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:

Hillside Coal and Iron Company.

This company has sunk a new shaft 12×26 feet on their land southeast of Avoca. The sinking was started in March, 1892, but not being pressed for coal, it was abandoned until May, when the sinking was commenced in earnest and the shaft sunk to the Red Ash seam, a depth of 168 feet, by September 1st. The second opening has been completed connecting with the workings of the Elmwood shaft of the Florence Coal Company. The coal is taken to the Consolidated breaker by a small locomotive over two miles of road.

Avoca Coal Company.

A new fan 12 feet in diameter has been erected on the air shaft of this company, which exhausts 55,000 cubic feet of air with 4 inches water gauge running 120 revolutions per minute, driven by a 20-horse power engine.

Robertson and Laws Colliery.

At the Katydid colliery, two new slopes were sunk from the surface on the Stark seam, a distance of 314 feet, area 6×10 feet on a grade of 8 degrees. The coal is taken 24,000 feet to the breaker by a small locomotive.

Bennett Colliery.

A shaft 8×10 feet was sunk to the Baltimore seam, a distance of 60 feet, as a means of escape for the men who were taking out the pillars at the farthest part of the workings, in case of a sudden caving of the roof.

Annora Coal Company.

A rock tunnel was driven from the upper to the lower split of the Red-Ash seam; area 7×12 feet, a distance of 300 feet. A shaft was also sunk to air the same between the splits, a distance of 20 feet; area 10×12 feet.

Clear Spring Coal Company.

A new Guibal fan twenty feet in diameter was erected on the air shaft to ventilate the workings of the Red Ash seam, driven by a vertical engine cylinder 16×30 inches.

Morning Star Colliery.

A rock tunnel was driven from the Bennett seam to the Ross, a distance of 275 feet; area, 84 feet. A new fan twelve feet in diameter was erected to ventilate the workings, exhasting 45,000 cubic feet of air per minute, driven by a horizontal engine, cylinder 10×20 inches.

Old Forge Coal Company, Limited.

In the Columbia shaft a rock tunnel was driven from the third to the fourth vein, a distance of 90 feet. Sectional area, 98 feet. To be used for transportation of coal.

gree pitch. A new fan of the Guibal pattern, 20 feet in diameter, has been erected on one compartment of the hoisting shaft to furnish ventilation for both seams. It is run by a horizontal engine, cylinder 16x20 inches, directly connected.

Annora Coal Company.

This company has erected a new Guibal fan 16 feet in diameter on the second opening to the slope, which furnishes the workings with a large quantity of fresh air. It is run by a 28-horse power engine, directly connected to fan shaft. A new shaft, 25x11 feet, was sunk 45 feet to the Marcy vein. It is located on the bottom of the Pittston vein on the strippings of the vein.

W. S. Payne & Co.

At the East Boston Colliery a new Guibal fan, 25 feet in diameter, has been erected as a duplicate in case of an emergency. It is run by a horizontal engine, cylinder 20x36 inches, and exhausts 141,800 cubic feet of air with a water gauge of 2-10 inches running 60 revolutions per minute.

Robertson, Law & Co.

At the Katydid Colliery a new Guibal fan, 12 feet in diameter, has been erected on the second opening to the slope. It is run by a horizontal engine, cylinder 12x12 inches, and exhausts 34,000 cubic feet of air per minute, with a water gauge of 5-10 inch.

Mount Lookout Coal Company.

This company has erected a new Guibal fan, 20 feet in diameter, on their air shaft, as a duplicate to the other, and have them so arranged that by closing one door and opening another, which will only take a few minutes to do, either fan could be run. It is run by a horizontal engine, cylinder 16x30 inches, and directly connected to fan shaft.

John C. Haddock.

At the Black Diamond Colliery a new air shaft, 14x12 feet, was sunk from the surface to the Cooper seam. The reason for this shaft having been sunk was that the old air shaft had been retimbered so often inside that the area had become too small to retimber it again in the same way, and to take the old timber out and replace it with new would necessitate the colliery to be shut down for some months, which the officials did not want to do. Therefore, the new one was started, which was quite an undertaking on account of the depth of quicksand to be overcome in that neighborhood. However, they were quite successful with it. The shaft was sunk through the sand 128 feet and 12 feet through shelly slate and coal, 140 feet in all, when, on

about one per cent. against the loaded to one per cent. in their favor. The mine cars weigh 3,000 pounds unloaded and about 8,000 pounds loaded, and have a capacity of 69 cubic feet. Eventually, the haulage line in the south workings is to be extended along the gangway from H to K and through a rock tunnel to L, as shown on the map. When this is done, the branches F, G and I are to be abandoned and the locomotive will then make a trip over about 3,500 feet of track, and haul about 400 cars per day from the end of the rock tunnel at L.

The electric pump is located in the workings off the branch 1 as shown on the map. The pump is of the standard duplex, double-acting, piston type, manufactured by the Knowles Pump Works, and is operated by a General Electric Company's waterproof shunt wound motor developing about 15 horse power. The pump is capable of throwing 300 gallons of water against 40 feet head. It has been operating for over a year, doing duty twenty-three hours a day. It requires attention only at starting and stopping and for occasional lubricating. The speed of the pistons is absolutely constant, irrespective of the amount of water thrown, and when the water in slump hole or chambers falls below the mouth of the suction pipe, the pump does not race, and hence demands no attention. Fig. 4 gives a view of the pump in its chamber.

In addition to the electric pumping and hauling machinery, the Mt. Lookout Coal Company are operating two General Electric Company A-4 rotary coal drills. The drills are being used in a low seam in the southeast workings and are run from a circuit taken from the circuit connected to the feeder lines in the main gangway. At present, the length of the circuit from the feeder line is about 1,400 feet. The drills are used in working a three-foot seam of coal and taking up about two feet of slate bottom. In coal the drill makes about six feet per minute with an inch and a half bit, and in slate or boney it can drill about four feet per minute. The weight of each drill complete with post is 160 pounds, the drill itself weighing 100 pounds. A view of one of the drills is given in Fig. 5, where it is set up ready for operation.

The Burning of the Annora Breaker.

At 3.30 on the morning of Tuesday, December 4, 1894, the large breaker of the Annora Coal Company, located in the borough of Laflin, was discovered to be on fire and was totally consumed, and all the machinery more or less damaged or destroyed. The last coal put through the breaker was in the month of August, 1894, the colliery then closing down for the remainder of the year. A new company had taken the colliery some time previous to the fire and were

doing some repairs in and around the mine, as the breaker had been placed in working order some time before with the expectation of starting on the first of January, 1895, to prepare and ship coal. How the fire originated is impossible to say, as there were no fires in or around the breaker, nor had there been for some time previous. A new breaker is in course of erection on the site of the old one, which is expected to be ready shortly to prepare and ship coal.