

some time ago; they are now suspended, like the whole of this company's mines. By looking at the plan, only 1,500 feet appear to be between the two places.

THE HENRY COLLIERY SHAFT, SINGLE OPENING.

H. W. Burroughs, Operator.

This shaft is 384 feet deep, has a large breaker attached to the head house, and the mine gives off a considerable quantity of gas or fire-damp. After being restricted to twenty men in the mine at one time, they decided to sink a second shaft 9 by 12 feet in size, and are entitled to especial commendation for the energy displayed since they began. Four months ago they commenced cutting upwards and sinking from the surface, and are now within 40 feet of being through. Had it not been that they met with large feeders of gas fire-damp in the place they were cutting up from below, compelling them to abandon this mode of completing the work, it would have been through this year, thus showing what can be done where there is a will.

WEST PITSTON SHAFT, SINGLE OPENING.

The Lehigh Valley Railroad Company, owners.

This shaft is 280 feet deep, giving off considerable gas or fire damp. This company having only lately become the owners, the state of the works being very bad, and this change in the ownership being looked for, little work has been done during my term of office, until lately; they are sinking a slope, prospecting as to the proper location for a new shaft.

THE EAST BOSTON SHAFT, SINGLE OPENING.

The Consumers' Coal Company of New Jersey, owners—Chas. Hutchinson, lessee.

This shaft is 160 feet deep; has a breaker attached to the head house; was not working for some time, the lessee and lessors being in dispute about divers matters and things, amongst others, the question of the second mode of ingress or egress to the mines. The matter was finally settled, and Mr. Hutchinson is now sinking another shaft on the adjacent property, intending to make a connection with the East Boston shaft and mines, thereby making a second means of ingress or egress for each mine. This shaft is expected to be completed early in the spring, and Mr. Hutchinson's lease expiring in April, he will then work the newly leased tract from the new shaft.

THE WATERMAN AND BEAVER SHAFT, SINGLE OPENING.

Situated near Kingston—Messrs. Waterman & Beaver, owners and operators.

This shaft is 347 feet deep, with a very large breaker attached to the head house. They have been driving for a second mode of ingress or

REPORT

OF THE

COLLIERIES IN AND FOR THE MIDDLE DISTRICT OF LU-
ZERNE AND CARBON COUNTIES, FOR THE YEAR END-
ING DECEMBER 31, 1872.

OFFICE OF INSPECTOR OF COAL MINES, }
WILKESBARRE, PA., Feb. 1, 1873. }

To His Excellency, J. F. HARTRANFT,

Governor of the Commonwealth of Pennsylvania:

SIR:—In compliance with the requirements of an act of the General Assembly of 1870, I have the honor to submit herewith my annual report of accidents producing death or serious personal injury to persons employed in and around coal mines in the Middle district of Luzerne and Carbon counties, for the year ending December 31, 1872.

In my report of 1871 a general report only of the condition of the district was made. This year a brief report is made concerning the condition of each mine, in an alphabetical order of their operators, i. e. as far as the same relates to the health and safety of persons employed in it. Also a list of the prosecutions that took place during the year, after which the coal production of the district is given and a recapitulation of the accidents, which are tabulated. Also two maps, intended to assist in explaining the cause of the accidents to which they relate, &c.

Very respectfully,

Your obedient servant,

T. M. WILLIAMS, *Inspector of Mines.*

BLAKE & Co.'s SHAFT.

West Pittston shaft.—This shaft is located at the western end of West Pittston, and is 270 feet deep. There has been no work done in the above mine since the dreadful calamity of May, 1871, except pumping, which has been also abandoned since the spring of 1872, and the erecting of the new fan, which is 21 feet in diameter, for which they were preparing room when the fire took place.

A new breaker has been built about 200 feet away from the old shaft. The first new shaft, which was begun south of the old one for a second opening, has been abandoned, and another new one commenced — feet west of the old one, which is being sunk rapidly and is down at present about 150 feet, and may be connected to the old shaft in 1873.

CONSUMERS' COAL COMPANY'S SHAFT.

East Boston shaft.—This shaft is located a short distance north of Kingston, and is 160 feet deep. In 1870 the mine was operated by Mr. Charles Hutcheson, lessee, and had but a single opening. Since April, 1871, the company have been working the mine themselves, and have made their second opening by sinking a new shaft to the depth of 170 feet. This year they have put in ladders in said second opening.

There is also a communication between this and the Hutcheson shaft, in regard to which there has been much trouble and litigation between the company and Mr. Hutcheson.

Last spring notice was given to Mr. W. G. Payne, superintendent in charge, to have the mine better ventilated, and some suggestions were given as to what improvements should be made so as to obtain the desired result. The same was faithfully promised, but notwithstanding the time given, of several months' duration, Mr. Payne insisted in moving an old ten-foot fan to the new shaft, running the same by wire rope transmission of power, and even now, after having spent as much capital as would have been required to have built and put into operation a good fan 15 feet in diameter, the mine is so very poorly ventilated that I was inclined to apply for an injunction to have it stopped in November, the time of my last visit. I could not find but 12,000 cubic feet of air at the foot of the air shaft, and could not find sufficient air current to run the instrument, in the cross-cuts, at any point near the face of the mine. I had to condemn a brake that had been put on the hoisting drum, after much time and money had been spent, as it would not answer the purpose. In a word, much trouble is had in having things done at all, and much more in having anything done satisfactorily. The mine is not yet in a satisfactory condition, either as regards ventilation or the safety appliances attached to the machinery for hoisting and lowering persons.

Mr. Wm. G. Payne, superintendent in charge; Wm. Evans, mining boss.

A. J. DAVIS & Co.'s MINES.

Warrior Run.—These mines are located as their name indicates, at Warrior Run, and consists of two drifts, now abandoned, and two slopes, one of which is on the Red or B vein, 300 feet long, which is a new work not much opened, and the other on the E vein, from which they have a tunnel south to the D vein. The latter slope workings are ventilated by a fan 15 feet in diameter. Their mines have been lying idle this year until the month of November.

Mr. Jas. E. Roderick, general superintendent; John C. Jones, mining boss.

DELAWARE AND HUDSON CANAL Co.'s MINES.

These mines consist of four slopes, three shafts and 1 tunnel, to wit:

Baltimore, No. 1 tunnel.—This mine is located about $1\frac{1}{4}$ miles south-east of Wilkesbarre and was driven into the Baltimore vein. Their present workings are in a slope some 1,200 feet long, commencing at a point a little east of the tunnel, inside. This mine has lost much time during 1872; had some heavy and damaging falls of roof, and subsequently was drowned out for a long time. They had to drive a second opening, owing to the above mentioned fall closing the old one, also a new traveling road had to be made for the same reason. The ventilation is not very commendable, yet I have received no complaints. Natural ventilation, 19,200 cubic feet. Number of persons employed inside, 78.

A. Nicolls, general superintendent; Wm. M'Gregor, assistant superintendent; Jas. Tretheway, mining boss.

Baltimore, No. 2 shaft.—This mine is located east of and adjoining the No. 1 tunnel mine. It is a shaft 80 feet deep and has near its bottom, a little westward, a slope — feet long. Another part of the mine is worked through a tunnel which has an inside slope.

This mine has been working about 30 years and evolves a small quantity of carburated hydrogen gas (fire-damp.) Several persons have been slightly burnt in this mine, caused generally through their own carelessness.

Ventilation.—Produced by natural means; 19,470 cubic feet per minute at inlet; at face of mine, 9,280 cubic feet of air per minute. Number of persons employed, 82.

A. Nicolls, general superintendent; Wm. M'Gregor, assistant superintendent; Ed. Hahn, mining boss.

Baltimore, No. 3 slope.—This mine is located east of and adjoining No. 2 shaft of the Co.'s mines. It is a slope on the Baltimore vein, — feet long, and

CONSUMER'S COAL COMPANY'S SHAFT, KINGSTON, PA.

East Boston Shaft.—No. 1 carriage dropped, first trial, $13\frac{3}{4}$ inches; second trial, 6 inches; third trial, $9\frac{1}{2}$ inches. No. 2 carriage not used for hoisting or lowering persons.

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY'S SHAFTS.

Avondale Shaft.—No. 1 carriage dropped, first trial, 2 inches; second trial, $1\frac{3}{4}$ inches; third trial, $1\frac{3}{4}$ inches. No. 2 carriage dropped, first trial, $1\frac{1}{2}$ inches; second trial, $1\frac{1}{2}$ inches; third trial, $1\frac{1}{2}$ inches.

Boston Shaft.—No. 1 carriage dropped, first trial, $1\frac{1}{2}$ inches; second trial, $1\frac{1}{4}$ inches; third trial, $1\frac{1}{2}$ inches. No. 2 carriage dropped, first trial, $1\frac{1}{2}$ inches; second trial, $1\frac{1}{2}$ inches.

RIVERSIDE COAL COMPANY'S SHAFT, PLAINSVILLE, PA.

Enterprise Shaft.—No. 1 carriage dropped, first trial, 4 inches; second trial, $\frac{3}{4}$ inch. No. 2 carriage not used for hoisting or lowering persons.

LUZERNE COAL AND IRON COMPANY'S SHAFTS, PLAINSVILLE, PA.

Henry Shaft.—No. 1 carriage dropped, first trial, 2 inches; second trial, 2 inches. No. 2 carriage not used for hoisting or lowering persons.

Prospect Shaft.—No. 1 carriage dropped, first trial, 2 inches; second trial, 2 inches; third trial, 2 inches. No. 2 carriage not used for hoisting or lowering persons.

DELAWARE AND HUDSON CANAL COMPANY'S SHAFTS.

Pine Ridge Shaft.—No. 1 carriage dropped, first trial, 2 inches; second trial, 2 inches; third trial, 2 inches. No. 2 carriage dropped, first trial, 2 inches; second trial, 2 inches; third trial, 2 inches.

Conyngham Shaft.—No. 1 carriage dropped, first trial, 12 inches; second trial, 14 inches; third trial, 8 inches. No. 2 carriage not used for lowering or hoisting persons.

NORTHERN COAL AND IRON COMPANY'S SHAFTS, PLYMOUTH, PA.

No. 1 Shaft.—No. 1 carriage dropped, first trial, 2 inches; second trial, 2 inches. No. 2 carriage dropped, first trial, 2 inches; second trial, 2 inches.

No. 2 Shaft.—No. 1 carriage dropped, first trial, 3 inches; second trial, 2 inches. No. 2 carriage dropped, first trial, 3 inches; second trial, 2 inches.

No. 3 Shaft.—No. 1 carriage dropped, first trial, 3 inches; second trial, 2 inches. No. 2 carriage not used for hoisting or lowering persons.

No. 4 Shaft.—No. 1 carriage dropped, first trial, 6 inches; second trial, $2\frac{1}{2}$ inches. No. 2 carriage dropped, first trial, 6 inches; second trial, $2\frac{1}{2}$ inches.

WILKES BARRE COAL AND IRON COMPANY'S SHAFTS.

Dodson Shaft.—No. 1 carriage dropped, first trial, 6 inches; second trial, 6 inches; third trial, 6 inches. No. 2 carriage dropped, first trial, 6 inches; second trial, 6 inches; third trial, 6 inches.

Lance Shaft.—No. 1 carriage dropped, first trial, 5 inches; second trial, 4 inches; third trial, 6 inches. No. 2 carriage dropped, first trial, 6 inches; second trial, 6 inches; third trial, 6 inches.

Consumers' Coal Company's East Boston Shaft, Wm. G. Payne & Co., lessees.—This shaft also is being sunk from the top or cooped bed to the Bennet or lower bed of the Baltimore seam, a distance of about 80 feet; about 40 feet were sunk by night, while the shaft hoisted coal by day.

The following sketch and description of a dam built and tested may be of interest to many of our mine managers and others. Mr. J. H. Swoyer is entitled to much credit for the constant care he manifests for the safety of his employees, both in building this dam and often times preventing his men from working during high water on the flats for fear of danger.

WILKES BARRE, PA., February 20, 1874.

T. M. WILLIAMS, ESQ.:

DEAR SIR:—In compliance with your request, I have the pleasure of handing you a plan and description of the dam built in the Rock tunnel, leading from the Eight foot vein to the Five foot vein, in the Enterprise colliery, Plainsville, Pa. As you are no doubt aware, the Eight foot is the uppermost vein, and has been extensively worked, both in this and the adjoining colliery, called the Burroughs, the property of the Luzerne Coal and Iron Company; the workings of both collieries communicating. The Five foot is some 75 feet below the Eight foot, and is worked by a shaft from the surface, which shaft also cuts through the Eight foot; the only other communication with the Eight foot is by a tunnel cut through the solid measures of rock, and in this tunnel the dam is located. This tunnel communicating with the Eight foot, and to the surface through the mule way of the Eight foot, formed the second opening for the Five foot. Some 200 feet below the Five foot is the Baltimore vein, which is worked by an underground slope, cut through the solid rock from the Five foot to the Baltimore, the second opening to which vein it was (at the time of building dam) also another slope, through the rock from the Five foot.

The dam was built at the suggestion of Mr. J. H. Swoyer, for the safety of the men employed in, and to save the Baltimore slope and vein in the event of the Susquehanna river breaking through into any part of the Eight foot workings, for in the adjoining (and in communication) colliery, Burroughs, a cave of the roof, had twice already let into the mines the water of the canal, and as also during floods the Susquehanna often overflows its banks, so that a large portion of the workings in the Eight foot vein are under water. In such a case, a cave in the roof and extending to the surface would flood the Eight foot vein to the height of over 60 feet above the level of the tunnel, causing almost certain death to the miners, &c., employed in the Baltimore vein, 200 feet below the tunnel.

The dam as originally constructed consisted of a sill and cap of oak timber 12x12, marked on plan (a) and firmly set into the rock. Six upright posts of oak (b) 12x12, with spaces between each post. A larger space being left between the two centre posts for a man-way, 3-inch planking (c) in front of posts, and a brick and cement wall (d) in front of planking. The man-way door is a strong casting, with its attachments as per plan, and was kept in position for immediate use in case of emergency. Each post would resist with safety, a strain distributed over its surface of 20 tons, making a total resistance of 120 tons, not including the effect gained by the planking and brick wall. The tunnel being 8x7, or 56 square feet area, and the pressure on the dam, in the event of a break in by the river, being 30 pounds per square inch, the total pressure against the dam would be 108 tons. In the spring of last year, (1873,) during a flood, a cave in or fall of roof in the Burrough's colliery (then abandoned) let in the river, and in

The Gaylord Coal Company.

This company is sinking a very large shaft near their present colliery in Plymouth. It is twelve by forty-eight feet, and is to cut all the veins from the surface to the Red-Ash. They are down now a depth of four hundred and twelve feet, and have gone through the Cooper, Bennett, and Ross veins

J. H. Swoyer.

At the Forty Fort colliery the shaft was extended down from the Bennett to the Ross vein, a distance of two hundred feet, and is now beginning to open on that vein. At the Wyoming colliery an underground slope was driven down one lift.

W. G. Payne.

At the **East Boston** colliery a new tunnel was driven a distance of one hundred and fifty feet, from the Bennett, to work the Cooper vein.

Plymouth Coal Company.

The Dodson shaft, of this company, was extended down a depth of one hundred and eighty feet and struck an excellent vein of coal, which is believed to be the Baltimore. This mine is about finishing to work in the Bennett vein, which was thought to be a split of the Baltimore, and the discovery of the vein just struck was a very agreeable surprise. It is sixteen feet thick, and the coal is of excellent quality. The second opening, at this writing, is down ninety feet, and will soon be sunk into the new vein, when communication will immediately be made with the workings from the shaft.

NEW FANS ERECTED DURING 1880.

The importance of furnishing the means for supplying good ventilation is more fully realized every year, and it is very gratifying to see the increased efforts made towards improvements in the construction of the ventilators.

Ten new fans have been erected in this district during the last year, and they are all giving excellent results, which amply compensate the expenditure made in their construction. Two of them are thirty-five feet in diameter, viz: The one erected at the Hollenback shaft by the Lehigh and Wilkes-Barre Coal Company, and the other at Mill Creek slope by the Delaware and Hudson Canal Company.

A plan of the Hollenback fan is kindly furnished for this report by Mr. Thomas R. Griffith, one of the company's mining engineers, and it gives a very full description of it, to which the reader is referred. It is erected upon a massive foundation of mason-work, and has a brick-house covered with sheet iron roof. It is running at a speed of twenty-five revolutions per minute, and is exhausting one hundred and twenty-five thousand cubic feet of air per minute with a half inch of water-gauge. Another fan of the same dimensions was previously erected upon this colliery, but was not built on so substantial a foundation. Both are kept running at low speed,

new double fan was erected to supersede their old furnace. The fans are seventeen and a half feet in diameter, and fastened on the same axis, about eight feet apart; a plan of which is kindly furnished for this report, which can be seen in connection with the report of tests of the fan.

The breaker formerly at Young's slope was removed and erected at the Conyngham shaft. It was completed by August 13, when they began shipping coal. When the colliery is fully opened they will be able to put out about seven hundred tons of coal per day. About twelve years have elapsed since ground was first broken to sink this shaft.

Susquehanna Coal Company.

A tunnel was driven in No. 1 slope, from the Red Ash seam to the Ross. Its length is four hundred and eighty-seven feet, and size seven by ten feet. The coal is thin, but of good quality. Another tunnel is in progress lower down on the dip, in No. 2 shaft, to cut the same vein. A slope is also in progress of sinking in this shaft, towards the basin. It is down, at this writing, four hundred and eighty feet from the gangway level, near the bottom of the shaft, on a varying grade of from seven to twelve degrees.

Kingston Coal Company.

This company's new shaft, at Kingston, is down to the Red Ash vein, and has cut, in all, five seams of good workable coal. The Red Ash, at the point cut, is six feet thick. A tunnel was driven in No. 1 shaft, from the Cooper to the Bennett seam, which is ten feet thick, and has opened a convenient section of coal of good quality. The tunnel is two hundred feet in length.

Gaylord Coal Company.

The Gaylord shaft is completed to the Red Ash vein, and has cut three veins hitherto not worked in this track, viz: Bennett, Ross, and Red Ash seams. They are now working to effect second openings, which will be accomplished in about three months. The shaft is forty-seven by twelve feet area, and five hundred and seventy-five feet in depth. There are two pairs of hoisting engines and four cages—all of the latest and most approved plans. The coal will be shipped through the old Gaylord breaker, and will eventually be able to ship about twelve hundred tons per day.

Franklin Coal Company.

In the Brown slope a new tunnel was driven from the Baltimore to the Red Ash vein, and a new plane was made in the former to let the coal down from the upper lifts.

W. G. Payne & Co.

In the **East Boston** mine a new tunnel was driven from the Bennett to the Cooper vein, which is one hundred and fifty feet in length, and fourteen by six feet area. The seam is six feet thick, and the coal of excellent quality.

The Gaylord Coal Company.

A new air-shaft constituting a second opening to the Red Ash vein was sunk from the Ross seam, a depth of 120 feet, having an area of 10×12 feet. They also made two new planes, one in the Ross and the other in the Red Ash seam. Their lengths are 500 and 400 feet, respectively, on a grade varying from 13 to 18 degrees.

A. J. Davis.

At the Warrior Run colliery a new tunnel was driven from the D to E vein, a distance of 120 feet, and another is in progress from the D to B or Red Ash vein.

W. G. Payne & Co.

At the **East Boston** mine of this company, a new air-shaft was sunk convenient to the main workings, a depth of 150 feet, having an area of 10×15 feet, from the surface to the Cooper and Bennett veins, and the fan was removed from the old shaft and placed upon this. The ventilation of the mine has been greatly improved by this change, and is produced at less cost.

Haddock & Steele.

This company bought the Black Diamond colliery from J. C. Hutchison, and took possession March 1, 1882. Since then they have graded the underground slope, and made considerable improvements in the work.

The Red Ash Coal Company.

This company completed their second colliery ready to begin shipping coal on the 1st of March, and mined 69,204 tons of coal by the end of the year. All the coal, yet mined, is above the level of the breaker, and the Ross and Red Ash seams have been cut by a tunnel, through which the coal is brought out. A new slope was sunk, reaching a lift of coal below the level of their No. 1 colliery, from which a considerable quantity of coal can be very conveniently obtained.

Waddell & Walter.

This company completed their shaft at the Raubville colliery, and effected their second opening by connecting with the workings of the Black Diamond mine. The shaft was 170 feet to the Bennett vein. A new fan was erected to ventilate the workings, a description of which can be seen elsewhere in this report.

Waddell & Company.

The Bennett shaft, 10×20 feet, was completed, and cut the Bennett vein at a depth of 320 feet; also an air-shaft for the same mine. The breaker was set in operation in May, 1882, and during the remainder of the year they mined 26,226 tons of coal. This colliery is situated in Plains township, east of Mill Creek. A new fan was erected to ventilate the colliery, having a diameter of 22 feet, which is producing a ventilation of about 80,000 cubic feet per minute.

The Kingston Coal Company.

The No. 4 shaft of this company was completed upon reaching the Red Ash seam at a depth of six hundred and sixteen feet. Its size is 30'×12'. This opens a very large tract of convenient coal.

The Gaylord Coal Company.

At the Gaylord colliery a tunnel is in progress from the Ross to the Red Ash seam. Its sectional area is 7'×10', and its length, at present, is six hundred and fifty feet. This is intended to work the coal above the level of the bottom of the Gaylord slope.

A. J. Davis.

At the Warrior Run colliery a tunnel was driven from the C to the D vein. Its sectional area is eighty-five square feet, and its length one hundred and ten feet. The seam of coal was found eleven feet thick, and of good quality.

The Franklin Coal Company.

This company has started to sink a new slope, from the surface diagonally through the measures, to cut and work the Red Ash seam. Its sectional area is one hundred and sixty feet square, grade thirty degrees, and it was driven to a depth of one hundred feet at the end of the year.

W. G. Payne & Co.

At the **East Boston** mines of this company the shafts are being sunk or extended from the Bennett to the Ross vein. They had not struck the expected point at the close of the year, but they were approaching it closely. The blasting-hole in the air-shaft was thought to have penetrated the coal seam.

The Red Ash Coal Company.

A new tunnel is being driven from surface at the outcrop of the Baltimore seam, and is intended to drain and mine the coal lying above that level, and between that and the Red Ash slope, of both the Ross and Red Ash veins. It was driven a distance of three hundred and seven feet at the end of the year, and is expected to be finished sometime in 1884. This will open a wide extent of very convenient territory and desirable coal.

The West End Coal Company.

This company is opening a new mine and building a new breaker about three miles east of their West End colliery, in Conyngham township. It is to be named East End colliery. The breaker is expected to be ready in March, 1884. The vein is opened by two tunnels—one on each side of the basin—and they will mine and ship coal as soon as the breaker is completed.

The Delaware and Hudson Canal Company.

This company is sinking two new shafts in Plains township, near the Baltimore mines, for the purpose of mining the Red Ash seam. The main

The Kingston Coal Company.

The No. 4 shaft, sunk by this company, reached the Red Ash seam at a depth of six hundred and sixteen feet. This opens a very wide extent of territory and is expected to produce a large supply of coal. The second opening will be effected by opening into the workings of the No. 3 shaft of the same company.

The Franklin Coal Company.

Important improvements are in progress at the Franklin colliery. A new slope is being driven down across the measures to cut the Ross and Red Ash seams, and it has reached a depth of six hundred and ninety-three feet on a grade of thirty-three degrees. Eventually, when the slope cuts the Red Ash, a new breaker will be erected, from which all the coal of this colliery will thereafter be shipped. The ventilation of the old slope mine was considerably improved last year by enlarging the air-ways and by some modifications in the construction of the fan.

W. G. Payne & Company.

The **East Boston** shafts of this company were extended to lower seams. The main shaft to the Red Ash, a depth of three hundred feet, and the air-shaft to the Ross seam, a depth of two hundred and thirty-four feet. This improvement opens a large area of good coal for this company. The size of the main shaft is 11'×22', and of the air-shaft 10'×18'.

Haddock & Steel.

A new air-shaft is in progress at the Black Diamond colliery of this company, and it has reached the Cooper seam at a depth of one hundred and fifty-two feet. Its sectional area is 12×12 feet. A tunnel was also driven on a rise of seventeen degrees from the Bennett to the Cooper seam, by which a large piece of good coal is intended to be mined from a point some distance below the old Cooper workings.

The Red Ash Coal Company.

The new tunnel reported last year as being driven from the surface to the Red Ash seam by this company is completed. It cuts through the Ross seam at a distance of nine hundred and nineteen feet, where the coal was found to be nine feet thick. The Red Ash was reached at a distance of eleven hundred and ninety-seven feet, and the coal is of excellent quality. This tunnel drains all the workings of this company, and relieves them of the cost of pumping water. The slope was extended to the level of the said tunnel, and opens a new lift, of about five hundred feet in length, in both seams.

Thomas Waddell.

The Raubville shaft was extended from the Bennett to the Ross seams, a depth of two hundred feet. They are now driving a second opening.

six hundred feet. The sectional area is 8×12 feet; gradient, fourteen degrees. These slopes are intended to maintain the present production of the colliery.

Butler Coal Company.

At the Boston Colliery, two tunnels were driven from the Red Ash vein to Red Ash, a distance of four hundred feet; one tunnel to transport coal, the other for ventilation. They have, likewise, sunk two slopes on same vein, one six hundred and fifty feet, the other one hundred and fifty feet, which open up some good coal for this company, as some time ago this colliery was considered to be worked out.

Butler Coal Company.

At the Butler Colliery a new slope was sunk on the Pittston vein, a depth of one hundred and fifty feet, for the purpose of robbing or taking the pillars out.

Haddock & Steel.

A new air-shaft was sunk by this company from the surface to copper vein, a distance of one hundred and sixty feet. Size of shaft, 16×16 feet. A new twenty-foot Guibal fan was erected thereon; face of fan, eight and one half feet. Two side inlets, diameter eight and one half feet, working speed sixty revolutions per minute, giving ninety thousand cubic feet of air exhausted per minute, with one and a half inches of water gauge. The gearing is direct. This fan was started July 26, 1885, taking the place of the old fan.

W. G. Payne & Co.

A new twenty-five-foot fan, of the Guibal pattern, was placed in position at the **East Boston** Colliery, in place of the fifteen-foot fan which was done away with. The new fan is placed over the same shaft as the old one was, giving a result of one hundred and twenty-three thousand three hundred and eighty-six cubic feet of air exhausted per minute, with a water-gauge of eight tenths of an inch, with a working speed of forty revolutions per minute. It was started December 2, 1885. It is direct in gearing. This colliery has the means now to give their men all the fresh air they will want.

Waddel & Walters.

A new shaft was sunk in the Bennett shaft, from the upper to the lower split of the Baltimore vein, to a depth of two hundred feet. Size of slope, 6×18 . Gradient of fifteen degrees. Likewise, a new gravity plane was driven in the lower split, three hundred feet, with a sectional area of 6×18 , and a gradient of twelve degrees, which will open up some good coal, and enlarge the company's shipment from this colliery.

4 MINES.

split of the Baltimore vein to top split, length 90 feet, to be used for transporting coal.

Butler Coal Company.

At the Mosier colliery, a new shaft was sunk to the Red Ash seam, a distance of 375 feet, sectional area, 120 feet, to be used as a second opening to the Mosier shaft.

Waddell & Walters.

At the Bennett colliery they have extended the old slope in the top split of the Baltimore vein 520 feet.

At the Raubville colliery, the second opening has been completed a distance of 2,000 feet, sectional area, 60 feet, to a drift on the mountain. They have placed a new fan, 16 feet in diameter, in position in the opening, with direct gearing working speed of 45 revolutions per minute. Amount of air exhausted, 50,000 cubic feet per minute. A new Pale pump was put in with 8-foot stroke, 14-inch working barrel, also three new steel boilers, 40×45 feet, and a pair of first-motion engines with conical drum on their hoisting shaft.

Clear Spring Coal Company.

At the Clear Spring colliery, a new inside slope was sunk in the Pittston vein, a distance of 500 feet, sectional area, 126 feet, with a grade of 10 degrees.

Elliott, McClure & Co.

The Sibly breaker of Elliott & McClure was burned down on the morning of February 6, 1886. They immediately rebuilt, and started their new breaker on July 20, 1886.

State Line and Sullivan Railroad Company.

At the Bernice colliery, Sullivan county, a new shaft was sunk to the vein now working, a distance of 69 feet, sectional area, 120 feet. They are going to place a fan on this shaft for ventilation to take the place of a furnace which does not give satisfaction. A tunnel was driven 604 feet from the bottom seam to top seam for transporting coal.

W. G. Payne & Co.

At the **East Boston** colliery, a tunnel was driven from the Red Ash to the Ross seam, a distance of 457 feet, sectional area, 84 feet. This tunnel opens a large territory of good coal for this company.

Wyoming Valley Coal Company.

The Forty Fort breaker of this company was burned down in 1885. The coal was taken to their Harry E breaker, about one mile distant, until the breaker could be rebuilt, which work was started immediately and finished July 25, 1886.

CONDITIONS OF THE COLLIERIES.

The quantity of coal produced during the year 1890, has increased 562,236 tons over that of the previous year. The breakers were in operation on an average 185.76 days producing a total of 5,229,027 tons of coal. The increase of breaker time over last year being 17.29 days. The ventilation of the mines is greatly improved; by referring to table A, in this report, it will be seen that there is 467 cubic feet of air per minute in the intake to each person employed in the mines. Ten new ventilation fans have been erected to furnish fresh air for the inside workings which are giving general satisfaction as regards ventilation.

In visiting the underground workings, I find that a large number of the miners are indifferent in regard to standing their props and timbers properly for the purpose of securing the roof of their working places.

When it becomes necessary to stand props or timber for safety, it is reasonable to presume that they should be stood in a proper manner; I have repeatedly called the attention of the miners to this loose way of standing their timbers which are generally placed in every conceivable way but the right one, and the excuse has usually been that a shot has placed them in the condition that they were found.

While there may be some truth in regard to the coal flying from a blast displacing some of them, I do not think it is the case with the majority that I find displaced. I have called the attention of the inside bosses to this loose way of standing props and timbers by the miners where they have charge, as it is dangerous and unworkmanlike and shows a bad state of discipline by those bosses whose duty it is to see that the miner stands his timber in a proper manner, and that the roof is secured as the workings advance, as one-half of the fatal accidents this year were caused by falls of roof and coal which occurred at or near the working faces. While the victims themselves are somewhat to blame, are the bosses, where such timbering and loose discipline exists, entirely blameless?

ARBITRATION.

On April 13, 1889, I received a letter from James B. Davis superintendent for John C. Haddock, which stated that the Bennett Seam in the Black Diamond shaft had been abandoned and would be allowed to fill with water. On March 18, 1890, my attention was called to the water in the Bennett slope oozing through the barrier pillar on the East Boston side, I therefore wrote E. F. Payne the following notice:

PITTSBURGH, PA., March 22, 1890.

E. F. PAYNE, ESQ.,

Superintendent East Boston Shaft:

DEAR SIR: I find that the water in the Bennett slope of the Black Diamond shaft, operated by J. C. Haddock, has accumulated to such an extent that there is a possibility of the pillar between you and them bursting out by the pressure of water and endangering the lives of the men working on the rock plane in the Cooper Seam of your mines.

additional pumps required to take care of it in the **East Boston** Bennett seam, indicate a weakness of the pillar.

Fourth. While it is possible that the barrier pillar may stand an indefinite time under the present conditions, the conditions are liable to change by falls similar to those already described by witnesses, and the working of the other seams in the vicinity; therefore, placing additional strain on the pillar which already shows signs of weakness by spalling of its top bench, and although the barrier pillar now stands intact with the water flowing to the Black Diamond shaft sump, we recommend the head be reduced 92 feet vertical height below the present overflow and maintained at this level, this being the third level of the Black Diamond slope, before and during the period that men are permitted to work the lower levels in Bennett and Cooper seams, East Boston mines. We also recommend that no pillars be removed unless the balance of water be taken out.

J. H. BOWDEN,
H. S. REETS,
K. M. SMITH,
Arbitrators.

DIVISION AND BOUNDARY LINE BETWEEN FIRST AND SECOND ANTHRACITE
DISTRICTS.

*To the Board of Examiners for Mine Inspectors Appointed by the Court
of Common Pleas of Luzerne county, Pennsylvania, on the 15th day of
January, 1890:*

GENTLEMEN: The undersigned, Inspectors of districts Nos. 1 and 2, hereby request you to re-adjust the boundary line between said districts in order that all the coal mined in each of said districts shall be brought out of the openings located in the same districts. We have agreed to the following line of division: Beginning at a point where the line, between lands of the D., L. and W. R. R. Company and Elliott McClure & Co., lessees, intersects the line between Old Forge and Ransom township, thence along line between D., L. and W. R. R. Company and Elliott McClure & Co., lessees, and John Jermyn, lessee, in a southeasterly direction to the center of the Lackawanna river. Thence along said Lackawanna river, between lands of the D., L. and W. R. R. Company and N. Y. and Susquehanna Coal Company, in a northeasterly direction to a corner of Wm. Connell, Sons & Co., N. Y. and Susquehanna Coal Company and D., L. and W. R. R. Company. Thence following line between lands of the Connell & Company, and N. Y. and Susquehanna Coal Company, in a southeasterly and northeasterly direction, through a portion of Lackawanna township, to a corner on the Scranton city line. Thence along said Scranton city line, in a southeasterly direction, to the outcrop of the coal formation. Said boundary line is clearly defined on a map hereto attached and made a part of this petition.

Too much credit cannot be given to the officials and men, from the highest to the lowest, whose duty required them to oversee and do the work in repairing the shaft and placing it in working order again. I am happy to state that John B. Law, formerly superintendent of the Pennsylvania Coal Company, having newly been appointed general superintendent of this company's collieries, grasped the situation in a moment, and by giving his orders for the safety of the men, and placing such safeguards around while the repairing was going on, it was done with such rapidity and care that not a single accident occurred.

The shaft resumed operations on November 17, 1892. Almost all of the workmen who were thrown out of employment by the fire, were given work in this company's Ravine shaft.

The Burning of the Mosier Shaft, Newton Coal Company.

On Friday, April 8, 1892, the Mosier shaft was destroyed by fire. The cause of the fire could not be ascertained. There was both a day and night watchman employed, whose duty it was to look after this breaker, as the works had been abandoned from July 7, 1891, on account of a general settling of the strata at that time, which caused considerable apprehension in the mind of the Inspector as to the safety in allowing the shaft to continue working, therefore the pumps were taken out and the workings allowed to fill with water.

FILLING BY CULM OF THE COOPER VEIN OF THE EAST BOSTON AND BLACK DIAMOND COLLIERIES.

In September, 1889, a large portion of the old and abandoned workings in the Cooper seam of the **East Boston** and Black Diamond collieries (the former operated by W. G. Payne & Company and latter by J. C. Haddock), began to squeeze along the line of the adjoining property to such an alarming extent that both of these companies proceeded without delay to secure the same by building cogs of timber and standing props to prevent the roof from caving, which fortunately was accomplished after considerable time and expense.

After due deliberation both parties came to the conclusion to fill the old workings with culm, as it would be a more substantial job when done than the propping.

This year both companies commenced filling the old workings with the culm. The East Boston having placed the pipes in position, started flushing the culm into the mines March 21, 1892, and since that time, have satisfactorily filled in four and one-half acres of old workings solid to the roof.

The water used to do the flushing, is pumped from the Bennett seam of same shaft, and is discharged into a barrel connected with culm chute at the breaker which carries the culm down the shaft 170 feet to the vein, by a six inch gas pipe. Continuing from there by the same sized pipe for 400 feet into old workings with a fall of three feet to the

6-12-92

hundred, there discharging from the pipe and flushing 800 feet of abandoned workings on a grade of from three or four degrees.

In filling in where the pillars are solid, instead of driving cross cuts, holes are drilled through, and then enlarged to six inches by reaming, which works very satisfactorily.

About twenty tons of culm per hour are thus disposed of, requiring 250 gallons of water per minute to flush the same through the pipe.

The filling of the old workings with culm in the Black Diamond, is similar to that of the **East Boston**.

The size of pipe laid in the Black Diamond is as follows: 200 feet of six-inch pipe on a nine degree pitch extending from the buckwheat chute in breaker to top of shaft, with 450 feet of four-inch pipe extending down the shaft to Ross seam, then extending 400 feet along the level to top of inside slope, then by 950 feet of four-inch pipe on a six degree pitch down the slope to face of chambers to be filled.

The flushing system of this company is working very satisfactorily also, as they have filled about twelve acres. There is passing along the pipes 815 pounds of culm and 117 gallons of water per minute. In my opinion there are other benefits to be derived from the filling of old or abandoned workings with culm, other than securing the roofs, which in itself amply repays for the time and expense of so doing.

For instance, it precludes all possibility of the mine becoming a magazine for gas and removes all anxiety in that regard from the minds of the persons in charge, while the air which is required to ventilate these portions of the old workings could be conducted in and around the working faces. It would likewise render it impossible for any person to fall into them as is sometimes the case, thereby diminishing the possibility of accident.

To James B. Davis, the general superintendent of the Black Diamond colliery, belongs the credit of having originated the plan of filling the old and abandoned workings in this inspection district with culm, and, in my opinion, it will give the most satisfactory results wherever adopted.

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

Improvements by the East Boston Coal Company.

A tunnel was driven in the East Boston shaft a distance of 108 feet, from the Cooper to the Lance seam; area 7x14 feet.

In the Baltimore seam an underground slope was sunk 250 feet, 8x12 on a pitch of 7 degrees.

At the Langcliffe colliery an air shaft was sunk 70 feet to ventilate the tunnel workings; area, 30 feet.

Lafin Coal Company.

This company erected a new breaker on the site of the old one which was burned, and which was recorded in my last report. It is a model structure and contains about 900,000 feet of lumber and is fitted with the most approved machinery for cleaning and preparing the coal. It has a capacity of 1,000 tons per day and was started to ship coal in November, 1895. All the dangerous parts are protected by railing or covering as the law requires. A new shaft was sunk 600 feet northeast of the breaker; size, 12x26 feet, cutting the Marcy Ross and the both splits of the Red Ash seams at a depth of 256 feet. The second opening will connect with the slope workings when completed. A new fan 17 feet in diameter was erected to ventilate the shaft workings. The engine is 15x18 inches directly connected.

Babylon Coal Company.

A tunnel was driven in this colliery from the top to the bottom split of the Red Ash seam, a distance of 140 feet for transporting coal.

Mount Lookout Coal Company.

A tunnel was driven through a rock roll in the Pittston seam in this colliery a distance of 1,000 feet, area 7x12 feet. A new fan 20 feet in diameter was erected to help ventilate the workings which are very extensive. This is the third ventilating fan erected in this colliery. An underground slope was sunk 600 feet; area, 8x12 feet.

The main and air shafts are now being sunk to the Red Ash seam.

Algonquin Coal Company.

In the Pine Ridge colliery a shaft was sunk to the Checker seam, 28 feet for ventilation. A tunnel was driven from the Hillman to the Rock seam a distance of 116 feet; area, 7x12 feet. A shaft was sunk from the Hillman to the Kidney seam as a second opening to those veins.

A new ventilating shaft, expanded metal concrete crib, together with expanded metal division in shaft, completed from the surface to the Orchard vein, intake 10 feet by 12 feet, upcast 10 feet by 12 feet. Connected with this opening there has been erected, encased in an expanded metal concrete building, a 25 by 8 foot fan, driven by an 18 by 30 inch Vulcan engine. This gives separate ventilating current to the Orchard vein, also acting in case of emergency as a duplicate to the other concrete fan completed in 1909.

300 horse power additional Babcock and Wilcox water tube boilers have been installed.

Installed in Red Ash slope a new quintuplex pump, 1,200 gallons per minute capacity. A 6 inch bore hole for electric wires driven from the surface to the Orchard vein, thus removing the wires from slope hoistway.

Installed in Red Ash slope a new duplex compound condensing pump, with semi-rotary valves, automatic cut off, size of pump 30 by 16 by 10 by 36, said pump discharging through a new 8 inch concrete-cement lined bore hole to surface. Pump house being timbered with steel-concrete.

Rock plane 460 feet long, 15 degrees, completed from the Ross vein through Eleven Foot vein and Checker vein to Bennett vein, making a new second opening between Nos. 1 and 4 shafts.

In No. 1 shaft a tunnel has been completed from the Bennett vein to the Eleven Foot vein, also two tunnels from the Lance vein to the Cooper vein.

Four small shafts for ventilating and silting purposes from Orchard to Lance vein.

The electric wires have been taken out of Nos. 4 and 1 shafts and placed in a bore hole sunk for that purpose.

A new fire boss station built at the foot of No. 1 shaft.

Several new air bridges have been made in Nos. 1 and 4 shaft districts. Silting has been carried on extensively in Nos. 1 and 4 shaft districts during the year.

Installed a new 75 K. W. A. C. electric light outfit.

A new play-ground has been completed with swings, wading basin, horizontal bars, turnstiles, hand ball alley, etc., at the extreme end of No. 4 yard, where the miners have a chance for recreation with the children of said families. The play-ground has met with great success.

The system of night school has been continued during the year, and also the schools for the instruction of the "First Aid to the Injured Corps."

The general appearance of this property has been considerably improved during the year.

EAST BOSTON COAL COMPANY

East Boston Colliery.—One new pump 17 and 33 by 14 and 36 compound Jeanesville pump installed at Bennett Foot with 14-inch column pipe from the same to the surface.

RAUB COAL COMPANY

Louise Colliery.—Slope in Bottom Ross, Mt. Thomas. Slope in Top Ross Klondike. Slope in Bottom Ross Klondike. New plane outside at Klondike. Opening from Bottom to Top Ross in shaft. Opening Cooper vein in shaft.

H section steel columns and concrete. A new mine hospital was constructed in Marcy vein of fireproof material and fully equipped with the necessary appliances. A Jeffrey electric under-cutting machine has been placed in Ross vein, with very satisfactory results. A mule barn, with concrete floors, steel mangers and cast iron feed boxes and water troughs, was constructed in the Marcy vein, to accommodate 32 mules.

Outside: A pair of 14 by 20-inch Vulcan hoisting engines installed on the surface to operate Ross slope inside. The engines replace the Flory engines formerly used, which were inadequate to do the work. A complete telephone system was installed connecting the outside office with all the veins and slopes.

PLYMOUTH COAL COMPANY

Black Diamond Colliery.—Inside: Built concrete and steel engine room at the head of the slope in Red Ash vein and concrete and steel stable in Red Ash vein. Retimbered Red Ash plane engine house with steel timbers and iron lagging. Built concrete and steel stable in Ross vein; concrete and steel engine room at the head of the slope in Ross vein; concrete and steel pump room in the Bennett vein, and concrete and steel stable in Cooper vein. Installed a 24 by 10 by 24-inch Scranton steam pump in Bennett vein and a 16 by 8 by 18-inch Scranton steam pump in Red Ash slope; also one 5-ton General Electric Company motor with the necessary wiring and bonding to operate it in Bennett vein.

Outside: Installed one General Electric continuous current, 100 K. W. 400 amperes, 250 volt generator, driven by a General Electric 60 cycle 150 horse power 440 volt motor. An electric power house constructed of brick, 26 feet by 14 feet by 12 feet, was also completed. Installed one 500 horse power two-drum water tube Babcock and Wilcox boiler, enclosed in a fireproof brick boiler room with corrugated iron roof and iron doors. Constructed a pump room of concrete and steel with corrugated iron roof and door. Installed one 16 by 8 by 18-inch duplex Scranton steam pump for boiler feed. Installed three Anthracite Spiral slate-picking machines and one Emery slate-picking machine in breaker.

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Pettebone Colliery.—Inside: The second opening from Hillman vein to Kidney vein, which was mentioned in last year's report, has been completed. The work of rebuilding mule barns, pump rooms, hoist rooms, etc., with incombustible material, is completed.

EAST BOSTON COAL COMPANY

East Boston Colliery.—Inside: The foot of the shaft was made fireproof by the use of concrete and steel supports. The mule barn, hospital and pump room in Red Ash vein were built of concrete with steel supports. The slope engine room was also built of concrete with steel supports. There were 43 sets of steel timber placed in Red Ash and Ross veins to take the place of wood. The Ross slope engine

room, and the barn and hospital in Cooper vein were also constructed of concrete. Airways and shafts in Bennett and Cooper veins were concreted and put in very good condition.

Outside: A new breaker, with machinery complete, was erected to take the place of the old one destroyed by fire. The breaker is erected away from the shaft and is connected to the steel hoisting tower by means of a steel trestle 205 feet long. The hoisting shaft and air shaft have been concreted from the rock to the surface. A new concrete car repair and machine shop, a concrete office, a concrete retaining wall around shaft and shop, and two concrete hoppers—one for coal and one for ashes at the boiler room—have also been constructed. Built 6,200 feet of railroad tracks with switches, and installed two new track scales and one wagon scale. Put down two 6 inch bore holes for flushing purposes.

CONDITION OF COLLIERIES

LEHIGH VALLEY COAL COMPANY

Exeter, Maltby, Seneca, Westmoreland and Stevens Collieries.—Ventilation, drainage and condition as to safety good. William A.—Ventilation and drainage good. Condition as to safety fair.

KINGSTON COAL COMPANY

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

FORTY FORT COAL COMPANY

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

MT. LOOKOUT COAL COMPANY

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

EAST BOSTON COAL COMPANY

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

PLYMOUTH COAL COMPANY

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

RAUB COAL COMPANY

Louise Colliery.—Ventilation, drainage and condition as to safety fair.

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

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

RISSINGER BROTHERS AND COMPANY, INCORPORATED

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

IMPROVEMENTS

LEHIGH VALLEY COAL COMPANY

Exeter Colliery.—Inside: A Flory engine was installed in a concrete and steel engine room on the North road in Red Ash vein. Silting was begun in the Red Ash and the fireproof mule barn was completed. Ten additional stalls were placed in the fireproof barn in the Checker vein.

Outside: Knight Shaft.—Built a concrete fan house and fan engine house and installed a 20-foot fan to replace the old one. Pittston Shaft.—Constructed a concrete floor and a corrugated iron roof to replace the old wooden ones. Added one 463 H. P. Sterling boiler to boiler plant.

EAST BOSTON COAL COMPANY

East Boston Colliery.—Inside: Installed one 3-stage turbine and one 2-stage turbine pump in the Eleven Foot and Bennett veins, respectively. These pumps are electrically driven. Tunnel was driven from the Lance vein to the Cooper vein.

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Pettebone Colliery.—Rock slope driven from the Bennett vein to the Red Ash vein. Extensive repairs are being made to the breaker. A washery is also under construction.

KINGSTON COAL COMPANY

Kingston No. 4 Colliery.—No. 1 shaft: One 8-inch hole was drilled from Bennett vein to Ross vein for drainage. A new concrete air bridge was built in the Orchard vein.

No. 4 Shaft: New fireboss station was constructed at foot of shaft. Shaft was driven from Checker vein to Bennett for drainage and flushing. New 8-inch bore hole was drilled from Ross to Red Ash vein for pumping purposes. A concrete re-enforced partition was completed between the downcast and upcast airways in hoisting shaft. A concrete re-enforced building was erected for encasing a new 28-foot Vulcan fan with Corliss engine. This is a duplicate of the building erected in 1914. A new manway has been completed from the Ross tunnel to the foot of the shaft in the Red Ash vein.

EAST BOSTON COAL COMPANY

East Boston Colliery.—Installed one 21 by 36 inch air compressor, complete. Built fireproof compressor engine house; also fireproof hospital on the surface. Two electric generators were installed for lighting purposes. Tunnels were driven from Bennett vein to Cooper vein and from Eleven Foot vein to Bennett vein. An air shaft was driven from Cooper vein to Bennett vein.

HADDOCK MINING COMPANY

Black Diamond Colliery.—Rock plane was driven from Lance vein to Orchard vein, 208 feet, on 21 degree pitch, equipped with one pair of Flori engines. New fireproof engine room was built at head of Eleven Foot slope for housing 12 by 24 inch Vulcan hoisting engines.

RAUB COAL COMPANY

Louise Colliery.—Installed 3 electric hoists and 4 electric centrifugal pumps.

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Pettebone Colliery.—Breaker was reconstructed and is again in operation. The work of developing thin seams is still underway.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held in Pittston, May 18 and 19. The Board of Examiners was composed of S. J. Jennings, Mine Inspector, Pittston; James J. McCarty, Superintendent, Luzerne; Thomas Grogan, Miner, Luzerne; John Evers, Miner, Luzerne.

The following applicants passed a satisfactory examination and were granted certificates:

Delaware Colliery.—The following tunnels were driven: No. 29, Ross to Red Ash, 1160 feet; No. 30, Red Ash through fault, 850 feet; No. 31, Ross to Checker, 330 feet; No. 32, Ross to Checker, 250 feet; No. 33, Cooper to Five foot, 320 feet. Drove No. 17 plane from Ross to Bennett, 210 feet.

Pine Ridge Colliery.—Extended Laurel Run No. 4 plane 450 feet to the surface for a manway. A second opening connecting No. 19 plane, Red Ash, with Delaware, was extended 160 feet.

The breaker was remodeled and improved.

Baltimore No. 5 Colliery.—Two tunnels, 170 feet long, were driven from the Red Ash to Top Split and one 190 feet from the Abbott to Snake Island.

The Baltimore landings at Conyngham and No. 4 shaft and the Red Ash landing at Baltimore No. 5 shaft were secured by concrete walls and steel beams.

LEHIGH VALLEY COAL COMPANY

Mineral Spring Colliery.—Two concrete fire boss stations were constructed; one in the old slope at Jones lift and the other at the foot of No. 2 shaft, Red Ash vein.

Concrete floor was laid in the carpenter shop, partitions torn out and steel columns substituted for roof support. A substantial concrete platform was constructed in front of the ware-house and minor improvements were made on the inside.

EAST BOSTON COAL COMPANY

East Boston Colliery.—Drove tunnel from Eleven Foot to Bennett, new Bennett slope.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held in Kingston, June 6 and 7. The Board of Examiners was composed of John B. Corgan, Inspector; Gilbert Jones, Superintendent, Dorranceton; Thomas Thornton, Miner, Parsons; Charles Semanski, Miner, Swyersville; John J. McNelis, Clerk, Luzerne.

The following persons passed a satisfactory examination and were granted certificates:

MINE FOREMEN

Patrick H. Conway, Old Forge; James Dixon, Hudson; John J. Llewellyn, Wilkes-Barre; Frank Davitt, Miners Mills; Timothy Cronin, Nathaniel Dixon, Parsons; William F. Corgan, Luzerne; John Hosey, Kingston.

ASSISTANT MINE FOREMEN

Ellsworth Austin, Joseph Loscoskie, Con Maloney, Thomas Summerson, Parsons; Thomas Bottoms, Jr., Michael J. Condon, Mark Luksic, Louis Sulzbacher, Luzerne; William Brazill, Miners Mills; Albert Joseph Bevan, Wilkes-Barre; Anthony John Mattick, Anthony M. Sudnick, Benjamin Eckertt, Hudson; Thomas Nankwell, Cecil Ninness, Plains; Martin Shields, Forty Fort.