

Number of tons of coal sold for local consumption in 1888, . . . . .	205, 308.02
Number of tons of coal sold for local consumption in 1889, . . . . .	197, 805.16
	7, 502.06
Decrease in local sales in 1889, . . . . .	7, 502.06

There were 266,631 kegs of powder used in mining 8,621,980.16 tons of coal, which would give 32½ tons of coal mined for each keg of powder used.

There are in this district 2,707 horses and mules and 31 mine locomotives for the transportation of coal in mines, and between mines and breakers. There are 881 steam boilers which supply steam for 392 hoisting, breakers and fan engines, having 21,465 horse-power; also for 253 pumping engines and steam pumps, with a horse-power of 8,621.

There are 67 breakers which have a capacity for preparing, cleaning and shipping 52,685 tons of coal per day for market, there are also three chute buildings for cleaning and dividing coal into various sizes and also for shipping it.

Respectfully submitted.

PATRICK BLEWITT,  
*Inspector of Mines.*

COLLIERY IMPROVEMENTS FOR YEAR 1889.

*Delaware, Lackawanna and Western Railroad Company.*

*Brisbin shaft.*—Finished a new plane in mines 790' long; sectional area 7'x15', equal to 105 square feet.

*Central shaft.*—New shaft was sunk for second opening from Fourteen Foot to Clark vein, size of opening 10'x28' and 84' deep.

**Holden shaft.**—Finished a new plane 414' long on a grade of 1 in 3; sectional area 7'x16', equal to 112 square feet.

*Hyde Park shaft.*—New rock tunnel driven from 14' to new county vein 69' long; sectional area equal 7'x11' or 77 square feet.

*Pyne shaft.*—New plane finished, 250' long; sectional area 7'x14', equal 98 square feet and on a grade of 7½°.

*Sloan shaft.*—New plane finished, 600' long; sectional area 7'x14', equal 98 square feet.

*Storrs.*—The Storrs colliery with a capacity of from 1,200 to 1,500 tons per day was completed in 1889. It is one of the most thoroughly equipped breakers in this part of the anthracite region, having all the modern improvements for the preparation, separation and cleaning of coal.

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

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

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

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

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

#### Delaware and Hudson Canal Company.

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

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

#### Lackawanna Iron and Steel Company.

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

#### William T. Smith.

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

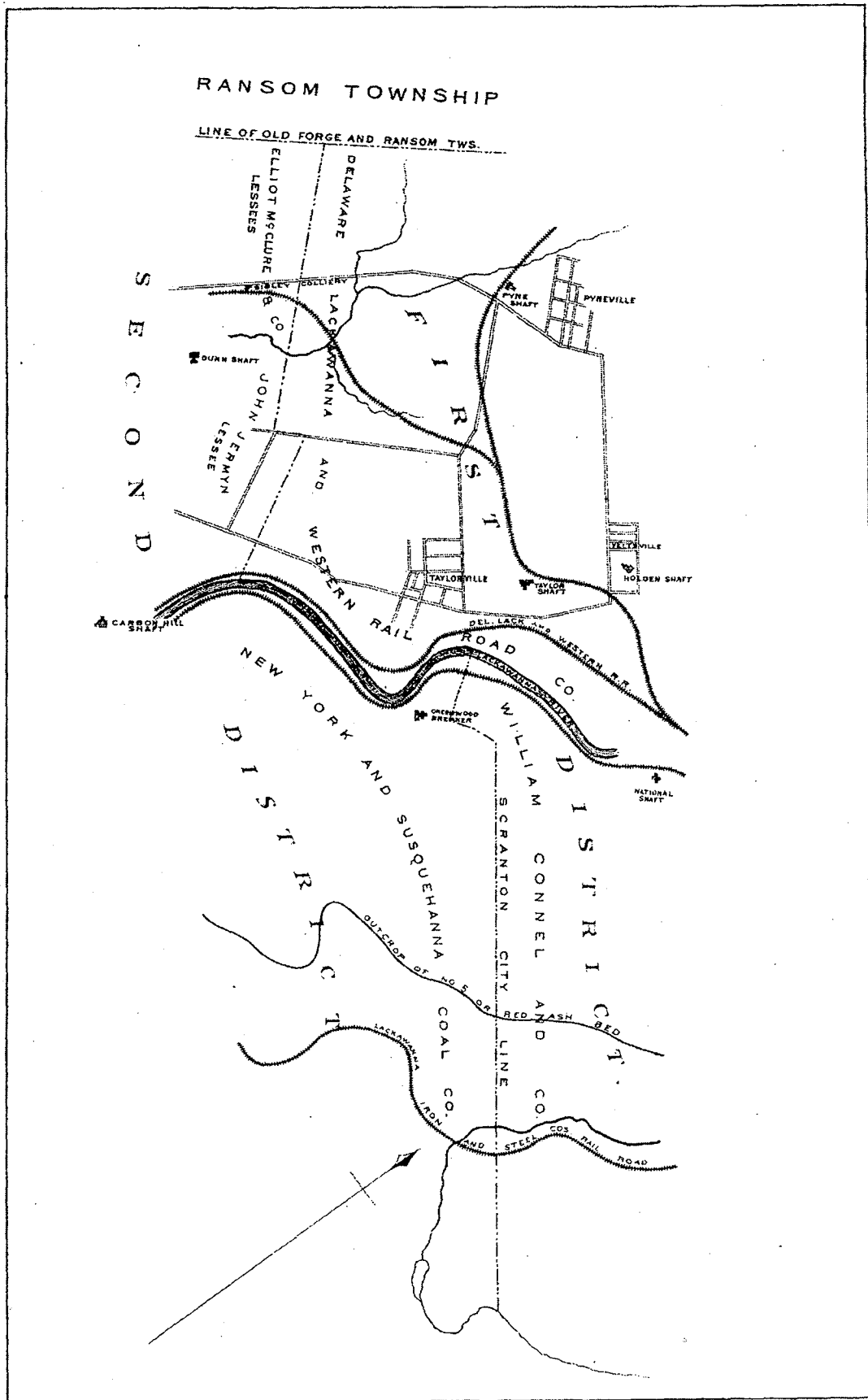
#### Pennsylvania Coal Company.

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

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

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

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



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P. at 150 pounds pressure, divided into seven and one-half batteries Babcock & Wilcox vertical headed water tube boilers. They are fitted up with McClave & Brooks Automatic Stokers and self-feeding arrangement for fuel from storage pockets, and also have attached the Green Economizers, divided as follows: One for eight batteries and one for seven and one-half batteries, with induced fan draft in connection with forced fan draft. This plant is all under one roof. The steam pipe connections are as follows: To Sloan shaft 1,420 feet of 8 inch pipe. To Central shaft 1,400 feet of 8 inch pipe. To Hyde Part shaft, 3,140 feet of 8 inch pipe. To Hampton Shaft, 1,400 feet of 12 inch pipe. To Continental shaft 1,500 feet of 8 inch pipe. The above plant takes the place of ninety-five boilers, cylinders and locomotives. A new reservoir 100 feet in diameter has also been located near the plant which will hold 500,000 gallons of water.

At Pyne shaft a tail rope system of haulage is being installed. Length of main rope 4,000 feet; size of engines 15 feet x 30 feet geared.

Sloan Mine.—A new air shaft has been sunk to the surface vein and a connection driven from the bottom to the upcast compartment of main shaft. A new ventilating fan will soon be erected over this shaft. The fan which is now ventilating the mine and is located at the breaker over the main shaft will be removed, thus reducing the risk from fire, and at the same time doing away with the possibility of the air—which is being exhausted, entering the downcast again.

New Water Shaft.—A new shaft is being sunk at a point between the Central and Sloan shafts. This shaft is 8'x33' in the clear, and will be 500 feet deep. It is to be used to drain the mine workings of the company's Keyser Valley collieries. When the work is finished it is proposed to raise 7,000,000 gallons of water every twenty-four hours, by the use of buckets.

An electric motor system of haulage has been installed in the Dodge mine, and a new steam generating plant erected, at a point between the Dodge and Bellevue breakers. This plant will supply steam to the two mines and breakers.

A new ventilating shaft has been sunk at the Taylor mine from the surface to the Clark vein.

In the Manville shaft of the Delaware and Hudson Company and the Delaware, Lackawanna and Western Railroad Company, and the Delaware, Lackawanna and Western Company's **Holden** shaft, the old cribbing has been removed and replaced by expanding metal. The work was successfully accomplished in each case, and the result is highly satisfactory.

The improvements made in the several mines in the district are of the usual kind, and as important as the condition of the mine required and the increased output demanded.

Pyne colliery.—A new belt-driven ventilating fan 5x4½ feet by 16 inches was erected at the Pyne. The fans erected in 1903, together with this one, were attached to the breaker, which was a source of danger from fire.

One Rock Plane tunnel located about 1,700 feet north-east of shaft from the Clark to the Big vein; 7x14 feet, length 663 feet, pitch 12 degrees.

Six 6½ ton electric locomotives have been installed, four of which are equipped with reels to work in chambers. Sub-station erected outside for 200 K. W. rotary converter which supplies 250 volts power for the six (6) electric motors inside.

Power is supplied from the central power station near Hampton colliery.

The new 1,500 horse power B. & W. water tube boilers and brick house are now nearly completed. Located about 250 feet north-east of breaker.

Sloan Colliery.—One Rock plane tunnel located about 2,000 feet north-east of shaft from Clark to N. C. vein, 7x14 feet length 275 feet, pitch 10 degrees.

Central Colliery.—One rock tunnel plane, located about 800 feet north-west of shaft, 7x14 feet length 375 feet, from Clark to New County vein, pitch 10 degrees.

Hampton Colliery.—One rock plane tunnel, located about 2,600 feet south of shaft, from Rock to Diamond vein, 7x14 feet, length 200 feet, grade 5 per cent.

**Holden** Colliery.—Air shaft from the Big vein to New County vein, size 6x8x36 feet deep, for ventilation.

#### LEHIGH VALLEY COAL COMPANY

William A. Colliery.—A rock tunnel was driven from the middle to the upper-split of Red Ash vein, at a point near foot of long slope, just west of the Lackawanna river. It was put at this point in order that the coal in this vein between the river and shaft could be mined separately from the same vein east of the river, the coal under the river being kept as a barrier or safety pillar. Since the Hallstead mine was flooded a system of silting has been in operation at this mine. All of the finer refuse from breaker, together with the dirt from culm banks on surface, has been silted into the old workings.

The workings along the Hallstead mines have been thoroughly filled from barrier pillar to main gangway. The work is being continued in the old workings along the Pennsylvania Coal Company's line. A slope has been driven from the shaft level to the lowest point in the Flag and Drake tracts. This was for the purpose of saving in haulage, the foot of Long or Main slope being a considerably higher elevation.

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  $6\frac{1}{2}$  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.



Sloan Colliery.—The new air-shaft was sunk a distance of 336 feet during the year.

Bellevue Colliery.—New annex to breaker under construction. Two Triplex Plunger pumps installed. Two low vein coal-cutting machines installed. New concrete mule barn inside.

Dodge Colliery.—New locomotive house. (Outside.) One additional electric locomotive installed. One new 750 gallon fire-pump installed. New concrete mule barn inside. New wash-house.

Holden Colliery.—One additional electric locomotive installed. One additional boiler installed. New wash-house. New concrete barn inside.

National Colliery.—Rock tunnel, No. 2 to No. 1 Dunmore vein. New wash-house. New concrete barn inside.

This Company is to be commended for its efforts in educating its non-English speaking employes. Colonel R. A. Phillips, the General Manager, conceived the idea of having pictures taken in the mines showing how accidents occur and how they are prevented. Two hundred of these pictures appear in book form with simple statements. The book was prepared under the direction of Colonel Phillips and Mr. C. E. Tobey, Superintendent of the Coal Mining Department, and ten thousand copies have been printed and will be distributed to groups known as extension schools in the various mining communities.

The company is promoting this educative work through the local branch of the Young Men's Christian Association.

#### SCRANTON COAL COMPANY

Capouse Colliery.—All inside buildings reconstructed of incombustible material.

#### PEOPLES COAL COMPANY

Oxford Colliery.—New mule barn inside constructed of incombustible material.

New breaker was erected south of the site of the old breaker with a capacity of 1,500 tons daily, equipped with the most modern machinery of every kind.

#### CARLETON COAL COMPANY

National Colliery.—New breaker erected, capacity 100 tons daily. Began operations December 12.

### 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, April 15 and 16. The Board of Examiners was composed of the following persons: H. O. Prytherch, Mine Inspector, Scranton; John P. Corcoran, Superintendent, Rendham; William J. Jenkins, Miner, Scranton; James W. Reese, Miner, Scranton.

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

Hyde Park Colliery.—A 7 by 12 foot tunnel, 220 feet long was driven from the Rock to the Diamond vein. All the inside buildings reconstructed of incombustible material. An automatic overwinding device was attached to the hoisting engines.

National Colliery.—An air shaft was sunk from the surface to the Clark vein, a depth of 75 feet. This shaft is 10 by 16 feet in the clear. A rock tunnel was driven on a 45 degree pitch from M. gangway, Clark vein to B. gangway, Clark vein, 7 feet by 12 feet, a distance of 60 feet for ventilating purposes. Installed railings around all dangerous parts of machinery and openings in the breaker and around all engines and machinery outside. Installed a Welch automatic overwind device or engine stop on hoisting engines. Completed new concrete wash-house, which is properly ventilated, and there is a person in charge to see that it is kept clean.

Dodge Colliery.—New locomotive house outside. Installed additional electric locomotive, 750-gallon fire-pump, and a Welch automatic overwind device or engine stop on hoisting engine. New concrete mule barn inside. New concrete wash-house completed; it is properly ventilated and there is a person in charge to see that it is kept clean. Started work on a new haulage system on the outside to safely convey the cars from the drift to the head of the breaker, which is now being done by an engine. This will be completed in a short time. Installed railings around all dangerous parts of machinery and openings in and around the breaker.

Holden Colliery.—Installed railings around all dangerous parts of machinery in and around the breaker. A Welch automatic overwind device or engine stop was installed on hoisting engines. Completed new concrete wash-house, which is properly ventilated, and there is a person in charge to see that it is kept clean.

Continental Colliery.—A second opening and return air course was driven from No. 1 Dunmore to Clark vein, a distance of 73 feet. An air shaft and second opening was also sunk near outcrop to Diamond vein, depth 30 feet. An automatic overwinding device was attached to hoisting engine.

Hampton Washery.—All the buildings were reconstructed of incombustible material.

This Company is educating its non-English speaking employes. Colonel R. A. Phillips, the General Manager, conceived the idea of having pictures taken in the mines showing how accidents occur and how they are prevented. Two hundred of these pictures appear in book form with simple statements. The book was prepared under the direction of Colonel Phillips and Mr. C. E. Tobey, Superintendent of the Coal Mining Department, and ten thousand copies have been printed and will be distributed to groups known as extension schools in the various mining communities.

This Company is promoting this educative work through the local branch of the Young Men's Christian Association, and it deserves much greater patronage than it is getting at present, as it instructs not only in theory, but also in practice.

#### SCRANTON COAL COMPANY

Capouse Colliery.—All inside buildings reconstructed of incombustible material.

**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.

## CONDITION OF COLLIERIES

## DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Bellevue, Sloan, Archbald, Hyde Park, National, Dodge, **Holden** and Continental.—Ventilation, drainage and condition as to safety, good.

## HUDSON COAL COMPANY

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

## SCRANTON COAL COMPANY

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

## PEOPLES COAL COMPANY

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

## MINOOKA COAL COMPANY

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

## CARLETON COAL COMPANY

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

## EAST MOUNTAIN COAL COMPANY

East Mountain.—Ventilation, drainage and condition as to safety, good.

## IMPROVEMENTS

## DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Bellevue Colliery.—Installed an 8 foot by 20 foot Vulcan ventilating fan, capacity 400,000 cubic feet to replace two small fans of the Guibal type, having a capacity of 300,000 cubic feet.

**Holden**.—Installed a new Jeffrey fan, size 6 by 18 feet capacity 225,000 cubic feet, over a new shaft sunk to the Rock vein, for the purpose of ventilating the Rock Top and Bottom Diamonds and Surface veins.

## SCRANTON COAL COMPANY

Capouse.—Installed tail rope from the Four Foot vein, new tail rope around shaft in Four Foot vein, and endless rope around shaft

## CONDITION OF COLLIERIES

## DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Bellevue, Dodge, **Holden**, National, Archbald, Continental, Hyde Park 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.

## PEOPLES COAL COMPANY

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

## SCRANTON COAL COMPANY

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

## MINOOKA COAL COMPANY

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

## CARLETON COAL COMPANY

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

## SCRANTON ANTHRACITE COAL COMPANY

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

## SPRUKS COAL COMPANY

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

## IMPROVEMENTS

## DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Bellevue Colliery.—Reopening water courses through silt, Clark vein, for drainage purposes.

Dodge Colliery.—Completed sump in No. 2 Dunmore vein, to take care of the surplus water. Also completed new foot and tunnel from Rock vein to bottom split, Diamond vein, for haulage purposes.

Outside:—Erected a brick and concrete blacksmith and carpenter shop. Built a new mule barn in order to avoid crossing railroad tracks with the mules, which had to be done in the case of the use of the old barn.

**Holden** Colliery.—Completed rock tunnel from New County vein to Big vein, for haulage purposes. Installed a new steam pump to take care of the surplus water.

Outside:—Renewed casing on ventilating fan.