

*Hillside Coal and Iron Company.*

This company has sunk a new shaft 12×26 feet on their land south-east 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, exhausting 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.

The Seneca shaft was extended to the Red Ash vein, a distance from the surface of 492'. The second opening has been completed in this vein with the Ravine shaft.

*Greenwood Coal Company (Limited).*

A new shaft 11'x26' was sunk by this company, from the surface to the "New County" and Dunmore No. 2 vein, a distance of 232'. The shaft is located convenient to the breaker, and opens a large field of coal which could not be got conveniently from the old shaft. A new 17-foot fan has been erected on this shaft to ventilate the workings of both seams. A slope was extended from the surface down to the seams for second opening. A new shaft was sunk by this company on the lands of the east-side "Bondholders" near the intersection of the C. R. R. of N. J. with the Delaware and Hudson Canal Company at Minooka, Lackawanna county. The breaker was completed in July, 1889, and has a capacity of 800 tons per day. It had not started to prepare coal for market at this writing.

*Butler Mine Company (Limited).*

At the Schooley colliery a new 18-foot Guibal fan was erected on a part of the second opening. This makes the second fan used in ventilating these shaft-workings, which gives very good results.

*Avoca Coal Company.*

The old Swoyer shaft located in Avoca borough, and which was abandoned for a number of years, has been re-opened by this company. The shaft is 11'x19', depth 70', sunk on the Stark vein. The workings are ventilated by the consolidated fan which is connected with the workings of this shaft. A new breaker has been built to prepare the coal for market, with a capacity of 400 tons per day. It is heated throughout by steam, and everything in and around the breaker is in as safe a condition as possible.

*Lancliffe Coal Company.*

The old No. 12 shaft which was sunk to the Red Ash seam located in the borough of Avoca, has been re-opened by this company after having been abandoned for a number of years. They are mining the bottom split of the vein which was left by the Pennsylvania Coal Company, who mined the upper seam. The rock between the seams is very thin, so that great care will have to be exercised with the roof so as to keep it up as they advance. A new 15-foot fan has been erected on the shaft to ventilate the workings. A new breaker, having a capacity of 600 tons per day, has also been built to prepare the coal for market. It is heated by steam and all the dangerous parts of the machinery boxed, or fenced off.

*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  $16\frac{1}{2} \times 11$ . The other shaft which is used for hoisting and lowering men and for ventilation is  $27 \times 11$  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  $12 \times 16$ , the other shaft is used for an air shaft and for hoisting and lowering the men; it is  $12 \times 18$ . 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  $12 \times 7$ .

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 workmen 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.

**Avoca Shaft.**—The tracks in the Avoca mine have been narrowed to the gauge of Laws shaft. Rock was taken down on some heading roads to accommodate the Central mine cars. All the coal in the Avoca mine will be footed at Laws shaft and prepared in Central breaker, when operations are resumed.

**Old Forge Colliery.**—The addition to the washery is nearly complete; jigs to prepare buck, pea and nut coal have been erected and will be in operation in two weeks.

No. 1 shaft was thoroughly repaired during the year; the old wood cribbing was taken out and replaced with concrete; the wood engine house was torn down, and replaced with a brick building; all buntons, guides and brattice work were renewed and the shaft remodeled.

Six, seven and one-half ton cable reel motors have been added to the electrical equipment, as follows: two at No. 2 shaft, two at No. 1 shaft, and two in the Clark Mountain drift. At Old Forge No. 2 shaft a new mine hospital and foreman's office has been built in the Five Foot vein.

The ventilation is being continually improved. A new air shaft to be sunk near the most advanced workings will give another outlet and an abundance of air.

The Old Forge mines are in good condition.

#### LEHIGH VALLEY COAL COMPANY

**William A. Colliery.**—The company drove a plane in the Red Ash vein, connecting the Lawrence and the William A. mines and installed an oil burning locomotive for inside transportation between Babylon and William A. All the coal from the Lawrence shaft workings and drift workings and also from the Babylon shaft workings and drift workings, is being conducted underground to the foot of William A. shaft and prepared in the William A. breaker.

The condition of the Lehigh Valley collieries in this district is such that a great deal of care is required on the part of the Inspector which is very annoying to the officials in charge.

**Seneca Colliery.**—The No. 9 slope in the Twin Shaft, Marcy vein, has been driven to the 5th and 6th veins, which are being developed near Scovel Island.

Rapsons tunnel has been driven through the big fault near or on the Phoenix lease, and the Marcy veins are being developed on the west side of this line of disturbance; the new air returns for the Columbia shaft workings and the Twin Marcy slope have been completed; a very modern concrete mule barn to accommodate 60 mules has been built, and also a concrete station house inside for the ambulance car. A pump house is being built at the foot of the Marcy vein slope for the installation of some heavy pumping machinery.

In the Pittston vein, the thickness of roof cover is the problem. The workings are parallel to and under the Susquehanna river, and the quantity of sand wash over the vein is a condition sufficiently serious to impress the company with the advisability of keeping the development of this vein isolated from their other workings, and advancing only when a bore-hole, sunk ahead, proves the thick-