pounds.

Steam is supplied for No. 1 colliery breaker and shaft, to Gypsy Grove colliery breaker and its two shafts, and have supplanted the 27 cylindrical boilers 36x30 feet formerly used at these places.

The Lackawanna Coal Company has sunk an air shaft, having a sectional area of 120 feet and a dept of 55 feet.

A new air shaft was sunk from the surface to the Dunmore vein by the Johnson Coal Company. Its depth is 310 feet and has 1200 feet area.

A tunnel 7x14 feet and 1,300 feet long has been driven from the big vein to the Dunmore.

At Pancoast a new slope 800 feet long has been sunk in Clark vein and another is being sunk in No. 3 vein.

The Dolph Coal Company has sunk two new slopes, one 350 and the other 650 feet deep. One is 6x16 and the other 6x12. They have also made a new plane 500 feet long, and sunk two new air shafts each 62 feet deep.

The Riverside Coal Company has made a new slope 900 feet long.

Many other small air shafts, tunnels, slopes and planes have been made during the year for the purpose of properly ventilating the workings and to keep up the output of coal, but they are not reported.

#### A FEW REMARKS ON THE STATISTICS FOR FIVE YEARS.

By a retrospective glance at the mining statistics of this district for the five years ending December 31, 1896, we find that there were 30,702,284 tons of coal produced and 29,367,733 tons shipped; 79,645 persons were employed for 939 days, during which time 1,056,055 kegs of powder of 25 pounds each, were consumed.

Of the total number employed 243, or a small fraction more than three-tenths of one per cent. were killed. Of the 243 killed, 154 lost:

TABLE F—Nationalities of Persons Killed or Injured.

| Nationalities.   | Killed. | Injured. | Totals. |
|------------------|---------|----------|---------|
| Pole, .....      | 6       | 24       | 30      |
| American, .....  | 6       | 22       | 28      |
| Irish, .....     | 5       | 17       | 22      |
| English, .....   | 6       | 14       | 20      |
| Welsh, .....     | 2       | 13       | 15      |
| Slavs, .....     | 2       | 9        | 11      |
| Italian, .....   | 3       | 6        | 9       |
| Austrian, .....  | 2       | 4        | 6       |
| Hungarian, ..... | 2       | 4        | 6       |
| Russian, .....   | 4       | 1        | 5       |
| German, .....    | 2       | 2        | 4       |
| Scotch, .....    |         | 2        | 2       |
| Totals, .....    | 40      | 118      | 158     |

### Improvements at Collieries.

#### Delaware and Hudson Company's Improvements.

At Clinton a new air shaft 10x12 feet and 240 feet deep was sunk for ventilating purposes, and a new fan was installed to ventilate the East Side tunnel.

At Coal Brook a rock plane 300 feet long was driven from bottom to top vein, and an air shaft sunk. A new air compressor was installed and three new air motors added for haulage. A new drift was opened on East Mountain; and an air shaft sunk.

At Jermyn No. 1 a new 22-foot fan was installed, to replace the old one. A rock plane 600 feet long, driven to shorten transportation, and improve ventilation, was made.

Grassy Island.—The rock vein was opened and air connections made.

At Eddy Creek a slope was sunk from surface to rock vein to improve ventilation on Mills tract workings.

#### Hillside Coal and Iron Company.

A new breaker was built at Forest City to replace the old one, which was destroyed by fire in early part of the year.

The Price Pancoast Coal Company has sunk the main shaft to Dunmore veins; also, installed a new fan 35 feet in diameter.

The **Johnson** Coal Company has driven a 1,000-foot tunnel from prove ventilation on mills tract workings.

## North End Coal Company

North End, ventilation fair, drainage fair.

## Improvements

The Hillside Coal and Iron Company made the following improvements at their various collieries during the year.

Clifford Shaft.—One balance plane driven 6x14 feet, 498 feet long.

Extension of No. 8 plane on east side, 6x14 feet, 198 feet long.

Engine plane on west side, partly driven, 6x10 feet, 300 feet long.

Forest City Slope.—Have sunk an air shaft at the extreme south workings, 12x25 feet in depth; also a new slope to the New County vein (opened from surface) 8 feetx16feet, 250 feet long.

Forest City No. 2 shaft.—The present air shaft was continued from the Clark to the Bottom or Dunmore vein, a distance of 245 feet; size of shaft, 12 x 12 feet. The cribbing at the head was replaced at the same time with concrete.

They have also installed at their Forest City No. 2 shaft (one in the Clark Vein and one in the Bottom or Dunmore vein) two 6½ ton mine locomotives with cable reels attached. These motors are used in place of mules to bring the coal from the face to the passing branches, where the larger motors get the coal.

It has been the practice for years at this colliery, to use a small size locomotive, but being equipped with a trolley, they had found considerable difficulty with having to extend the trolley wires in the chambers as the places advanced, and also found it quite expensive. The later type of motors, with the reel attachments avoid the necessity of trolley wires being put up in the chambers, and are working very successfully. They are so well satisfied with it, and especially in laying out new workings, that they will endeavor to do without mule haulage altogether, as besides the other conveniences, the motors do not take up as much height as mules, and consequently they find they do not have to cut as much rock in a low vein as would otherwise be necessary.

They have also installed at No. 2 shaft one Jeansville Woodlined Compound Duplex Plunger Pump, size 18 and 28x10x18 inches, and at Clifford shaft a Scranton Steam Pump Company's Compound Duplex Plunger Pump, 18 and 28x10x18 inches; both of these throwing to the surface; and at Clifford shaft they have constructed a mule barn (inside) to accommodate about 50 mules.

## Scranton Coal Company

At their **Johnsons** No. 1 shaft, Priceburg, a pair of Vulcan Hoisting engines 28x48 inches has been installed.

### Condition of Collieries

The mines in this district are in a safe condition. As to ventilation and drainage, I report the following:

#### Scranton Coal Company

**Johnson** No. 1.—Dunmore vein gives off some gas, and for this reason the ventilation is good. Diamond vein is practically a non-gaseous seam; the ventilation is fair, but was being improved on my last inspection.

**Johnson** No. 2.—This is a non-gaseous mine. A large portion of it is dependent upon natural ventilation, and for this reason the ventilation is bad for a few days at a time, particularly when the weather changes. The officials have done everything in their power to improve this condition. By placing doors on all chambers they have greatly improved the conditions.

**Raymond**.—The mining at this colliery consists principally in taking down what is called "top coal" in abandoned chambers, and while it would be impracticable to establish a systematic arrangement of air currents on account of the openness of the workings, the men are well provided with pure air. This is due to the unusual thickness of the vein at this locality, and the arranging of small groups of men at different places throughout the mine.

The haulage and drainage at this colliery are in excellent condition. Much attention is paid to maintaining room along tracks, and keeping the roads surfaced with ashes.

**Ontario**.—The veins at this colliery are very thin. The ventilation is good. The connecting of Jermyn No. 6 and Klondyke workings, has improved the ventilation, haulage and drainage considerably.

On account of the thinness and irregularity of these veins, it requires tact and good judgment to successfully mine them, and their condition is the best endorsement of the management.

**Richmond** No. 3.—This colliery has seen a complete reformation during the year. The ventilation has been very much improved, the roads cleaned, with ample room for the handling of cars, and the colliery throughout is in a very satisfactory condition.

**Riverside**.—Mining in the lower vein at this colliery is not very extensive, but one of the upper veins is being developed.

**Richmond** No. 4.—Operations at this colliery are not in any way extensive, but the ventilation is good.

#### Delaware and Hudson Company

**Coal Brook Colliery**.—On December 1, a mine fire was discovered under the culm bank in the workings of the Coal Brook tunnel that had been abandoned some forty years ago.

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

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

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

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

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

#### TEMPLE IRON COMPANY

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

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

#### NORTH END COAL COMPANY

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

### Improvements

#### SCRANTON COAL COMPANY

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

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

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

## EXPLOSION OF GAS

At 12.15 noon, June 18, an explosion of fire-damp occurred in the chamber of the first East Lift in the Dunmore vein, in the **Johnson** mine of the Scranton Coal Company. It is supposed that the explosion was caused by an unexpected increase of gas in the face of the chamber where John Galinski was working with a naked light. He was severely burned about the face and hands. The force of the explosion blew down a main stopping between the first and second lifts, which allowed the air to enter the return, instead of first entering the working faces in the lower lifts, thus causing an accumulation of gas. Immediately after the first explosion all the men in the lower lift came out to the main door of the intake. They were met there shortly by the men from the upper lift, who advised them not to return to the second lift, but to accompany them home. Some decided to go home and the others, after remaining a short time, decided to return for their dinner pails. They proceeded only a short distance when their lights exploded the gas and killed seven persons.

The coroner's jury after inquiring into the cause of their death rendered the following verdict: "We find that they came to their death June 18, 1907, as a result of a gas explosion in the Johnson mine of the Scranton Coal Company. From the evidence presented, all of the men lost their lives as the result of a second explosion following a first explosion which all escaped. The evidence is to the effect that all of the victims were warned of the danger and advised not to go back into their chamber. Disregarding the warning they started back and ignited the gas, causing an explosion, resulting in the death of seven men. Whereas, we are of the opinion that the company was in no way to blame or responsible for the disaster."

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## CONDITION OF COLLIERIES

### SCRANTON COAL COMPANY

Johnson Colliery No. 1 shaft.—Condition as to safety good, drainage good, except in the Diamond vein.

No. 2. Shaft.—Condition as to safety and drainage good; ventilation fair. A fan is now being installed on the mountain to improve the ventilation.

Ontario Colliery.—Tunnel condition as to safety, drainage and ventilation good.

Klondyke.—Condition as to safety and drainage good, ventilation fair. A surface opening is being driven and a fan installed, which will improve the ventilation.

Sturgess Shaft.—Condition as to safety, drainage and ventilation good.

Blue Ridge Shaft.—Condition as to safety and drainage good, ventilation fair. There is room for improvement.

## MOOSIC MOUNTAIN COAL COMPANY

Marshwood Drift.—Condition as to safety good, drainage poor, but it is being improved. Ventilation fair.

## BLAKELY COAL COMPANY

Blakely.—Condition as to safety, drainage and ventilation good.

## MOTT HAVEN COAL COMPANY

Mott Haven.—Condition as to safety, drainage and ventilation good.

## IMPROVEMENTS

## SCRANTON COAL COMPANY

Johnson.—Man shaft tower rebuilt.

Ontario.—Three new locomotive type boilers installed. New washery built.

Bryden Shaft.—Fourteen foot fan constructed in brick and concrete.

## DELAWARE AND HUDSON COMPANY

Olyphant.—No. 16 Rock Plane driven from Diamond to Four Foot, a distance of 103 feet.

No. 18 Rock Plane driven 475 feet through fault in Diamond vein.

No. 10 Rock Slope (Miles) driven 842 feet from Rock to No. 4 Dunmore vein.

Grading 400 feet of No. 3 Tunnel from Rock to Fourteen Foot vein.

No. 9 Rock Plane driven 108 feet from Fourteen Foot toward Rock vein.

Grassy Island.—At Grassy No. 1 Rock Tunnel from New County to Fourteen Foot vein, driven 210 feet for second opening.

Rock Plane from Four Foot to No. 2 vein driven 200 feet.

Shaft from surface to No. 2 vein sunk 36 feet for second opening.

No. 4 Dunmore vein opened in Grassy No. 2 Shaft, 250 feet on east side and 100 feet on west side, and Clark vein opened 75 feet on east side.

Grassy Island No. 4 shaft sinking down a distance of 611 feet, not completed.

## DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Storrs No. 3.—A new ventilating fan has been placed and is in operation at Storrs No. 3 steel casting and brick building.

## PENNSYLVANIA COAL COMPANY

No. 1 Colliery Outside.—A brick building 18 feet x 18 feet to be used as an electric light plant, containing one 8 x 10, 40 H. P. engine, 100 ampere, continuous current 250 volts. Also one brick building 24 feet x 38 feet, with an annex 9 feet x 23 feet. This building contains one pair 12 x 24 hoisting engines to operate two inside slopes in No. 1 Shaft, one in the third Dunmore vein and one in the second Dunmore vein, which is being driven.

## STERRICK CREEK COAL COMPANY

Sterrick Creek Colliery.—Condition as to safety, ventilation and drainage good.

## LACKAWANNA COAL COMPANY

Lackawanna Colliery.—Condition as to safety and ventilation good; drainage fair.

## DOLPH COAL COMPANY

Dolph Colliery.—Condition as to safety, ventilation and drainage good.

## MOUNT JESSUP COAL COMPANY

Mount Jessup Colliery.—Condition as to safety, ventilation and drainage good.

## MOOSIC MOUNTAIN COAL COMPANY

Marshwood.—Condition as to safety good; ventilation and drainage good.

## BLAKELY COAL COMPANY

Blakely Colliery.—Condition as to safety, ventilation and drainage good.

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**IMPROVEMENTS**

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## SCRANTON COAL COMPANY

**Johnson** Colliery: Johnson No. 1.—An air compressor 24 x 24½ x 30 feet installed.

**Johnson** No. 2.—Installed a 10-foot fan at Mountain shaft; rebuilt plane trestle and constructed a 2,500-ton breaker.

Ontario Colliery: Sturgess Shaft.—Rebuilt tower and trestle and installed two boilers, 66 inches x 16 feet.

Blue Ridge Shaft.—Installed a return boiler, 66 inches x 16 feet.

Ontario Washery.—Installed one 54 inch fire-box boiler.

## DELAWARE AND HUDSON COMPANY

Olyphant Colliery: Olyphant No. 2.—Installed an additional electric generator to furnish power for operating hoists, fans and pumps at Birds Eye No. 10 slope; lights and signals at Grassy Island No. 2, consisting of an 18 inch x 18 foot McEwen engine and a 150 K. W. generator.

Grass Island No. 2, Rock Vein.—Graded 1,400 feet of main gangway to shaft landing; graded 120 feet for chain hoist of light cars, and 150 feet for light car road.

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. Stanton

## CONDITION OF COLLIERIES

## DELAWARE AND HUDSON COMPANY AND HUDSON COAL COMPANY

Olyphant.—Safety, ventilation and drainage good.  
 Eddy Creek.—Safety, ventilation and drainage good.  
 Legitts Creek.—Safety good; ventilation and drainage fair.  
 Marvine.—Safety, ventilation and drainage good.

## SCRANTON COAL COMPANY

Johnson.—Safety, ventilation and drainage good.  
 Ontario.—Safety, ventilation and drainage good.  
 Richmond No. 3.—Safety, ventilation and drainage good.

## DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Storrs.—Safety, ventilation and drainage good.

## LACKAWANNA COAL COMPANY, LIMITED

Lackawanna.—Safety, ventilation and drainage good.

## MOUNT JESSUP COAL COMPANY, LIMITED

Mount Jessup.—Safety, ventilation and drainage good.

## DOLPH COAL COMPANY, LIMITED

Dolph.—Safety, ventilation and drainage good.

## MOOSIC MOUNTAIN COAL COMPANY

Marshwood.—Safety good; ventilation and drainage fair.

## STERRICK CREEK COAL COMPANY

Sterrick Creek.—Safety, ventilation and drainage good.

## IMPROVEMENTS

## SCRANTON COAL COMPANY

**Johnson** Colliery.—The Man shaft tower at No. 2 shaft has been rebuilt; also the approach to the fan leading from this shaft. Installed two 60-inch locomotive boilers; also constructed an inclined fuel conveyor from the new breaker to the boiler room, a distance of 450 feet.

## DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Storrs Colliery.—One new brick locomotive house. One brick fire pump house.

Storrs No. 1 Shaft.—Made rock tunnel from Clark to Clark through fault on east side of Storrs No. 1 shaft, size 7 by 12 by 600 feet.

Storrs No. 3 Shaft.—Made second opening, 45 degree pitch, from Dunmore No. 1 to Clark vein, size 7 by 12 by 100 feet.

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.

## DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Storrs Colliery.—Installed the following: Conveyor for handling rock from breaker; four 1,000 gallon centrifugal pumps, and one track pump; electric hoist at the Clark vein. At No. 2 shaft; one 7-ton electric locomotive with reel attachment; also one 10 by 10 compressor with drills in the Dunmore vein.

## SCRANTON COAL COMPANY

**Johnson** Colliery.—Installed 2 Maxim water tube boilers, normal rated capacity 300 H. P., also 2 improved locomotive type boilers, rated capacity 175 H. P. each.

Richmond No. 3 Colliery.—Installed one 10 by 20 by 36-inch duplex pattern pump, rated capacity 800 gallons per minute.

## IMPROVEMENTS

## DELAWARE AND HUDSON COMPANY

Olyphant Colliery.—The breaker is being remodeled. A tunnel, 325 feet long, was driven from Five Foot vein to 20 Inch vein. No. 15 plane was extended 190 feet from Clark vein to New County vein. Two 7-ton electric locomotives were installed in Dunmore vein, and two in New County vein. Three coal-cutting machines were also installed.

## SCRANTON COAL COMPANY

**Johnson** Colliery.—Removed 75 feet of roof 10 feet wide and 3 feet thick in the Dunmore No. 3 vein at the foot of No. 1 plane, for the purpose of grading the road so that the electric motor could be used to haul the cars on the plane instead of the rope.

Removed 200 feet of bottom rock 10 feet wide and 4 feet thick in the Dunmore No. 2 vein for the purpose of using electric motor for haulage on slope instead of rope.

The second opening shaft was recribbed, and the brattice between the upcast and downcast renewed from top to bottom.

Two Scranton pumps 10 by 18 by 22 were installed in the Big vein for emergency purposes.

## CARNEY AND BROWN COAL COMPANY

Carney and Brown Colliery.—The old breaker was destroyed by fire November 26, 1915, and a new 250-ton capacity breaker was erected and started operations September, 1916.

Erected 2 air-bridges in Clark vein for ventilation purposes. Graded the Clark slope to improve haulage system.

Erected 4 air-bridges in No. 3 Dunmore vein for ventilation. Installed 2 3-stage electrical driven centrifugal pumps with a capacity of 800 gallons per minute.

#### DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Storrs Colliery.—Completed second openings connecting Nos. 2, 3, and 4 drifts. Installed one 7-ton electric locomotive.

No. 1 Shaft. One 7 by 12 by 63 feet rock tunnel driven from No. 1 Dunmore to No. 3 Dunmore vein. One 7 by 10 by 133 feet rock tunnel driven through fault in Clark vein. Installed one 7-ton electric motor.

No. 2 Shaft. One 7 by 12 by 108 feet tunnel driven from Top Split to Bottom Split 14 foot vein for development. Installed one 7-ton electric motor.

No. 3 Shaft. One 7 by 12 by 132 feet rock tunnel driven from Clark vein to New County vein for development. One 8 by 8 by 42 feet shaft from Clark to New County vein for ventilation. Installed one 7-ton electric motor.

#### DELAWARE AND HUDSON COMPANY

Olyphant Colliery.—Grassy-Island Shaft. A rock tunnel was driven from New County vein to Clark vein 588 feet long. One rock return tunnel driven from Top Clark to New County vein 99 feet long. Concreted No. 1 shaft 9 feet above surface and 35 feet below surface. Installed electric hoist at No. 15 plane to lower coal from 14 foot and New County veins to Clark vein shaft landing.

Miles slope. A gangway and airway 950 feet long driven up pitch in No. 4 Dunmore vein for ventilation. No. 34 plane 100 feet long driven from Bottom rock to Top rock vein. No. 35 plane 72 feet long driven from Bottom rock to Top rock vein for development.

#### SCRANTON COAL COMPANY

**Johnson** Colliery.—Erected a new wash house, and two B. and W. 300 H. P. boilers. Outside. Installed one duplex pump 24 by 10 by 36.

Richmond No. 3 Colliery.—A rock tunnel 7 by 10 feet driven from No. 2 Dunmore vein to No. 1 Dunmore vein for second opening.

#### SPENCER COAL COMPANY

Spencer Colliery.—The breaker of this operation was destroyed by fire February 3. Erected coal pocket and the coal from the mine is loaded into railroad cars and is taken to the Minooka breaker for preparation.

#### MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held in Scranton, May 8 and 9. The Board of Examiners was composed of D. T. Williams, Inspector, Scranton; Joseph P. Jennings, Superintendent, Moosic; James W. Reese, Miner, and William J. Jenkins, Miner, Scranton.

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