

there is but very little noxious or inflammable gas evolved in this mine; it is very seldom ever seen in the mine except when a door or gate is broken, and then not to any dangerous extent; the main doors are all hung so that they will close of their own accord, with an attendant at each; they have double doors on main traveled roads so as to keep up a steady current of air, and they have extra doors in case that any of the others get broken; they do not work over 50 men in any split of air; the amount of ventilation has been measured and reported according to law; ventilation is good.

*Machinery.*—The engines in use at this colliery are 1 pair of hoisting engines of 120-horse power, 1 breaker engine of 60-horse power, 1 steam fire pump of 30-horse power, (all the above are in the shaft engine room,) and 1 steam pump at the foot of shaft of 80-horse power; they have a metal speaking-tube in the shaft; the flanges on the sides of the hoisting drums are of sufficient strength and dimensions for safety; they have an adequate brake on hoisting drum; they use clevis cones and standard wire ropes; the boilers have been cleaned and examined and reported in good condition according to law; they have a safety valve and steam gauge attached to their boilers for the purpose of safety and to indicate the pressure of steam; the breaker machinery, screens, shaftings, cog-wheels, beltings and pulleys are boxed and fenced off so that operatives are safe.

*Remarks.*—They have furnished a map of mine; they have second openings in Central and Continental shafts; they have a house for men to wash and change their clothes in; the mining boss seems to be a competent and practical man; there are no boys working in the mine under 12 years of age; the engineers seem to be practical, experienced and sober men; they do not allow more than 10 men to ride on the safety-carriage at one time; the parties having charge know their duty in case of death or serious accident; the shaft openings are protected by safety-gates.

#### CAPOUSE COLLIERY.

This colliery is located in the city of Scranton and situated one and one-fourth miles north-west of the Lackawanna river. The shaft is 130 feet deep to the Diamond and 169 feet deep to the bottom of the Rock vein. They are sinking a new shaft to the lower veins, which is located about 350 feet west of main shaft; it is operated by the Lackawanna iron and coal company. Charles F. Mattes is general superintendent, R. J. Brooks is mining boss and D. Brooks is outside foreman.

*Description.*—There is a breaker attached to the shaft tower; they mine and prepare 600 tons of coal per day; they employ 68 miners, 64 laborers, 40 drivers, 8 door-boys and 20 company men in the mines; 40 slate pickers, 8 head and plate men, 6 drivers, 9 company men, 7 mechanics and 2 bosses outside; in all 270 men and boys; they are working the Diamond and Rock veins; average thickness of the Diamond 6 feet and of the Rock vein 8 feet; they work headings 15, air-ways 15 and chambers 30 feet wide; they leave pillars 15 feet wide to sustain the roof; they leave cross-entrances from 50 to 60 feet apart for the purpose of ventilation; the roof is rock in both veins; the mines are in a good working condition.

*Ventilation* is produced by a suction fan; the intake is located at north side of main shaft, area 140 feet; the upcast is located in south side of main shaft, area 70 feet; the amount of pure air in the Diamond is 13,000 and in the Rock 13,300 feet per minute; they have double doors on main traveled roads and an extra one in case of an accident to any of the others; the main doors are hung so as to close of their own accord; they have attendants at main doors; the air is conducted systematically to the face of workings by the aid of check-doors; they have two splits of air in each vein; the amount of ventilation has been measured and reported; ventilation is good.

*Machinery.*—They use one breaker engine of 40-horse power, two hoisting engines of 80-horse power, one pumping engine of 70-horse power, one fan engine of 10-horse power; they have a metal speaking tube in the mines; they have two safety-carriages with all the modern improvements; they have an adequate brake and flanges of sufficient strength and dimensions for safety attached to the hoisting drum; the ropes, links, chains and connections are in good condition; the boilers have been cleaned and examined and reported in good condition; they have a steam gauge to indicate the pressure of steam; the breaker machinery is boxed and fenced off so that operatives are safe.

*Remarks.*—They have furnished a map of the mines; they have a second opening for each vein; they have a house for men to wash and change in; the mining boss is a practical and competent man; there are no boys working in the mines under twelve years of age; the engineers seem to be experienced, competent and sober men; they do not allow over ten men to ride on the safety-carriage at one time; they do not allow any person to ride on loaded cars in the mines or on loaded carriages in the shaft; the parties having charge know their duty in case of death or serious accident; the shaft landings are protected by safety-gates.

#### MT. PLEASANT COLLIERY.

This colliery is located in the city of Scranton, on the northern division of the Delaware, Lackawanna and Western railroad, and situated one-fourth of a mile north-west of the Lackawanna river; it is operated by the Mount Pleasant coal company. William T. Smith is general superintendent, James R. James is mining boss and Thomas D. Bevan is outside foreman.

*Description.*—The opening to the coal is a slope driven on an angle of 15°; it is 500 feet to where it strikes the Diamond, 580 feet to where it strikes the Rock, and 700 feet to where it strikes the Big vein of coal; it is 1,200 feet long to where they take the coal out at the basin; there is a breaker connected with these mines, located about 50 feet from main opening; they mine about 350 tons of coal per day; they employ 43 miners, 43 laborers, 20 drivers, 5 runners, 8 door-boys and 14 company men in the mines; 23 slate pickers, 5 head and plate men, 3 drivers, 7 company men, 4 mechanics and 2 bosses outside; in all 177 men and boys; they are working the Diamond and Rock veins, average thickness 7 feet each; they work headings and air-ways from 10 to 12, and chambers 28 feet wide; they leave pillars from 15 to 20 feet wide to sustain the roof; they leave cross-entrances about 60 feet apart for the purpose of ventilation; the roof is good slate; the mines are in a good, safe working condition.

*Ventilation* is produced by means of furnaces; the intakes are located at mouth of slope, area 54 feet; the upcasts are in furnace air shafts, area 48 feet; the amount of fresh air is 14,500 cubic feet per minute, passing through both veins; the main doors are hung so that they will close of their own accord; they have attendants at main doors; they have double doors on main travelled 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 one volume in each vein; the amount of ventilation has been measured and reported; ventilation is good.

*Machinery.*—They use 1 hoisting engine, 70-horse power, and 1 breaker engine, 25-horse power; they have an adequate brake, and flanges of sufficient strength and dimensions for safety attached to their hoisting drum; the links, chains, ropes and connections are in good condition; the boilers have been cleaned and examined and reported in good condition; they have a steam gauge to indicate the pressure of steam; the breaker machinery is boxed and fenced off so that operatives are safe.

*Remarks.*—They have furnished a map of mines; they have second openings for both veins; they have a house for men to wash and change in; the mining boss seems to be a practical and competent man; he has a fire-boss to assist him; there are no boys working in the mines under 12 years of age; the engineers seem to be experienced, competent and sober men; they do not allow any persons to ride on loaded cars in the mines; the parties having charge know their duty in case of death or serious accident; they are sinking an air-shaft 13 feet in diameter, and it is now down 110 feet; they intend to build a furnace in it when completed; they are working 18 men in it at present.

#### FELLOWS' LOCAL COAL SALE MINE.

This mine is located in the city of Scranton, and situated on the west bank of the Lackawanna river. It is operated by J. T. Fellows, Esq. George Perigo has charge of the works, and John Frank is mining boss.

cept what were necessary for development of territory to supply their quota of coal to the market.

**Pennsylvania Coal Company.**

This company have sunk a new shaft in Dunmore borough on what is known as the Gilbert Dunning tract, called No. 1 shaft. Commenced sinking in rock on November 26, 1885, and finished on November 18, 1886. Shaft is  $171\frac{3}{4}$  feet from surface to bottom of first Dunmore vein,  $218\frac{5}{8}$  feet to bottom of second Dunmore vein,  $272\frac{1}{8}$  feet to bottom of lower Dunmore vein, and  $289\frac{1}{8}$  feet to bottom of sump. No coal has been shipped yet. They are opening up the mine and preparing to build a large breaker in connection with the shaft 600 feet east of it. No coal will be shipped until the latter end of year.

**Spencer's Shaft.**

Spencer Bros. have extended their underground slope 1,280 feet; angle of pitch,  $3^{\circ}$ ; sectional area, 90 square feet.

**Richmond Shaft.**

This shaft has been sunk 60 feet to a lower vein; size of shaft,  $12 \times 24$  feet. They are opening out the mines at present.

**Pancoast Shaft.**

The company sunk a new slope 550 feet long in mines on a pitch or angle of  $6^{\circ}$ ; also had a new tunnel driven 128 feet long in rock from top to bottom split of 14-foot, or G, vein; sectional area of tunnel, 60 square feet.

**Marshwood Colliery.**

This is a new colliery, owned and operated by the Moosic Mountain Coal Company. It is located in Olyphant borough, and 3 miles south-east of Lackawanna river. It consists of one drift driven into crop of first Dunmore vein; slope sunk across the measures, cutting the second Dunmore vein, and to the bottom of the lower Dunmore vein. It is 292 feet long; angle of pitch,  $19^{\circ} 25''$ ; sectional area,  $8 \times 12$  feet = 96 square feet. The breaker is not finished yet. It will have a capacity of 1,000 tons of coal per day. There are eight boilers in place, also one pair of hoisting engines and one breaker engine. The company have also built several houses for their employés. From present appearances, it is intended for a first-class colliery. John R. Davis, general manager; B. F. Fillmore, assistant; James R. Wilson, mine foreman. The company will be ready to ship coal as soon as the main outside track is finished to the colliery. They are sinking an air shaft  $12 \times 16$  feet to cut all the veins of coal.

**Capouse Shaft.**

A new plane has been graded at an angle of  $15^{\circ}$  and 450 feet long.

Total number of employés, . . . . .	21,269
Tons of coal mined for each employé, . . . . .	401
Total number of persons working in mines, . . . . .	14,729
Tons of coal mined for each, . . . . .	579
Total number of miners and laborers, . . . . .	10,199
Number of tons of coal mined for each, . . . . .	836
Ratio of employés per life lost, . . . . .	373
Ratio of employés for each personal injury, . . . . .	95

Respectfully submitted.

PATRICK BLEWITT,  
*Inspector of Mines.*

#### Colliery Improvements During 1887.

*Delaware, Lackawanna and Western Railroad Company.*—This company reports but very few improvements during the year, except driving headings and airways to open up their different mines, so as to mine sufficient coal to supply the market.

*Cayuga Shaft.*—The company is sinking a new shaft about one mile north-east of the main shaft for a supply shaft and for the purpose of lowering and hoisting persons into and out of the mines.

*Sloan Shaft.*—Sunk a new slope in coal in mine; and are also building a new plane in mine.

*Storr's Shaft.*—Are sinking a new shaft for second opening and supply shaft.

*Delaware and Hudson Canal Company* have not reported any improvements during the year 1887, except the usual advancement of their workings to supply the coal demand and sinking the two shafts at Dixon mines from G or Big to Clark vein of coal.

*A. Langdon & Co.*—*Belmount Colliery* put in place three new boilers, erected a double elevator and built two new pockets in breaker.

*Bridge Coal Company—Bridge Shaft Mines.*—This company made second opening in new County vein, and are now finishing new foot for same.

*Lackawanna Iron and Coal Company—Capouse Shaft Mines.*—This company is driving a tunnel from rock to Diamond vein; size, 14x6 feet.

*Dolph Coal Company—Dolph Mine.*—This company is driving a rock tunnel.

*Hillside Coal and Iron Company—Forest City Mines.*—The shaft reported as being sunk 160 feet to bottom vein in last year's report (1886), has reached a depth of 199 feet. Suspension of work for some months accounts for it not being finished. Work is now going rapidly forward to completion.

face at shaft and roadbed of tunnel, at which point it is dumped and the coarse coal separated from the fine, the coarse coal to be shipped direct to market and the fine to Bunker Hill breaker. A 90 horse-power engine will be used for hoisting the coal. Three boilers are in place, each 36' long and 30" diameter for the present furnish sufficient steam for hoisting and for one No. 4 Knowls pump at bottom of shaft.

Yours, very respectfully,

JAMES YOUNG,  
*Mine Superintendent.*

**Capouse shaft, Lackawanna Iron and Coal Company.**—Have constructed a new plane between G and Rock veins 369' long; sectional area equal 96 square feet and on an angle of 15°.

**Pine Brook shaft.**—Finished plane 1,500' long; sectional area, 6'x14', equal 84 square feet on a pitch of 15°.

**Clifford shaft.**—Finished one new plane 887' long; sectional area equal 72 square feet on an angle of 6°.

**Forest City mines.**—Finished a new slope 400' long; sectional area, 84 square feet on an angle of 9°.

**Glenwood mines.**—Constructed a slope 400' long; sectional area, 48 square feet on an angle of 14°.

**Keystone tunnel.**—Finished a new plane 1,100' long; sectional area equal 98 square feet on a pitch of 7°.

**Elk Creek drifts.**—Constructed a plane 80' long; sectional area, 5'x16', equal 80 square feet on an angle of 38°.

**Eaton tunnel.**—Extended slope 500 feet; sectional area, 6'x14', equal 84 square feet on a dip of 1 in 9.

**Edgerton Coal Company** is opening a new drift into bottom coal  $1\frac{7}{8}$  miles north of Edgerton No. 2, close to where the old Hendricks breaker stood and on the same tract of land.

**Dolph tunnel.**—Finished plane No. 5, 525' long and on a pitch of 3°; also plane No. 6, 300' long on an angle of 3½°.

**Grassy Island colliery.**—Sunk second opening shaft from Grassy island to Clark vein, a depth of 157' feet; sectional area, 308 square feet; also new air shaft for drift workings and built a new furnace.

**Jermyn No. 3 slope.**—This colliery is located in Dickson City borough about 2,000' northwest of Jermyn shaft No. 4; it consists of a slope and breaker; the slope is sunk. From surface to first vein of coal is 600' and to second vein of coal 800'. It is connected with mine workings of Jermyn No. 4 and is ventilated at present by the fan at Jermyn No. 4. They are sinking a fan shaft northeast from mouth of slope; it is now down about 175'; they are also erecting a fan. The breaker is new and located 200' southeast of slope mouth; it has a capacity of 1,000 ton of coal per day and is furnished with all the modern improvements.

**Lackawanna shaft.**—Finished a plane 300' long; sectional area, 8'x18'

Number of children left as orphans from accidents in	
1890, . . . . .	132
Number of tons of coal produced for each orphan, . . .	67, 669

There were 280,200 kegs of powder used in mining 8,932,235.07 tons of coal in 1890, which would give 31.88 tons of coal for each keg of powder used.

There are 2,753 horses and mules working in and about the mines in this district. There are also 34 mine locomotives with a horse-power of 1,799, making in all a total horse-power of 4,552 for transportation of coal in mines and between mines and breakers.

There are 905 steam boilers which supply steam for 385 hoisting, fan and breaker engines, which have a horse-power of 23,809; also 301 pumping engines and steam pumps with a horse-power 10,665.

There are 68 breakers which have a capacity for preparing and cleaning 53,045 tons of coal per day for shipment to market.

There are also 4 chute buildings for cleaning and dividing coal into various and different sizes, shipping some to market direct and some to breakers to be prepared for market.

Respectfully submitted.

PATRICK BLEWITT,  
*Inspector of Mines.*

COLLIERY IMPROVEMENTS FOR 1890.

*Delaware, Lackawanna and Western Railroad Company*, has made no improvements except driving headings and airways, so as to have their mines in proper condition for opening out their mine workings when necessary.

DELAWARE AND HUDSON CANAL COMPANY.

This company has made but very few improvements during the year.

*Clinton Colliery.*—Has finished one outside slope.

*Eddy Creek Colliery.*—Has built an addition to breaker for the purpose of making chestnut, pea and buckwheat coal.

*Olyphant No. 2 Colliery.*—Put in place one fan engine, 18" x 22"; size of fan 17' diameter by 4' width of face, also placed three boilers 34' long by 36" in diameter.

*Jermyn No. 3 Colliery.*—Finished sinking air shaft to "G" or 14' vein. Machinery is on the ground but not put in place yet.

*Capouse Colliery*—Have finished one plane from "G" to Rock Vein.

*Pine Brook Colliery.*—Drove one slope in coal and one tunnel in rock.

system, mules and boys are not employed in great numbers on main roads, where the most traffic is being carried on, except at stations where the trips are made up. During the year 1899 a number of electric haulages have been introduced into the mines of this district. No accidents have resulted which can be traced to the use of electricity.

A number of automatic mine doors have been introduced into the mines since the passage of an act to amend the tenth section of article ten of the Anthracite Mine Law of 1891, in April, 1899. In the locations which have been selected, these doors appear to be yielding satisfactory results.

As has been noticed in reports of past years, there are a number of bodies of water in abandoned workings in the district. One side only of the pillars against which they rest is accessible for the purpose of ascertaining their condition, and no means are available by which their thickness may be ascertained except by boring; old surveys and maps in most cases being inaccurate. Where these bodies of water are to the rise of adjoining mines, even if it has been demonstrated that they are comparatively safe under the conditions now prevailing, in case of an extensive squeeze taking place in one or more of the adjoining mine workings, should this approach the barrier pillar, it is possible that the result would be detrimental to the interests of the adjoining operators, even if all persons had been withdrawn.

I am pleased to note that one such body of water has been drained during the year, namely, the Rockwell slope workings. These workings are on a pitch of twenty-five degrees, furthermore no map of them could be found. The Delaware, Lackawanna and Western Railroad Company's Cayuga Clark vein workings and the Delaware and Hudson Company's Von Storch Clark vein lie immediately below the workings referred to. The water was tapped from the Cayuga mine by a bore hole, and allowed to drain off, and the old workings surveyed and mapped as far as falls would permit, for future reference.

The Scranton Coal Company's Capouse mine, Clark vein workings, have been filled with water to the level of the New County vein above, for years past. This water rests against the pillars dividing the mine from four adjoining mines. I am pleased to report that this also is in the course of being pumped out.

Flushing is being done at many of the mines of the district. Old workings which are above and below those in course of operation are being filled up in a systematic way from the large culm dumps outside. In most cases this is being done in connection with the preparation of coal from the culm dumps in washeries. As a measure to prevent a general movement of the strata in the shape of squeezes,

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 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.

## 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

in Clark vein. Completed tunnel on grade from Four Foot to Five Foot vein, and second opening in Five Foot vein. Reopened Rock vein and timbered it. Started rock cogs under Main Avenue.

EAST MOUNTAIN COAL COMPANY

East Mountain Colliery.—Completed a new breaker, also office building, blacksmith shop and out-houses.