Miscellaneous Coal Companies.

At the Steven's colliery a new Guibal fan 20 feet in diameter was erected on the air shaft connected directly to the crank of the fan · all the connections to the fan are not completed at this writing.

At the Avoca colliery a new fan 12 feet in diameter was erected on the air shaft which ventilates both seams in the shaft and does away with the furnace which ventilated the bottom vein.

At the clear Spring colliery a new Guibal fan 20 feet in diameter has been erected on the air shaft taking the place of the old Dawson fan which has been abandoned. This fan increases the quantity of air considerably.

At the " William A" colliery two new shafts have been sunk from the surface to the Red Ash seam, a depth of 164 feet by William A. Connell Sons and on the west side of the Lackawanna river in Old Forge township, Lackawanna county.

The hoisting shaft is 16½x11. The other shaft which is used for hoisting and lowering men and for ventilation is 27x11 feet area. A new Guibal fan 17 feet in diameter has been erected on the air shaft.

A new breaker has been built and supplied with first-class machinery for cleaning and preparing a large output of coal; the capacity of breaker is about 1,000 tons per day. It was started to prepare and ship coal in the month of May, 1890. The machinery in and around the breaker is properly fenced or boxed off for the safety of the employes.

The Babylon Coal Company, operated by Simpson, Watkins & Co., has opened up a new colliery on the west side of the Lackawanna river, opposite the town of Duryea. The openings consist of two shafts sunk to Red Ash seam, a depth of 289 feet. The hoisting shaft is 12x16, the other shaft is used for an air shaft and for hoisting and lowering the men; it is 12x18. A new fan has been erected on this shaft 20 feet in diameter which supplies the workings with a large quantity of air. A new breaker has been erected which is a large and commodious structure with a capacity of 1,200 tons per day. It is heated throughout with steam. It was started to prepare coal for market in the month of July, 1890. An inside rock tunnel was driven from the 5-foot to the 6-foot seam, a distance of 100 feet; sectional area 12x7.

Jermyn & Co. have opened a new colliery close to the town of Old Forge in Lackawanna county. The openings consist of two shafts sunk from the surface to the Red Ash seam, a depth of 236 feet. A new fan 18 feet in diameter has been erected on the air shaft, which supplies the workingmen with a large quantity of fresh air.

A new breaker has been built and supplied with the latest improved machinery for cleaning and preparing coal for market. Its capacity is about 800 tons per day. It started to prepare and ship coal in the month of July, 1890.

Newton Coal Company.

At the Twin shaft a twenty-foot Guibal fan was erected on the air shaft as a duplicate to the old one. It exhausts 130,000 cubic feet of air per minute with a working speed of 67 revolutions. The fan is driven by a horizontal engine, cylinder 16 by 30 feet, directly connected to fan shaft.

Butler Coal Company, Limited.

A new shaft 12 by 18 feet, called the Chapman, has been sunk to the Red Ash seam, a distance of 120 feet. The second opening is not completed at this writing. The shaft is situated 4,800 feet southeast of a new breaker, which was built for the purpose of preparing coal for this and the Butler shaft. The coal from the Chapman shaft will be taken to the breaker by a small locomotive. A new fan will be erected as soon as the second opening is completed.

Annora Coal Company.

At the Annora colliery a new Guibal fan 16½ feet in diameter was erected to ventilate the tunnel workings, exhausting 102,870 cubic feet of air per minute with a working speed of 78 revolutions, run by a vertical engine, cylinder 11 by 18 feet.

Stevens Coal Company.

At the Stevens colliery a new rock slope was driven from the surface on a gradient of 30°, cutting the seam at a distance of 818 feet. All the coal from the old slope will be hoisted out of the rock slope, which will shorten the transportation considerably.

Babylon Coal Company.

In the Babylon shaft an underground plane was driven a distance of 1,800 feet on a gradient of 6°. The coal is lowered down by a pair of engines located at the foot, as the greater part of the coal in this colliery is to the rise of the shaft. This plan will be extended from time to time as necessity requires it to be done.

Mount Lookout Coal Company.

Two shafts were sunk by this company on the west side of the Susquehanna river close to the town of Wyoming, on the land of J. B. Schooley. The contract for sinking through the sand and gravel was given to Sooy, Smith & Co., of New York. The size of the shafts being 12 by 24 feet and 12 by 16 feet. The distance from the surface to the rock being 105 feet. The shafts being started in 1889 and completed in 1891.

On January 15, 1892, I wrote to Messrs. Simpson & Watkins for information and drawings in regard to the sinking of these shafts for this report, and received a reply from Sooy, Smith & Co., New York, Simpson & Watkins having referred my letter to them, who submitted the following to me:

Delaware and Hudson Canal Company.

By this company, Laurel Run Colliery, a rock tunnel was driven from the bottom split of the Baltimore to the Checker seam, a distance of 80 feet, with a sectional area of 12x6 feet, to be used for the transportation of coal.

Wyoming Valley Coal Company.

In the Forty-Fort shaft a rock slope, 8x14 feet was sunk from the 11-foot vein to the red ash, a distance of 525 feet, on a grade of 15 degrees. This slope opens up a large field of good coal for this company. A new Guibal fan, 20 feet in diameter, was placed on the air shaft to take the place of the one removed, it having been too small to give the ventilation required.

Keystone Coal Company.

A shaft 12x12 feet was sunk from the surface a distance of 375 feet to the red ash seam to be used for hoisting coal and ventilating the mine.

Raub Coal Company, Limited,

The Louise Colliery, owned and operated by this company, started in the month of September to prepare and ship coal to market. It is located northwest of the Mill Hollow Colliery in the borough of Luzerne. They have opened up the old drifts into the Ross and red ash seams, formerly operated by Thomas Waddell. A small breaker, having a capacity of 300 tons per day, was built to prepare the coal for market, and an air shaft was sunk from the Ross to the red ash seam, a distance of 45 feet, with a sectional area of 120 square feet, to ventilate the workings.

Hillside Coal and Iron Company.

This company has erected a new Guibal fan 14 feet in diameter at their new shaft to ventilate the workings, which exhausts 35,000 cubic feet of air while running 50 revolutions per minute.

Stevens Coal Company.

This company has sunk a new shaft 25x11 feet from the surface to the Pittston seam, a distance of 172 feet, to be used for hoisting coal. It is located south of the breaker, a distance of 500 yards from the slope opening, close to the borough of West Pittston. The coal from this shaft is taken by a small locomotive and hoisted up a plane to the breaker. The second opening was driven from the outcrop in the Checker seam down to the shaft level, a distance of 460 feet on a 4 degree pitch. A rock gravity plane has been started from the Pittston seam to be driven to the Checker above to complete the opening to the bottom. The distance to be driven will be 75 feet on a 20-de-

and upon end supports. Having thus supported the tower and trestle no trouble was experienced in holding filling back, and taking out old cribbing. The concrete was put in with a thickness of three feet in the bottom and tapering to two feet on top.

STEVENS COAL COMPANY

Sunk new shaft, 12x24 to Red Ash vein.

Made opening in shaft into vein underlaying the Marcy vein.

Installing coal hoisting plant at new shaft.

Started up coal washery which is contained in one wing of the breaker.

Put in new 150 H. P. boiler at steam plant.

Made new opening from Red Ash slope workings through by roll to old workings on Slocum property, for ventilating purposes.

CONNELL ANTHRACITE COAL MINING COMPANY

Bernice Colliery

The following are the improvements made at the Bernice colliery. They have erected a modern anthracite breaker on their property, containing about a million feet of lumber, equipped with the latest modern machinery, shakers, etc. They have erected a plant of one thousand (1,000) horse power National water tube boilers, a machine shop, and have equipped the colliery in every respect to prepare the coal up to the regular anthracite standard. They have added a thirteen (13) ton electric locomotive to their inside haulage, regraded the gangways, and are now sinking a shaft upon the property 12x22 to be used as a second opening and an air shaft, and erecting a sixteen (16) foot fan thereon.

DELAWARE AND HUDSON COMPANY

Langcliffe Colliery

No. 1 slope in the No. 2 Checker drift has been extended 500 feet.

New road driven at the head of No. 1 plane in Red Ash vein for a distance of 650 through caved area of Avoca Coal Company.

New 10 foot fan erected to ventilate No. 2 Checker drift.

IMPROVEMENTS

STEVENS COAL COMPANY

Stevens Colliery.—The air shaft in the Marcy vein which was enlarged and sunk to the Red Ash vein workings was equipped and started up, from which the No. 2 Marcy or Ross vein is being opened out and a 20 foot fan was placed on this shaft to ventilate the Marcy or Ross vein. It is further contemplated to put a new haulage system in the Red Ash vein and bring all the coal to the new hoisting plant.

During the month of July, this colliery was greatly troubled with a serious squeeze and the volume of gas liberated was surprising, of which the following statement will give a vague idea. After traveling with a volume of 120,000 cubic feet of air per minute, a distance of over one mile, the gas would explode in a safety lamp at the fan; and this would continue for four weeks; during which time it became necessary to keep guardsmen around the fan. To the credit of the officials of this company it should be said that although from forty to fifty men on each eight hours shift were employed in trying to arrest the squeeze and open the airways, and in putting in large pumps to meet the great inflow of water, and although contending with the greatest dangers possible in a mine, not a single person was injured; and the colliery resumed operations within seven weeks.

They were also troubled with the water from the great flood of 1904 in the Susquehanna river, which made channels between the rock and the surface wash, connecting the water from the old abandoned Pittston vein shaft to the cribbing of the Red Ash shaft, making possible an inflow of quicksand. It was therefore decided to dig an open cut around the Red Ash shaft cribbing, which is forty-two feet deep, and encase it with a concrete wall.

But on account of the squeeze referred to it was imperative that the shaft should be kept in working order. This could not readily be done with the open cut method, because of the tower piers being embedded in the surface within a few feet of the cribbing; so, after consultation with the mine inspector and other mine officials, the general manager of the company, Mr. Henry Kingsbury, suggested the following unique method which was adopted and carried out quite successfully.

Three small shafts or wells were put down, one at each end of the narrow way of the cribbing, and one on the side, or long way, of the cribbing. From these shafts tunnels or trenches three feet wide and six feet deep were commenced, twenty-four feet above the surface of

the rock, and about four feet above the level of the bed of troublesome quicksand, which was known to exist there.

These tunnels were driven from the three shafts at the same level, and connected all around the cribbing. As the work progressed it was protected by a lining of two-inch plank, six feet long. These planks were forced to place by home-made screw jacks, and kept in place by 2x4 inch wooden braces put between the planks and the cribbing.

After this enclosed trench was completed all around the cribbing, another like section was started, using the same method as before, except that the plank of the second section was allowed to reach a few inches above the bottom of the first section, and lap over it, thus binding the two sections together. With this method continued, four sections of six feet each, or a total of twenty-four in depth by three feet in width, were cleared all around the cribbing, down to the surface of the solid rock.

After carefully clearing the rock surface the concrete was dropped down through vertical troughs in the shafts, and made in courses about three feet high. The screw jacks and wooden braces were moved as the work of concreting progressed, but no attempt was made to remove the plank lining in the back.

Although considerable trouble was experienced with the treacherous quicksand which was encountered in a bed of about 8 feet thick and about 12 feet above the surface of the rock, the work was completed with great satisfaction, and without in the least disturbing the working order of the shaft or doing the least damage to the tower foundations. The cost was very little more than the open cut method, and if finished to the top would cost less than the open cut method.

Considerable credit is due to the foreman on the work, David Isaacs, of Plymouth, to the contractors, Reese D. Isaacs and Son, of Dallas, for the successful completion of this undertaking.

They also installed a new 300 H. P. "Maxim" water tube boiler which is giving marvelous results in the complete combustion of the smallest size of anthracite coal and culm.

This type of boiler has only recently been introduced into the anthracite coal fields, but is already commanding wide-spread attention.

LEHIGH VALLEY COAL COMPANY

Exeter Colliery.—Finished installation of 300 H. P. Babcock and Wilcox water tube boilers.

The new air motor haulage plant mentioned in last year's report is finished and working satisfactorily. The haulage roads and air pipes have been extended and equipment increased with two eight

A new 26x12x36 inch duplex Coyne pump was installed at the foot of shaft, and 410 feet of 14 inch cast pipe erected in the shaft to carry water from this pump to the surface.

A 6x7 foot manway, 56 feet in length, was driven from the Red Ash to the Ross vein, on 35 degrees pitch.

A new mule stable with 14 stalls has been built in the 11 foot vein.

PENNSYLVANIA COAL COMPANY

Central Colliery.—Car shop 63x33 feet, built of brick.

Wood shed 75x17 feet, built of wood.

Slope engine house, 36x26 feet, built of brick. Clark slope Laws shaft.

Engine house 45x21 feet 7 inches. Built of brick. Laws shaft.

Wash house, 30 feet 3 inches x 18 feet 4 inches. Built of brick. Divided into three compartments.

Boiler house 114x59 feet, wooden frame, covered with corrugated iron and consists of 8 Keeler boilers of 150 H. P. each.

New shaft tower on Laws shaft.

Mine car haulage for empty mine cars at breaker.

Rearrangement of the outside mine car tracks.

Barnum Colliery.—Brick locomotive house at No. 2 shaft.

Brick wash house at No. 2 shaft, divided into apartments for the miners, outside men and foremen.

New barn at No. 2 shaft outside.

Brick oil house at Barnum breaker furnished with oil pumps complete for lubricants.

Added one battery 300 H. P. B. and W. boilers to the boiler plant.

KINGSTON COAL COMPANY

No. 4 Colliery.—Completed the new boiler plant of 1,200 H. P. Babcock and Wilcox boilers. This is only one-half of the final boiler plant planned.

Built conveyor lines for fuel from breaker to boiler house.

Built a conveyor line to carry refuse from breaker to Williams' patent crusher. This rock is then crushed and flushed with the culm into the mine workings.

They have built new warehouse and office.

They have drilled about 12 bore holes to prove rock cover over Orchard vein.

They are driving a rock plane from Bennett vein on 15 degrees pitch to cut upper vein.

The plane has reached during the year the Orchard vein.

STEVENS COAL COMPANY

Stevens Colliery.—Installed 20 foot fan at new plant; put in a division partition shaft for upcast airway to fan.

Completed hoisting arrangements at new shaft, by installing cage on south side, fans, etc.

Installed 90 H. P. electric engine and generator for electric haulage in mines.

Installed fire-pump in our new shaft buildings.

Completed bridge for our railroad track over Carpenter's Creek.

Built sand drying house 10 feet x 16 feet.

Built engine house 15 feet x 24 feet x 10 feet high for locomotives.

Put in concrete retaining walls 2½x8 feet x 99 feet long, at mouth of main slope, in place of the wooden cribbing that has heretofore been in use.

Drove 1,100 feet of new road, to connect new shaft to west gangway road.

Drove 240 feet of rock tunnel 8 feet x 12 feet for new road in Red Ash to face of 5th vein workings.

A slope 360 feet long at the inside end of new road was driven to the coal left in dip south of new road, and a 60 H. P. engine installed to operate this slope.

Installed electric haulage 300 feet long, with 8½ ton motor. This road is lighted with electric lamps.

Made second opening to Ross vein, same being the rock tunnel, crossing measures to the Marcey vein, size 8x12 feet.

CLEAR SPRING COAL COMPANY

Clear Spring Colliery.—They installed a 115 K. W. electric machine and engine, and are at present using the current for drilling inside. They intend installing two electric locomotives at an early date to be used in their small vein, viz: Marcey vein.

W. G. PAYNE COAL COMPANY

A new 16x24x15¼x18 inch Ingersoll-Sergeant air compressor, complete, has been installed alongside of the one already in use in a new engine house 16x44 built on concrete walls and foundation.

A new outside hospital for the mine stock, furnished with water and heat, was built during the year.

Air compressor pipe line running from the compressor down the shaft was increased in size from 8 to 10 inches.

There was a tunnel driven in the Eleven Foot vein through a roll 60 feet over all so as to get at the vein beyond.

Owing to the high percentage of acid in the mine water they changed all the Bennett pumps during the past year from cast iron to bronze. They also installed a new No. 10 Knowles pump in the Red Ash s'ope; also a new No. 9 Knowles pump installed at the same station.

There has been a new plane built 260 feet long used for conveying culm from the culm bank into the washery, in connection with a 90 foot swinging conveyor.

RAUB COAL COMPANY

Louise Colliery.—A tunnel, 106 feet long was driven from top Ross to bottom split of same vein in the Mt. Thomas drift, cutting the vein in good shape on the other side of fault.

A new air shaft, 6x6 feet, was sunk from surface on mountain

STEVENS COAL COMPANY

Inside.—Extended electric haulage road in west gangway 1,800 feet; extended electric motor haulage road through No. 1 tunnel into fifth vein 900 feet long.

Rock tunnel 160 feet long was driven from bottom of west side slope to fifth vein and another rock cut opening to fifth vein on line of Red Ash vein, main slope.

A 6 inch bore hole was put down from the surface to the Ross vein 120 feet deep, to fill a portion of the Marcy vein working with silt from the breaker; about 7 acres of this was filled and about 17 acres of working in Red Ash was filled with silt; and a line of 4 inch pipe 3,000 feet long had to be laid to the workings for this purpose.

The mule barn in Red Ash vein had to be rebuilt and refitted on account of bad roof over it, which had to be taken down.

An engine was put up on the new slope in the Ross vein and a slope and an airway was driven down 140 feet.

An engine had been replaced on top of the old inside Simonson slope, Red Ash vein, on the east end of the property.

A passing branch 300 feet long was fitted up at the lower end of Marcy slope and a rock cut was made on top of this slope to reduce the heavy grade.

On the west end of the property 15 bore holes containing 975 lineal feet were made by driving 3 inch pipe to locate the elevation of the rock over the veins of coal and depth of surface.

Outside.—A concrete retaining wall 3 feet x 8 feet x 80 feet long was built at the entrance to the main slope to replace the old wooden cribbing.

A 12 foot x 16 foot x 15 foot concrete foundation was put up at the back of the breaker to contain the shafting of the shaker screens.

A wash house 16 feet x 18 feet, two-story high, was erected and bath tubs and lockers provided for the inside and outside workmen.

An engine shed was built outside to shelter the locomotive from the weather.

Concrete foundations were built on both sides of Carpenter's creek to replace the truss work for the 6 inch steam pipe that was torn down by the wind, so that a good portion of this truss work will be done away with and rock filling take its place.

Two new spiral pickers were placed in the breaker.

Condition of the colliery is good.

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Pettebone Colliery.—Inside.—One 7x12x248 foot rock tunnel has been driven from Hillman vein to Hillman vein for ventilation and development, this being necessary on account of the gaseous condition of this seam.

Outside.—A 250 K. W. belt driven generator has been installed at this colliery, which will furnish electric motive power for the 10 ton locomotive to be operated in the Hillman vein.

RAUB COAL COMPANY

The only improvement here is they are driving a tunnel from bottom split, Ross vein, to top split of same vein, in Mt. Thomas, Ross Slope, a distance of about 100 feet. The tunnel, which they have

STEVENS COAL COMPANY

Stevens Colliery—Outside—New four deck L. V. Pattern shaker, 22 feet long, with the driving gear placed on a large block of concrete on the side of the breaker. This prevents the trembling effect in the breaker and has given good results. The refuse plane at the side of the breaker was extended 300 feet to the ridge of the mountain, which gives 75 feet of vertical height to go over the old refuse dump. A boiler house fuel conveyor 350 feet long was put in operation to take the fuel from breaker to boiler room, instead of taking it in cars by mule power. A new coal haulage arrangement was installed. A 36-inch x 10 inch Vulcan coal conveyor, 300 feet long, was placed on the east side of the breaker, and a plane from this conveyor about 600 feet long was erected. The loaded cars now run from top of shaft by gravity to foot of this plane. This arrangement does away with this organization formerly maintained at top of breaker.

Stevens—Inside.—A rock slope on a pitch of 20 degrees was driven from the Ross or Clark vein slope to the Babylon vein. The electric motor haulage roads in the Fifth vein tunnel, were extended 1,700 feet on the west side and on the east side 900 feet; and in the Red Ash vein the electric haulage roads were extended 200 feet on west side.

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Pettebone Colliery.—This colliery was closed down for general repairs on August 16. The work of retimbering the main shaft is now under way. When the timbering is completed a brick partition will be erected separating the hoistway and airway from the Red Ash vein to the surface, at a depth of 1,147 feet, which they anticipate will improve the ventilation considerably. The work of installing a 150 horse power electric hoist on No. 1 plane, Cooper vein, to operate Cooper and Five foot veins has been completed, the No. 1 plane having been extended to the Five Foot seam. A rock tunnel of 40 degrees pitch has been driven from the Cooper to connect with the extension of No. 1 plane referred to above, which will be used for second opening and return airway. The following rock tunnels have also been completed during the year:

(a) Tunnel Lance to Five Foot vein on 5 per cent. grade.

(b) Tunnel Lance to Five Foot on 30 degrees pitch for second opening.

(c) Short rock tunnel was also driven to connect the main return from Bennett vein to old workings of Cooper vein, which will be used later to convey the air currents from No. 1 plane workings.

(d) "B" gangway has been extended from Hillman to Kidney vein.

Pettebone Colliery—Outside.—A 1,250 horse power Cochrane heater, feed water regulators, pump governors, etc., have been installed at this boiler plant, which have improved conditions very materially.

The mine tracks at No. 10 tunnel were rearranged so as to dump the coal from mine cars into railroad cars, to be transported to the William A breaker for preparation. Coal from railroad cars is dumped on to a 36 inch belt conveyor, about 90 feet long, which conveys coal into the mine cars near William A shaft.

An 8 inch hole, 150 feet deep, lined with 4 inch terra cotta pipe, was drilled from surface to Middle Red Ash near William A breaker, to run silt from the breaker into the mines.

The wooden cribbing and buntons at William A shaft were replaced by steel.

Seneca Colliery.—A new concrete mule hospital for the treatment of sick and injured mules was built near the outside barn. A concrete mule barn was also built at Pittston shaft. Steel cages were placed in the shaft to take the place of the wooden ones. An automatic electric fire alarm was installed.

A new 20 by 30 double geared engine was installed at the head of No. 9 slope; steam is exhausted through a 12 inch bore hole to the surface.

Bore holes were drilled from Marcy vein and Clark veins for drainage, eliminating small pumps.

A 10½ ton motor replaced the 7½ ton motor which hauls coal from Nos. 5 and 9 slopes to the foot of the shaft.

A motor barn was built in the Marcy vein, equipped with electric lights and chain hoist.

Shaft timbers at the Marcy vein landing in Twin shaft were renewed and concrete footing placed under cage fans.

Telephones were installed in different parts of the mines.

No. 11 tunnel was extended to Clark vein north of fault; No. 12 tunnel was driven from Marcy to Clark vein, to develop Clark vein north of fault and west of No. 11 tunnel.

No. 16 slope was driven from Marcy to Clark vein, to develop the Clark vein south of fault. A rock plane for return was driven back to Marcy vein.

A 9 inch by 10 inch triplex electric pump was installed in No. 12 slope, Clark vein.

Motors were installed in the Fifth and Sixth veins to handle coal, replacing mules. A concrete barn to accommodate 20 mules was built in the Sixth vein.

Stevens Colliery.—Inside: Motor road built and motor installed in the Marcy vein, to handle the coal west of slope.

Tunnel was driven from Marcy vein to develop Top Marcy.

Outside: Self dumping cages were installed in the shaft and the coal dumped into railroad cars and transported to the William A breaker for preparation.

Conveyor line built to run culm bank through the old breaker.

TEMPLE IRON COMPANY

Mt. Lookout Colliery.—A brick oil house, 18 feet by 19 feet, with concrete floor and iron roof, has been erected, and is equipped with Bowser oil tanks.

A concrete wash house, 17 feet by 38 feet, with iron roof, has been erected and equipped with 93 sheet steel lockers.

A vacuum system was installed for removing the ashes from the boiler house. This consists of a concrete ash bin, 16 feet by 16 feet by 26 feet high, from which the ashes are exhausted by a No. 6 Root

tended 27 feet and the head of the Marcy slope graded, in connection with the work of concentrating the hoisting of all the coal up the Marcy slope.

Outside: A 10-inch silt hole lined with terra cotta pipe was put down from surface to the Marcy vein, this hole to serve in case of emergency. A pair of 28-inch by 48-inch first motion engines was installed on the surface the rope operating through a new 8-inch bore hole put down on the mountain side from the surface to the head of the Marcy slope. These engines are housed in a new building of tile construction and steam is carried to these engines from the boiler house through a new 8-inch steam line 550 feet long. Test holes were put down on the Reynolds property to prove the Six-Foot vein rock cover. Extensive repairs were made to the breaker and the pockets were renewed. A new office building, containing rooms for outside foremen, colliery clerks and shipper, and with warehouse and oilhouse attached, all of tile construction, was erected and the old frame office building dismantled. 500 feet concrete retaining wall put up, 200 feet of same being along loaded track leading to the breaker plane, and the balance 50 feet and 250 feet on the west and east side of breaker respectively. A new concrete fanhouse with new engine and 20-foot fan was installed to replace the fan of wooden construction. 375 feet of 18-inch terra cotta pipe laid to carry the water from the Marcy pump discharge hole to the creek. A new 18-inch by 36-inch breaker engine was installed.

Stevens Colliery.—Inside: Rock cut was made for handling coal from Marcy vein to shaft. Motor road was completed in upper lift of Marcy vein and now handles coal directly to the shaft, which was previously done by a slope. Top Marcy vein gangways are being driven ahead rapidly and chambers worked from them.

KINGSTON COAL COMPANY

Kingston No. 4 Colliery.—Inside: Two tunnels have been driven in Orchard vein through roll and Lance vein to Orchard vein, a distance of 1,500 feet. Three new overcasts have been built in the Orchard vein of steel and concrete. Two new concrete barns have been built, one at Orchard vein and one at Cooper vein, complete with baths. One Scranton 14 by 8 by 18-inch steam pump has been installed for ash water purposes.

In No. 4 shaft, a new condensing house and Scranton duplex condensing pump, 14 by 8 by 18 inches have been added to No. 4 shaft pump house, and pump house has been rebuilt with steel and concrete timbers. A new quintuplex pump, a duplicate of the one installed in 1910, has been erected at the foot of Red Ash slope, and pump room completed of steel and concrete. 300 feet of the main slope above pump house has been timbered with steel timbers and concrete retaining walls. Two new overcasts have been built of concrete and steel in the Ross vein. New concrete barn consisting of fifty stalls have been built in the Red Ash vein, complete with mule baths. A rock slope 250 feet long has been driven through the roll in the Ross vein. Silting has been carried on very extensively in the southern and middle districts of the Ross and Red Ash veins during the year. Nos. 1 and 4 shaft hoisting engines have been equipped with the Welch improved overwinding device, steam reverse and brake.

fire protection was installed in the breaker and washery. Repairs to boiler plant were completed. Red Ash shaft engine house was rebuilt with brick and made fireproof. Tile hose house and scale office were erected. Colliery yard was regraded.

Maltby Colliery.—The pumping plant at this colliery has been abandoned. The water in the Marcy vein is carried in pipes to the lower elevation and forced up through an 8-inch bore hole to the Six Foot vein. It then flows to bore holes which were put through the barier pillar to the workings of the Henry colliery, where it is pumped to the surface. A slope is being sunk in the abandoned Six Foot workings, Fuller shaft. Until recently these workings were under water. A Morgan-Gardner undercutting machine was installed in the Top Red Ash split. A spray system was installed in the breaker for fire protection. A concrete reservoir having a capacity of 50,000 gallons, together with a pumping plant, was installed near the breaker, to furnish water for the fire system. A steam shovel is at work picking up the culm bank at the Fuller colliery. A plane was constructed at the breaker and a locomotive track constructed for the purpose of transporting the culm to the breaker.

Seneca Colliery.—Two tunnels were driven from the bottom split of the Marcy vein to the top split. Two 7½-ton Jeffery electric motors were installed in the Clarke vein. One 6-inch bore hole was drilled through the barrier pillar to the workings of the Stevens Colliery in the Marcy vein. A Jeanesville pump was installed and a fireproof pumphouse erected at the Twin shaft to supply the breaker with water. A Pennsylvania crusher was installed at the breaker to crush the refuse for silting in the Marcy vein. Safety automatic gates were installed at Twin shaft. Colliery yard was regraded.

William A. Colliery.—Electric haulage was installed from No. 10 tunnel to Evan's Farm section and the system was rebuilt to William A. shaft. This will allow all coal to be transported underground instead of dumping part of the output into railroad cars for shipment to the breaker for preparation. A new concrete engine house was constructed inside and a bore hole put down for exhaust steam to handle the coal on the Lawrence plane. A tile washhouse and foreman's office was built at No. 10 tunnel. Steel lockers for 32 men have been provided. A substation for electric power has been established at Babylon shaft. A spray system for fire protection has been installed at the breaker. Automatic safety gates were installed at William A. shaft.

Westmoreland Colliery.—A new second opening was driven from the Pittston vein to the surface. The plant for generating electricity and a new substation built. Power is now purchased from Luzerne County Gas and Electric Company. The feed wire system was also rebuilt. A new tile shop building is under construction. A spray system for fire protection was also installed.

Stevens Colliery.—Two 6-inch bore holes were drilled through the barrier pillar in the Pittston vein and two in the Red Ash vein. These bore holes were 250 feet long, and will be used for the purpose of draining Stevens colliery and abandoning the pumping plant. Steam blowers were dispensed with at the boilers and a blast fan installed. Old boiler plant was dismantled. Work was commenced to reopen the Pittston and Checker veins for pillars. Refuse banks are being silted into the mines through a new 10-inch bore hole. A rock crusher is used to crush the material.

CONDITION OF COLLIERIES

LEHIGH VALLEY COAL COMPANY

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

Exeter, Westmoreland and Maltby Collieries.—Ventilation, drainage and condition as to safety, good.

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

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

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

William A. Colliery.—Ventilation fair. Drainage good. Condition as to safety, fair. The breaker burned January 2.

TEMPLE COAL COMPANY

Forty Fort and Harry E. Collieries.—Ventilation, drainage and condition as to safety, good.

KINGSTON COAL COMPANY

Kingston No. 4 Colliery.—Ventilation, drainage and condition as to safety, good.

MOUNT LOOKOUT COAL COMPANY

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

HEALEY COAL COMPANY

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

WHITE COAL COMPANY

White Colliery.—Abandoned April 30.

IMPROVEMENTS

LEHIGH VALLEY COAL COMPANY

Stevens Colliery.—Removed the 20-foot ventilating fan from the hoisting shaft to mouth of rock slope. Installed one 10 by 12-inch Finch engine on the No. 11 slope in Fifth vein.

Exeter Colliery.—Installed four 5½-ton electric battery locomotives in Red Ash vein; also an additional 300-hp. boiler, and Edison portable electric lamps for use in breaker. Extensive repairs were made to the breaker, and 6 new jigs were installed therein.

Westmoreland Colliery.—Erected a new fuel conveyor from the breaker to the boiler house, and installed an Edison portable electric lamp for use in breaker.