

which has improved the ventilation of that colliery greatly. For full description of the fan, see Table No. 1.

At the Baltimore tunnel, a new tunnel is now in progress, from the Baltimore to the Red-Ash seam. It is at present about twelve hundred feet in length, and is expected to go about three hundred feet further before striking the coal. It is intended for a mine locomotive to haul the coal out from this tunnel when completed, and is driven large enough for that purpose.

At the Conyngham shaft, the second opening is through, and a breaker is now in course of construction at the top of the shaft. By the time they will be ready to ship coal through the breaker, the gangways will be driven a goodly distance, and will have room to open a number of chambers, and give a good quantity of coal when they start.

**Susquehanna Coal Company.**

The **No. 5 breaker**, a large structure capable of shipping over one thousand five hundred tons per day, erected by this company at Nanticoke, was completed ready to ship coal on the first day of April, 1880.

A new fan was erected at No. 1 slope, a description of which is given in table No. 1. The ventilation of this mine was much improved by the erection of this fan, and is now in pretty good order.

At the grand tunnel, West Nanticoke, a new underground slope was driven down to a basin, which was a considerable distance below their workings. The slope is one thousand four hundred feet in length, and has an average grade of seven and a half degrees. It opened a convenient territory of excellent coal.

**Delaware, Lackawanna and Western Company.**

At the Avondale colliery a new underground slope was opened a distance of one thousand eight hundred and forty-five feet, on an average grade of twelve degrees. A large territory of excellent coal can be worked from this slope, and is convenient to the shaft.

They also drove a new plane, extending above their present workings a distance of one thousand four hundred feet, from which a large amount of coal is expected to be mined. This makes the fourth plane, one extending above the other, on the same pitch.

**The Kingston Coal Company.**

This company is sinking a new shaft near their present No. 2 shaft. The sectional area of it is twelve by thirty-three feet, and it is down at the time of this writing four hundred and seventy-five feet. They contemplate sinking it through the Ross and into the Red Ash veins, both of which are to be worked from it.

In the No. 2 shaft an underground slope was driven down to a length of one thousand three hundred and fifty feet, on a grade of one in twelve. They also drove a tunnel from the Cooper to work the Bennett vein.

Plane is now up 1,400 feet. At present is driving through fault or upthrow to bottom split in which vein the plane will be continued. Sinking slope and airway in Red Ash bottom split. Now down 1,400 feet. This slope will be an engine plane and second opening for No. 3 colliery. Pair hoisting engines, size 18x36 inches, at outlet shaft. Brick engine house, 22x43 feet.

#### Improvements by the Susquehanna Coal Company, 1899.

The principal improvements made by this company during 1899 have been in opening a tract of coal land situate at Stearns Station, Newport township, Luzerne county, about half way between their Nanticoke and Glen Lyon lands; these consist of three shafts in process of sinking, viz:

No. 4 shaft, four compartments, 15 feet 6 inches by 33 feet 10 inches inside, concrete coping; this has been sunk 430 feet and provided with a steel head frame 48 feet high to carry four 14-foot sheaves, one of which is in place; temporary hoisting engines, 18x36 inches, geared  $3\frac{1}{2}$  to 1, to 12 foot drum; 6-foot Sturtevant ventilating fan and compressor, 20x20x30 inches, with the necessary engine, fan and compressor houses.

No. 4 air shaft, being sunk as a second opening for No. 4 shaft, is located about 330 feet northerly from it, size 14x16 feet, inside concrete coping; this has been sunk about 100 feet and provided with wooden head frame 35 feet high, and permanent 15x48-inch direct acting hoisting engines, with 6 foot drum, the intention being to use a small carriage about 5x8 feet in one corner for hoisting men and materials, for repairs and in emergencies; there is also a ladderway partitioned off, the shaft being used as an airway to the permanent fan.

**No. 5 shaft**, located about 730 feet northerly from No. 4, is being sunk to develop the upper seams in the north basin, independent of the main No. 4 shaft; about 40 feet has been sunk. It is 22x15 feet 2 inches inside the concrete coping, providing for two hoistways and a pump and manway; a wooden head frame 42 feet 2 inches high has been erected, with two 14-foot sheaves and permanent hoisting engines, 20x36 inches, geared  $3\frac{1}{2}$  to 1, to 12 foot drum, with engine house.

The steam for this plant is furnished at present by two 250 horsepower Babcock & Wilcox boilers, the boiler house being located about 190 feet northeasterly from No. 4 shaft. There have also been built two blocks of miners' dwellings and a foreman's house, with sewerage, and water pipes have been extended from the Nanticoke Water Company's main, throughout the plant.

The improvements made at Nanticoke consist of four additional pumps put in No. 4 slope to control the water from the cave of April 13, and a new Peanesville pump 30x12x36 put in the Forge seam,

*Subs. Coal  
No. 5*

No. 1 shaft, to take the place of the Hillman seam pump, which has been moved to the Lee seam, obviating the necessity of hoisting the No. 1 shaft water by tanks suspended under the cages.

A new washery was built during the strike to supply boiler coal from the old No. 1 breaker bank; this is located near the old No. 1 slope.

There have been driven ten minor rock tunnels for ventilation and second opening and six planes extended, two of them in rock, as well as a shaft sunk 102 feet from the Hillman toward the Forge seam, in No. 4 slope; the total depth of this will be about 175 feet, making second opening from the No. 4 slope, Forge seam, workings.

At No. 6 colliery extensive retimbering has been done, but no new work of importance.

#### Delaware, Lackawanna and Western Company, 1899.

Woodward Colliery.—Slope in Cooper seam, 7x14 feet, 300 feet long; not completed. Slope in Ross seam, 7x14 feet, 600 feet long; not completed. Engine plane in Bennett seam 7x14 feet, 3,000 feet long. One electric hoist for plane, 80 horse power.

Bliss Colliery.—One shaft for second opening to the Hillman seam; size, 5x6 feet, and 45 feet depth. Tunnel from Baltimore to Hillman, 7x12 feet and 290 feet in length. Slope in Baltimore seam, 7x12 feet, 1,500 feet long; not completed. Slope in Ross seam, 7x20 feet, 1,000 feet long; not completed. Tunnel Forge seam to Red Ash, 7x16 feet, 125 feet long; not completed.

#### West End Coal Company, 1899.

Outside.—Five-foot high pressure return tubular boilers; three at boiler plant, on top of hill, and two at long drift boiler plant. One 6-inch steam line from long drift boilers to bore hole near barns. One 5-inch steam line from boilers on top of hill to old airshaft and down through bore hole to head of slope. One bore hole for 6-inch steam line near barns and bore hole for water column near same place. One bore hole for rope, from surface to head of Sand drift slope, and engine and engine house placed on surface for same. Removed fan from old Conyngham drift and placed it at mouth of old Black Creek tunnel.

Inside.—Rock tunnel driven from bottom split, Red Ash, to top split, a distance of 310 feet. Rock plane driven from second lift, Baltimore slope, to top split, a distance of 246 feet. Gravity plane in "Klondyke," about 200 feet long.

**Improvements by the Susquehanna Coal Company During 1901.**

**Colliery No. 5.**—Shaft No. 2, Nanticoke, completed rock plane from Lee to Ross seams, total length 430 feet—outlet for second opening from head of No. 5 plane to connect with old workings in No. 4 tunnel—airshaft 100 feet deep from surface to head of No. 5 plane.

Shaft No. 4.—Extended rock foot on east side of shaft 125 feet, turned south and drove tunnel 220 feet and struck the coal; drove a tunnel on the north side 600 feet from the foot before reaching the seam, and an outlet for the second opening.

Shaft No. 5.—A plane 350 feet long to the top of the anticlinal on east side of shaft.

Slope No. 4.—Reopened the slope from No. 7 to No. 8 lifts.

Colliery No. 5.—Outside, Babcock & Wilcox boiler plant 500 horse power, and a large addition to the breaker to be used as a jig house.

Colliery No. 6.—Opened up Rider seam in No. 6 tunnel; open cut ten feet deep and 370 feet long for the purpose of getting around to the other pitch at No. 6 slope; No. 6 South shaft, a new traveling way from the head of No. 4 plane to the foot of shafts so that the men need not walk on the motor road. Outside, installed 1,000 horse power Babcock & Wilcox boilers, and large addition to the breaker.

Colliery No. 7.—No. 1 North shaft reopened Cooper seam from No. 17 tunnel, that had been abandoned for several years. No. 1 South shaft, reopened No. 10 slope from top to bottom to take the coal from southeasterly portion up No. 10 slope instead of up No. 5 slope; drove trail slope 500 feet long in Ross seam to develop basin; sunk a bore hole from the surface to the head of No. 10 slope eight inches in diameter for the slope rope. Outside, 500 horse power Babcock & Wilcox boilers; compressor plant to run air motor in No. 1 South shaft, and in the breaker, several Anthracite separators or spiral slate pickers.

In compliance with act No. 212, session of 1901, approved by the Governor the 29th day of May, 1901, this company has at each mine an emergency hospital for the care of injured employes, at least eight feet by twelve feet, and containing the following articles for immediate use: Four woolen blankets, two rubber blankets, eight quarts carron oil, two small rubber tourniquets; one large body rubber tourniquets, one bottle antiseptic lotion, one bottle aromatic spirits of ammonia, one dozen roller bandages, three triangular bandages, one roll adhesive plaster, ten wooden splints, one wash basin, one tin cup, two linen towels, one paper of No. 3 pins, one dozen safety pins No. 2½, one teaspoon, one scissors, two bars surgeon's soap, twelve oz. absorbent lint; twelve oz. absorbent cotton; a sufficient supply is kept at the office to supply the hospitals when necessary; also a record book, two kerosene lamps, two chairs, two benches, two stretchers and a table. The rooms are heated by steam and are very comfortable. Every mine that I have visited since this law went into

during 1901. An 8" bore hole, 749 feet in depth, was sunk from the surface to the Red Ash seam, for operating a new slope in this seam.

Baltimore No. 2.—The hoisting engine house, fans and fan houses and a new steel tower over-shaft were rebuilt. A new plane was constructed from the top of shaft to railroad level for handling the output of this shaft.

Baltimore Tunnel.—No. 6 Slope, Red Ash seam, extended 300 feet; No. 7 Slope extended 400 feet and No. 10 Plane extended 400 feet.

### Improvements at the Collieries of the Susquehanna Coal Company During the Year 1902.

**No. 5 Colliery.**—Outside: Remodelling breaker and rebuilding jig house.

New boiler plant, 2,000 horse power B. & W. boilers, replacing old cylinder boiler plant.

New compressor house, with two-stage Ingersoll-Sergeant compressor, 20" steam, 20 $\frac{1}{4}$ " and 32 $\frac{1}{4}$ " air, 24" stroke.

Inside: No. 2 Shaft, No. 13 $\frac{1}{2}$  inside slope, opened 400 feet to replace No. 13 Slope closed during strike.

Second opening on head of No. 12 rock plane from Lee to Ross.

No. 4 Shaft: New airway in Ross seam from North tunnel to No. 4 air shaft.

Second opening from South tunnel.

Steel roof supports at lower landing, Shaft No. 4.

No. 4 Slope: Rock plane from Mills to George seams, 434 feet long, 7'x14' on a 20-degree pitch.

No. 6 Colliery.—Outside: New B. & W. boiler plant, 2,000 horse power, with steam lines to No. 6 Shaft, replacing cylinder boilers.

New water hoist tanks in No. 6 North Shaft, which is being made into a water hoist shaft.

No. 7 Colliery.—Outside: New hoisting engines, 32"x48", with 13' cast drum, double air brake, and over-winding device, replacing old 28"x72" engines at No. 1 deep shaft.

Pneumatic haulage plant, No. 1 to No. 3 Shafts, completed with three-stage Norwalk compressor, 22" steam, 16", 5 $\frac{5}{8}$ " and 11 $\frac{1}{2}$ " air, 24" stroke, and Porter pneumatic locomotive, 8"x14", with air line carrying 900 pounds pressure, replacing rope haulage.

Old rope haulage engines repaired and put in place for Slope No. 10.

New lamp house constructed, from old rope haulage engine house.

B. & W. boiler plant, 2,500 horse power, replacing 48 cylinder boilers.

to determine safe working rock cover on the flats near the river. New concrete cribs have replaced the old wooden ones in both hoist and ventilating shafts. New and improved safety gates and stop blocks put on Baltimore shaft. New brick electric light house. New brick and concrete safety lamp house. New concrete pump house on river bank.

#### Franklin Colliery

No. 8 slope extended 320 feet to Brown pillar line. No. 8 tunnel extended 190 feet to Ross vein. No. 15 tunnel is being driven from Red Ash rock slope to Ross, 480 feet to date. Tunnel extended 150 feet in Baltimore slope district to Abbot vein. New tunnel from top to bottom split of Red Ash completed. A new slope started in Ross vein. A new inside slope begun in top split of Red Ash. The old Brown slope reopened. Work is progressing on installation of 300 additional H. P. return tubular boilers. New fan, blowing engine installed. New 14x20 engine set in place at Red Ash second outlet shaft. New corrugated iron powder house. New dam and corrugated iron pump house. Washery completed and working. Number of repairs and alterations made in breaker. Baltimore fan house rebuilt.

#### SUSQUEHANNA COAL COMPANY

##### Colliery No. 5

Outside.—Jig house completed. New steel bridge over breaker tracks. New compressor house, and 2-20 $\frac{1}{2}$  and 36x20x36 Ingersoll-Sergeant duplex two stage compressors. One hundred new steel mine cars.

Inside.—Rock plane, Mills to George, unfinished.

##### Stearns

Inside.—No. 4 shaft tunnels and returns completed, rock turnout for empty cars unfinished. New plane in Ross unfinished.

##### Colliery No. 7

Outside.—New lamp house completed. New timber yard completed. Remodelling No. 7 breaker, unfinished.

Inside.—New plane in Cooper seam unfinished. Slope No. 14, Ross seam.

##### Colliery No. 6

Outside.—Two thousand five hundred H. P. B. & W. boiler plant completed, and old cylinder boilers at No. 6 shaft and No. 6 slope abandoned. New rolls and screens in breaker. New railroad from No. 7 shaft to breaker, about 1 $\frac{1}{2}$  miles, completed.

Inside.—New tunnel slope No. 6 to N. shaft No. 6, unfinished.

### Sugar Notch No. 9 Colliery

Outside.—Fuel conveyor breaker to boiler house.

Inside.—No. 18 tunnel Baltimore to Cooper, 57 yards; No. 13 tunnel Baltimore to Stanton, 135 yards; No. 16 tunnel Twin to Cooper, 33 yards; No. 17 tunnel Ross to Twin, 37 yards.

### Maxwell No. 20 Colliery

Inside.—No. 18 tunnel Red Ash to Ross, 98 yards; No. 10 tunnel extended to Ross, 124 yards; tunnel airway for No. 7 slope, 67 yards; No. 7 tunnel Red Ash to Red Ash, 39 yards; rock plane airway Red Ash to Ross for No. 18 tunnel, 51 yards.

## SUSQUEHANNA COAL COMPANY

### Colliery No. 5

Outside.—Two new bridges built across Forge Creek for transportation from shafts Nos. 4 and 5, also from No. 14 slope and No. 4 and 4½ drifts. A new Ingersoll duplex compound air compressor placed to further increase the amount of air for hoisting and pumping from No. 2 shafts and No. 4 slope.

Inside.—New tunnel No. 4½ from surface towards Ross seam above drainage level. New slope sunk in Twin Seam inside tunnel No. 8 in No. 2 shaft.

### Colliery No. 6

Outside.—A new jig house was commenced for the better preparation of coal at this breaker.

Inside.—An air shaft was sunk to the bottom split Ross seam No. 6 slope; a new shaft 13x16 feet 6 inches was sunk to a depth of 402 feet to the bottom split Ross vein, also head frame, hoisting engines and foundation, compressor, boilers and boiler house, steam line and tracks on surface for same shafts.

### Colliery No. 7

Outside.—New jig house as previously mentioned completed and now in operation, also boiler house to contain 4,000 H. P. Babcock and Wilcox boilers has been begun and will be completed during the present year.

Inside.—No. 13 tunnel extension to Hillman seam in No. 1 North shaft; a 12 inch bore hole a depth of 979 feet was driven from the surface to the Lee vein for steam line to furnish steam for pumping from the various levels in No. 1 shaft. There were also purchased during the year at No. 5 colliery, 200 steel mine cars.

## IMPROVEMENTS

## SUSQUEHANNA COAL COMPANY

## Number 5 Colliery, Outside

One pair 16x30 engines erected at No. 5 Breaker to hoist coal into breaker.

One pair 16x24 engines erected on dirt bank.

One battery of 500 H. P., B. and W. boilers erected, making this plant now 2,500 H. P.

One 400 H. P. Climax boiler erected on No. 5 dirt bank, replacing old cylinder boiler plant.

## Inside

Number 2 Shaft.—New pneumatic haulage plant installed with three stage Norwalk compressor 22 inch steam, 16 inch and  $\frac{1}{2}$  inch by  $5\frac{1}{8}$  inch air, 24 inch stroke and Porter pneumatic locomotive 8x14 inch with air line carrying 1,000 pounds pressure.

Number 4 Shaft.—New plane from Bottom to Top Ross.

Tunnel from South tunnel to Twin vein.

New slope from the Basin to Top Ross.

## Number 6 Colliery, Outside

Two 400 H. P. Climax boilers at No. 7 Shaft.

## Inside

Tunnel from Bottom to Top Ross in No. 6 tunnel.

New plane No. 1, Shaft No. 7, 159 yards.

New plane No. 2, Shaft No. 7, 196 yards.

New dirt and rock conveyor to carry waste material from breaker to foot of dirt plane. Outside.

New Slope Bottom Ross, Shaft No. 7, 80 yards. Inside.

## Number 7 Colliery, Outside

New boiler coal conveyor.

## Inside

A plane from Forge to Cooper Seams, No. 1 N. Shaft, 79 yards.

Second opening Hillman vein.

New slope Forge Seam.

## DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

## Auchincloss Colliery

Four rock tunnels 7x12 have been driven through faults, connecting Ross and Baltimore veins, also Mills and Hillman veins, for ventilation, development, etc.

The installation of a 16 foot dust fan, mechanical pickers, etc., in this breaker, has added decidedly to its efficiency.

A  $19\frac{1}{2}$ x $19\frac{1}{2}$  brick and concrete lamp house has been erected.

## Bliss Colliery

Two rock tunnels 7x12 have been driven from Baltimore vein to Forge vein,



Bliss Colliery.—Ventilation good; roads and drainage good; condition as to safety good.

Truesdale Colliery.—Ventilation good; roads and drainage fair; condition as to safety good.

#### WEST END COAL COMPANY

West End Colliery.—Ventilation good; roads and drainage fair; condition as to safety good.

#### LEHIGH AND WILKES-BARRE COAL COMPANY

Wanamie Colliery.—Ventilation good; roads and drainage good; condition as to safety good.

#### ALDEN COAL COMPANY

Alden Colliery.—Ventilation good; roads and drainage fair; condition as to safety good.

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### IMPROVEMENTS

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#### SUSQUEHANNA COAL COMPANY

Colliery No. 5, Outside.—Installed a new fan to remove the dust from the breaker.

Addition to breaker and machinery.

Inside, No. 2 Shaft.—One new air locomotive.

No. 8 tunnel extended to connect No. 2 shaft with No. 4 slope, 182 yards.

New plane No. 6 in Ross seam.

New slope No. 20 in new lift in Ross seam, 148 yards.

No. 4 Slope.—New slope in Forge seam, 193 yards.

No. 4 Shaft.—Second opening for No. 3 slope, new slope No. 3, 141 yards.

Colliery No. 6, Outside.—Two new locomotives to haul coal from No. 7 shaft, No. 10 slope and No. 1 drift to the breaker.

Inside.—New electric haulage in No. 6 tunnel.

New engines for No. 1 plane in No. 7 shaft.

Tunnel Ross to Twin seams in No. 6 tunnel, 71 yards.

No. 11 slope in No. 7 shaft, 228 yards.

Colliery No. 7, Inside.—Two new air motors with air lines for No. 1 North shaft.

No. 17 plane in No. 15 tunnel, 100½ yards.

One new air motor for No. 3 shaft in South shaft No. 1.

New slope No. 23 West Ross in No. 1 South shaft, 205 1-3 yards.

New slope from head No. 12 plane to the Ross seam, in No. 1 South shaft, 228 yards.

Number 6.—Ventilation good; drainage fair; condition as to safety good.

Number 7.—Ventilation, drainage and general condition, good.

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Auchincloss.—Ventilation, drainage and general condition, good.

Bliss.—Ventilation, drainage and general condition good.

Truesdale.—Ventilation good; drainage fair; condition as to safety, good.

WEST END COAL COMPANY

West End.—Ventilation and drainage fair; condition as to safety, good.

LEHIGH AND WILKES-BARRE COAL COMPANY

Wanamie.—Ventilation, drainage and general condition, good.

ALDEN COAL COMPANY

Alden.—Ventilation, drainage and general condition, good.

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IMPROVEMENTS

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SUSQUEHANNA COAL COMPANY

**No. 5 Colliery.**—A new pump house was made at the foot of No. 2 shaft in which a Goyne Duplex pump, 40 x 23 x 48 inches was installed.

No. 8 tunnel, connecting No. 2 shaft with No. 4 slope, was completed.

No. 6 Colliery.—Built a concrete wash-house with four shower baths and clothes lockers.

An electric generator, operated by a 17 x 15-inch Ridgway engine was installed in the power house.

The steam locomotive used in No. 6 tunnel was replaced by a 7½ ton electric motor.

An electric hoist was installed at the top of No. 12 slope.

No. 7 Colliery.—A brick building 10 feet 9 inches by 10 feet 9 inches was erected and is known as the Draeger Rescue Station. All the necessary equipment, including 4 helmets and charging tanks, is kept in the building ready for use. The station is in charge of John B. Jones, whose duty is to visit the several mines of the company once each month and train the different corps selected for this purpose in the proper manipulation of the apparatus. The apparatus is most effective when it is worn by persons who by training have learned to have confidence in its efficiency.

A return airway 108 yards long was driven in the Cooper seam, from No. 17 plane to No. 13 tunnel level.

A return airway was driven in the Mills seam from the west gangway, No. 30 tunnel to the anticlinal, from which point it was driven

## CONDITION OF COLLIERIES

## SUSQUEHANNA COAL COMPANY

Number 5.—Ventilation good, drainage fair, condition as to safety good.

Number 6.—Ventilation good, drainage fair, condition as to safety good.

Number 7.—Ventilation, drainage and condition as to safety good.

## DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Auchincloss.—Ventilation good, drainage and general condition good.

Bliss.—Ventilation good, drainage fair, condition as to safety good.

Truesdale.—Ventilation good, drainage fair; condition as to safety good.

## WEST END COAL COMPANY

West End.—Ventilation and drainage fair, condition as to safety good.

## LEHIGH AND WILKES-BARRE COAL COMPANY

Wanamie.—Ventilation, drainage and general condition good.

## ALDEN COAL COMPANY

Alden.—Ventilation good, drainage fair, condition as to safety good.

## IMPROVEMENTS

## SUSQUEHANNA COAL COMPANY

**Colliery No. 5.**—A two-story chemical laboratory, 20 feet by 26½ feet, was built of concrete-blocks and equipped with all the necessary apparatus for analysis.

Fire alarm system installed in No. 5 breaker.

Three passenger coaches were purchased during the year and placed in service between Nanticoke and Sterns (shafts Nos. 4 and 5) to carry the employes to and from work.

No. 2 Shaft.—Placed in No. 8 tunnel 62 sets of steel timber.

New pump room has been made at the foot for the purpose of installing another 26 by 45 by 14 by 48 Compound Duplex Goyne steam pump.

No. 34 Tunnel was driven 85 yards.

No. 4 Slope.—Tunnel No. 35 in the Mills Seam was driven 52 yards.

No. 24 Slope was driven 114 yards and is completed.

Colliery No. 6.—A two-story concrete-block building to be used as a supply store was completed.

A new A. C. 300 K. W. engine and generator have been installed in the power house and are now in service, supplying electric current for lighting and transportation.

A new Fairbanks scale was installed.

## CONDITION OF COLLIERIES

## SUSQUEHANNA COAL COMPANY

Numbers 5 and 7.—Ventilation, drainage and condition as to safety, good.

Number 6.—Ventilation and condition as to safety, good. Drainage fair.

## DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Auchincloss.—Ventilation, drainage and general condition, good.

Bliss and Truesdale.—Ventilation and condition as to safety, good. Drainage fair.

## WEST END COAL COMPANY

West End.—Ventilation and drainage fair. Condition as to safety, good.

## LEHIGH AND WILKES-BARRE COAL COMPANY

Wanamie.—Ventilation and condition as to safety, good. Drainage fair.

## ALDEN COAL COMPANY

Alden.—Ventilation and condition as to safety, good. Drainage fair.

## IMPROVEMENTS

## SUSQUEHANNA COAL COMPANY

**Colliery No. 5.**—A steam locomotive 10x16 outside connected, solid frame, saddle tank, with four 30-inch diameter drivers for 42-inch track gauge with 5-foot wheel base, was purchased and placed on the surface between Nos. 4 and 5 shafts.

Old No. 1 slope has been reopened for the purpose of mining pillar and solid coal not previously mined. At the head of the slope an engine and house were erected to hoist the coal to the surface.

No. 26 slope in No. 4 slope was driven during the year 163 yards and is completed.

A second opening was driven in No. 4 shaft a distance of 126 yards and is completed.

A 26x45x48 Compound Duplex Goyne pump was installed at the foot of No. 2 shaft, and the old Bull pump was removed.

**Colliery No. 6.**—A new platform conveyor line was installed in the breaker during the year to convey the coal from No. 6 tunnel to the head of the breaker. This coal was formerly hoisted by rope haulage.

Built a new car and smith shop.

Installed in No. 11 slope, No. 6 tunnel, an electric pump, capable of handling 150 gallons of water per minute.

A tunnel was driven in No. 6 shaft a distance of 98 yards.

Electric haulage was installed in No. 7 shaft and three 7-ton, 250 volt electric motors placed in the shaft for transporting coal.

New air shaft in No. 7 shaft was driven 127 yards.

A slope was driven in the Hillman seam, Slope No. 6, 83 yards.

Slope No. 13 in No. 1 drift was driven a distance of 90 yards.

## CONDITION OF COLLIERIES

## SUSQUEHANNA COAL COMPANY

Number 5 Colliery.—Ventilation and condition as to safety good. Roads and drainage fair.

Number 6 Colliery.—Ventilation, roads and drainage, fair. Condition as to safety, good.

Number 7 Colliery.—Ventilation fair. Roads and drainage, good. Condition as to safety, good.

## DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Auchincloss Colliery.—Ventilation, roads, drainage and general conditions, good.

Bliss and Truesdale Collieries.—Ventilation and condition as to safety, good. Roads and drainage, fair.

## WEST END COAL COMPANY

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

## LEHIGH AND WILKES-BARRE COAL COMPANY

Wanamie Colliery.—Ventilation, roads, drainage and general condition, good.

## ALDEN COAL COMPANY

Alden Colliery.—Ventilation, good. Roads and drainage, fair. Condition as to safety, good.

## E. S. STACKHOUSE COAL COMPANY

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

## IMPROVEMENTS

## SUSQUEHANNA COAL COMPANY

**Number 5 Colliery.**—Seventy-five new steel body mine cars were added to equipment. Built new retail coal pockets for the purpose of handling more retail coal and coal mined by the West Nanticoke Coal Company. This Company loads the coal in gondolas and it is transported from West Nanticoke to East Nanticoke, dumped in above pockets, reloaded into mine cars and prepared for market in No. 5 breaker.

In No. 8 tunnel 100 sets steel timber were placed.

No. 21 plane in No. 2 shaft was driven 77 yards.

The Mills slope in No. 4 slope was driven 115 yards.

Second opening No. 3 rock plane at Stearns was driven 254 yards and completed.

A rock slope is being driven through fault, west of No. 7 tunnel, to the Ross vein.

The entrance to the Espy tunnel section has been made fireproof by removing all timber sets, cribbing, et cetera, and erecting side walls and I beams.

#### SUSQUEHANNA COAL COMPANY

**Colliery No. 5.**—49 new steel-body mine cars were added to equipment.

81 sets of steel timber were placed in No. 8 tunnel.

No. 21 plane in No. 2 shaft was driven 78 yards.

For protection against fire about the colliery an Ajax chemical fire engine was added to equipment.

Mills slope in No. 4 slope was driven 48 yards and completed.

A new No. 46 tunnel from Mills to Mills seam in No. 4 slope was driven 83 yards.

A new No. 47 tunnel from Forge to Cooper seam in No. 4 slope was driven 68 yards.

A new 14 by 8 by 13 horizontal piston pump was installed in the Hillman slope in No. 2 shaft.

The head of No. 4 slope, which was originally wood, was made fireproof with concrete and steel. There is no wooden timber in this slope within 800 feet of the head.

A new Telephone Exchange was installed in the supply store. The exchange is connected with all openings about Nos. 5 and 7 Collieries and an operator is on duty from 6 a. m. to 6 p. m. daily.

Commenced the building of a new steam line from Colliery No. 7, new Babcock and Wilcox boilers, to Black Hill, Lee, Ross and No. 1 slope. This line will be 15 inches for a distance of 2,200 feet and 5 inches for a distance of 4,300 feet.

No. 4 slope in No. 4 shaft was driven 29 yards and completed.

Colliery No. 6.—Installed in the power house a 20 by 24 by 7 inch R. H. Hamilton engine and Westinghouse generator.

Added to equipment 51 steelbody mine cars and a 10 by 16 inch tank locomotive. The locomotive hauls the coal between No. 7 shaft and the breaker.

No. 22 tunnel was driven 52½ yards and completed.

No. 11 slope in No. 7 shaft was driven 78 yards and completed.

11 sets of steel timber were placed in pump house at foot of No. 6 shaft.

No. 22 tunnel outlet was driven 190 yards.

A new 10 by 5 double inlet exhaust mine fan was installed to ventilate No. 7 shaft workings.

An electric pump was installed in No. 13 slope, No. 1 drift.

Colliery No. 7.—Placed in breaker 7 spiral pickers. In March commenced the erection of 4 batteries, 1818 horsepower Babcock and Wilcox boilers. This plant will furnish steam for the operation of Black Hill, Lee, Ross and No. 1 slope, replacing the old cylinder boilers now located at No. 2 slope, Lee and Ross.

New rock plane in north shaft was driven 86 yards and completed.

No. 31 slope in south shaft was driven 100 yards.

Installed in No. 19 slope in south shaft a pair of 10 by 12, 50 horsepower double cylinder friction drum hoisting engines.

Placed in No. 7 plane in north shaft 33 sets of steel timber.

An airway, top split of Mills, north shaft, was driven 132 yards,

under way for the development of this property. This colliery is the only one in operation in the Anthracite Coal Fields that has shipped to market over one million tons of coal in two successive years.

#### SUSQUEHANNA COAL COMPANY

**Colliery No. 5.**—Placed in No. 8 tunnel 50 sets of steel timber. Placed in No. 6 lift, No. 4 slope, 25 sets of steel timber.

**Colliery No. 6.**—Installed a shortwall electric mining machine. At the head of No. 7 shaft a new steel head frame was built to replace the wooden structure. A wash-house was built during the year and a new fire alarm system was installed in the breaker.

**Colliery No. 7.**—A rock airway, for the purpose of ventilation, from the lower workings of the south shaft to the surface, was driven 259 yards during the year.

#### LEHIGH AND WILKES-BARRE COAL COMPANY

**Wanamie Colliery.**—Tunnel for ventilation driven from Top to Bottom Baltimore, No. 24 tunnel east. No. 37 tunnel driven from Top Baltimore to Hillman. Tunnel driven from Hillman to Hillman, No. 12 tunnel west. No. 13 slope extended Top Baltimore to Baltimore.

## CONDITION OF COLLIERIES

### SUSQUEHANNA COAL COMPANY

Numbers 5, 6 and 7 Collieries.—Ventilation, fair. Drainage and condition as to safety, good.

### DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Auchincloss and Bliss Collieries.—Ventilation, drainage and condition as to safety, good.

### WEST END COAL COMPANY

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

### LEHIGH AND WILKES-BARRE COAL COMPANY

Wanamie No. 18 Colliery.—Ventilation fair. Drainage and condition as to safety, good.

### ALDEN COAL COMPANY

Alden Colliery.—Ventilation and condition as to safety, good. Drainage fair.

### E. S. STACKHOUSE COAL COMPANY

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

### EAST ALDEN COAL COMPANY

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

## IMPROVEMENTS

### SUSQUEHANNA COAL COMPANY

**Colliery No. 5.**—Purchased 24 new steel body mine cars. Installed in No. 5 breaker 4 new Wilmot jigs.

Placed 151 sets of steel timber. Erected electric sub-station for electric haulage. Completed 12 inch steam line for new power plant.

Rock tunnel No. 6, in No. 4 shaft, Stearns, from Bottom to Top Ross seam, was driven 109 2-3 yards during the year.

Colliery No. 6.—Purchased and placed in service 28 new steel body mine cars.

No. 5 tunnel, from Bottom Ross seam in the Glen Lyon basin to the Bottom Ross seam in the Priscilla Lee basin, was driven 186 yards during the year, making a total of 1,043 yards driven to date.

No. 5 plane, from No. 5 tunnel, was driven 297 1-3 yards during the year. No. 32 tunnel, from No. 5 tunnel, was driven 69 2-3 yards during the year.

A new wash-house was erected at No. 7 shaft.

Colliery No. 7.—Installed 12 Wilmot jigs and 3 Norman pickers in No. 7 breaker.