

The latter are generally small collieries, and are well supplied with air, excepting in spring and autumn, when the temperature of the air in the mines and on the surface is equal. However, I am very firm in the conviction that there should be fans to ventilate all the collieries, and I cannot be satisfied until that end is reached.

Cavings in of the Mines.

There have been frequent cavings in of the mines during the year on an extensive scale, but no lives were lost by them, though some very narrow escapes have been reported, through the reckless daring of parties that did not have sense enough to realize the danger. These caves have generally occurred where two or three veins are worked one over the other, though some have occurred even where only one vein was worked, but the latter occurred in the old abandoned workings, and have not interfered with the mining of coal. The first one of importance, where one vein was being worked over the other, occurred in the Mt. Pleasant slope, Hyde Park, in August last. Here the Diamond vein had been completely worked out, and under it the Rock vein had been extensively worked. Each of these veins had been worked without any regard to the manner in which the other had been worked, hence the pillars in each vein were either over or under the vacuum of the chambers in the other, and the natural consequence was that the pressure of the overlying strata caused these pillars to crush through the intervening rock between the veins, and the whole strata above settled down, closing up both veins entirely. In order to get the remainder of the coal in the Rock vein, a new opening will have to be made by a plane, through rock, from the Big vein below. Another very extensive cave occurred at the Diamond mines, and still another at the Bellevue mines, both belonging to the Delaware, Lackawanna and Western Railroad Company. In each of these cases they were working three veins, one over or under the other, and the caves were caused by the same system of working as at the Mt. Pleasant mines. In no case, so far as I know, is there any attempt made to work the pillars in one vein exactly over the pillars in the vein below, or *vice versa*, and so long as this is not done, there is no hope of preventing these caves. I admit that it requires good mining engineering to do this, and I must also admit that our present class of mine bosses are not competent for the work, but that will not alter the facts in the case. I believe it can be done, and I believe it would pay the operators to try the experiment.

NEW COLLIERIES.

Pierce Colliery.

This colliery is owned by Messrs. H. S. Pierce, Edward Jones, John Hosie, and H. B. Phelps, the last named having one tenth interest in the firm, and the others three tenths interest each. The land upon which the colliery is located is in the warrantee names of John Clark and Aaron

Clark, consisting of nine hundred and eleven acres, and was purchased by the Pierce Coal Company from the heirs of William and Charles Wurts, of Philadelphia, in May, 1874. From three to four hundred acres of the land is underlain with the vein of coal, known in that locality as the "Archbald vein," but known about Scranton as the "Clark vein," and at Pittston as the "Spencer vein." The average thickness of the vein on this property is ten feet and a half, nine feet of which is pure coal of excellent quality, the remaining eighteen inches being composed of slate and sulphur. A small portion on the north-west end of the property contains an upper vein eight feet thick, about one hundred and fifty feet above the Archbald vein, and there is an intermediate vein, three and a half feet thick, but the coal in the latter, so far as proven, is not good. The Archbald vein will yield an excellent coal, known in the market as Carbondale coal, after deducting all impurities, thirteen thousand six hundred and seventy-three tons per acre in the ground. The general inclination of the strata is N. 75° W., but the dip is very moderate, not being over 4½°. There is a fault running nearly east and west through the land, and this fault changes the dip to the north-east, throwing the coal down about seventy feet, the angle of the dip on this down-throw being about 18°, and by taking this angle into consideration with the fact that the coal retains its hard unbroken quality, it might be objected to call this disturbance a fault, for it seems to me that there is no disturbance of the measures that will materially interfere with the mining out of all the coal, but as the proprietors call it a fault, I will not quarrel with them on that point.

These lands are situated in the borough of Archibald. They are well timbered with yellow pine, hemlock, spruce, and some white oak, which is a great advantage as timber for the mines for propping, &c., are ever near at hand, and a large amount of it is needed, as they use between three and four thousand lineal feet per month at the rate they are now working.

The openings consist of two tunnels, one being a rock tunnel five hundred feet long, driven through sandstone, which strikes the coal on the line of the Olive Smith and John Clark warrantee tracts. This tunnel was driven by the Delaware and Hudson Canal Company in the year 1857, at a cost of about \$5,000. Since that time, the tunnel had not been used until the property came into the hands of the present owners. In 1877, the Pierce Coal Company purchased this tunnel from the Delaware and Hudson Canal Company, and is now one of their principal openings. The course of the headings from this tunnel is north-west or diagonally across the tract, leaving about seven hundred feet from the heading to the land line, the coal from which will have to be worked out by a slope. The second tunnel is driven through rock and shale to reach the coal. The course of this heading is south-west, and there is another heading opened in the crop above the last named, which will open up a large area of coal. The three headings contain fifty-three chambers, which, when full handed, will produce an average of five hundred and eighty-three tons of coal per

day. The colliery was opened in the spring and summer of 1877, and commenced shipping a small quantity of coal in November of the same year, and from that date to the 31st of December, 1878, the colliery has produced sixty-six thousand five hundred tons of coal.

The breaker belonging to the colliery is located in Winton borough, and is connected with the mines by three miles of narrow gauge railroad, the gauge being three feet, and the track composed of "T" rails, forty pounds to the yard. The average grade is one hundred and twenty-five feet to the mile; but the part nearest to the mines is much heavier than the lower part. This road is equipped with two mine locomotives and two hundred and fifty mine cars. The usual number of cars for one locomotive to haul up the grade is thirty, though forty can be taken; but it is slow work with the latter number. The loaded cars run from the mines to the breaker by gravity, with strong brakes on every other car, and with three runners or brakemen on each train of thirty cars. The breaker used is one that was built by Messrs. Filer & Livey, and has a capacity of eight hundred tons per day. Its height of dump above the Winton Branch railroad track is eighty-one feet. The original cost of the breaker, including all the machinery, was \$45,000; but the Pierce Coal Company purchased it for just half that sum. The total cost of the whole improvement of the company, including road and equipments, opening the colliery, breaker, and machinery, was about \$90,000.

When the colliery was first opened it had a very unpromising reputation, the coal was pronounced as being of too poor a quality to pay for mining it, and the gentlemen who invested their money in it were set down as little better than subjects for the lunatic asylum. It was said that the vein was more than half waste, and that the coal was utterly unmarketable. I cannot conceive what object the would-be wiseacres could have in spreading such unfounded reports, unless it was from an execrable desire to injure the gentlemen interested in the enterprise. If that was the object, then it was so contemptibly base and unworthy that the parties who were guilty of the wrong ought to hang their heads down in shame and disgrace, and never hereafter have the presumption to claim that they are honest men. But if these false and damaging reports were circulated through ignorance, then the parties are very much to be pitied. Whatever the motive was in circulating such reports, it was very evident that they had prejudiced the mind of the public against this colliery, and until I visited the mines I must admit that I had decided unfavorable impressions in relation to the enterprise; and when I went through the colliery I was astonished at the wonderful difference there was between the reports I had heard and the reality as I saw it. I went through the whole colliery carefully, and found that the coal was of excellent quality in every place that the vein was proven; and it gives me great pleasure that I can congratulate the parties interested on their merited good fortune. I have not seen the Archbald vein anywhere in that section superior, if equal, to

what it is in the Pierce colliery. The coal will bear me out in what I say, and will establish its reputation in market beyond the possibility of evil-designing persons to do it an injury.

There is but one thing needed to make the Pierce mines a first-class colliery, and that is the erection of a good fan to ventilate it properly, and I trust that ere I shall be called upon to pen my next annual report, that the lessees, Messrs. Jones, Simpson & Co., will do this one thing needful.

Forest City Colliery.

The Forest City colliery is located in Susquehanna county, is owned by the Hillside Coal and Iron Company, and was added to the eastern district of Luzerne and Carbon counties, by an act of the Legislature at its last session. The colliery is a small concern, and consists of a drift driven to the crop of the coal through sand. The coal is very near the surface, and a great part of it is known as "rusty coal," and is therefore condemned as being unfit for the present fastidious market. The time will come, however, when this fastidiousness will pass away, and when anthracite will be a luxury, even though it may be a little "rusty." The extent of the area of coal in this locality has not been ascertained, but it is believed not to be very great. There is no breaker attached to the colliery, and all the machinery there is of any kind consists of screens driven by horse power, said screens being connected with chutes to deliver the coal into cars on the Jefferson branch of the Erie railroad.

The condition of the mines in regard to ventilation, when I first visited it was about as bad as it could well be, but it has been considerably improved since then. As I have stated elsewhere, an air shaft has been sunk and a furnace built, which has improved things considerably; but I protested against the putting in of a furnace, on the principle that money expended on furnaces in such shallow workings is money thrown away, but it seems the company has more money than it knows what to do with, and prefer to throw it away in this manner. As the works extend a little they will find that their furnace will have to be re-placed with a fan, as I have already informed them. The mine superintendent will learn after awhile that it is futile for him to contend against the unyielding and inflexible laws of nature, and he may, through experience gained at the expense of the company, learn something of the nature of these laws.

THE "MINE CLERK."

Much has been said in and out of the Legislature in relation to the office of "mine clerk." It seems to be the general impression that the "mine clerk" is a clerk to the "mine inspectors," and that as such, he attends to all the clerical work of the mine inspector's offices; that he keeps a complete record of all the inspector's acts, arranging all matter pertaining to accidents, relative to the condition of the mines and machinery, relative to the ventilation of the mines, and all other things appertaining to the

Of the smaller companies and operators, I have two to report who have replaced furnaces with fans during the year. Messrs. Jones, Simpson & Co., have put in a twelve feet diameter fan at the **Pierce colliery**, in Archbald borough, and Messrs. William Connell & Co. have replaced their furnace with a fourteen feet diameter fan, which commenced running October 28, 1879. The Butler Coal Company have replaced a six feet diameter Patterson fan with a sixteen feet Guibal fan, and the little one has been removed to the Twin shaft, Pittston Coal Company, and the Hillside Coal and Iron Company have removed their fan from the Powder Mill shaft, in which the coal is exhausted, to a new air shaft sunk for the Spring Brook tunnel.

All the miscellaneous collieries are in a satisfactory condition at present, excepting the following: Jermyn's shaft and slope, Jermyn borough; Eaton colliery, Archbald borough; Filer colliery, Winton borough; Greenwood colliery, Lackawanna township; Hillside colliery, Pleasant Valley borough; Columbia mines, Pittston township, and the Beaver mines, Pittston borough. The first three named, the Greenwood, and the two last named, are the only very bad ones, and each of these must receive particular attention during the current year. The larger number of the collieries of the small operators, are in very good condition as to ventilation.

Taking the whole of my district, I think that it can be safely said, that the progress made during the year in bringing the condition of the collieries up to what it should be, is highly encouraging and satisfactory, and the work accomplished can be taken, no doubt, as an assurance that what is still wanting, will be done in due time.

Prosecutions for Violations of Law.

It is one of the most unpleasant duties of the position of an inspector, that he feels compelled, in certain instances, to enter criminal proceedings against mine bosses or workingmen, for violations of law. I have often felt that I would prefer to suffer the penalty myself than do this, if I could escape my oath-bound duty by doing so. Whenever I have been forced to prosecute, I have done it "with malice towards none and charity towards all," and have never asked the courts to inflict any but a nominal punishment. But I have been sorely grieved at the course pursued by the operators, superintendents, and workingmen, in defense of the unfortunate parties prosecuted. I do not complain at their availing themselves of all legal and honorable means in defense of the accused, but when they assail the motive of the inspector, and attribute his action to a feeling of spite and a desire for revenge, in retaliation for some real or imaginary wrong they may be conscious of having perpetrated against him, they make the cross a very heavy one to bear. I cannot account for this, only as a verification of the old maxim, that "The guilty fleeth when no one pursueth him." But it grieves me that any one, who claims an intimate acquaintance with me, can imagine it possible for me to be capable of indulging in a low and mean desire for retaliation and revenge; for I thank God that

Church Mine.

A new slope has been sunk from the surface to the coal.

Grassey Island Mines.

They have driven a new drift to open up the slope vein of coal.

Dolph Colliery.

There have been new lump coal schutes built on breaker.

Edgerton Mine.

Two air shafts have been sunk, one 35 feet deep, the other 41 feet deep; sectional area of each, 100 square feet.

Peckville Colliery.

This is a new colliery, located in Winton borough, on the south-east side of the Lackawanna river. Coal can be shipped by the Delaware, Lackawanna and Western railroad or the Delaware and Hudson Canal Company's railroad. It is owned and operated by the Peckville Coal Company. They have one drift driven 200 feet into the coal, and opening right and left of the main heading. There is another drift 600 feet south of breaker. A new breaker is being built which will have a capacity of 600 tons per day. They will be ready to ship coal in about three months. An air shaft is also being sunk.

Pierce Mines.

The slope from the surface has been sunk 700 feet in 1886. Sectional area, 100 square feet.

Erie Colliery.

On November 16, 1886, Erie breaker was destroyed by fire. It is now being rebuilt, and will be ready for the preparation of coal about March 1, 1887. Sunk one pumping shaft 225 feet deep; sectional area, 48 square feet. Two new shafts are being sunk, one to top vein and one to bottom vein. Size of shafts, 12×30 feet. A breaker is to be erected for the preparation of coal and is now ready for the superstructure.

Keystone Mine.

One self-acting plane, 450 feet long, sectional area, 96 square feet, has been built and in operation.

Brennan's Mines.

A new breaker has been erected; a drift has been opened and an air shaft has been sunk in 1886.

Belmont Mines.

A new drift has been driven for a distance of 300 feet, for the purpose of drainage. Sectional area, 42 square feet.