

THE NOTTINGHAM SHAFT, SINGLE OPENING.

Messrs. Broderick & Conyngham, lessees.

This shaft is located in the borough of Plymouth, and is 376 feet deep; has a large breaker attached to the head house, which has been on fire once since the Avondale disaster; 55 men were in the mine, but, fortunately, the fire was extinguished before it got any headway. This shaft is sunk through about 50 or 60 feet of quicksand before reaching solid rock; this would rush into the shaft like water could it have a small opening, which may be caused by any disturbance of the shaft cribbing, (wooden lining,) either from accident to the pumping or hoisting machinery, decay of the timber or the slightest movement of the strata upon which the foundation of the shaft rests.

The seam worked in this shaft is worked, also, by the same company in a slope, from which they are driving to make a connection with the shaft for the second mode of ingress or egress, and thus assisting the same operation going on in the shaft towards the slope; this has been going on since early summer but without accomplishing much; they have had stoppages from breakages of machinery, from disputes with their employees. Two shifts only working where three should have been employed, to have secured, at the earliest possible date, a second mode of ingress or egress. There has been no exertion or energy in the matter until very recently. The place or point started from was not, in my opinion, the proper place to commence to make the connection with the slope workings in the shortest possible time. From the face of the west gangway in the shaft to a point in the slope was, in the spring, about 2,000 feet in a direct line, but to go square up to the pitch of the seam, required that the shaft west gangway, or the slope east gangway, be driven 700 feet; there then remained 1,600 feet to complete the connection, making a total distance of 2,300 feet; there is an anticlinal axis where the seam of coal comes nearer to the surface than at other places. I should have preferred the determination of this anticlinal, and then have sunk a small shaft to the seam, and the work could have been going on in both places, and would have secured a second mode of ingress or egress in the shortest possible time. I do think that in a case of so much importance the second opening, or means of ingress or egress, should be made a matter of primary consideration, and carried through to its completion with dispatch, and as the law directs.

Shortly after my notice to all the operators working mines with only one mode of ingress or egress, &c., calling their attention to the law on that matter, they all stopped or proceeded to work, complying with the law, and employing only 20 men in each mine, &c. I was much pleased to meet with little or no difficulty in this matter, but it was not very long before my attention was called to the fact, that the Lance shaft, William Lance, owner, the Nottingham shaft, Thomas Broderick & Co., lessees, and the Henry shaft, H. N. Burroughs, operator, were violating the law, having their mines running nearly full handed. I made special visits to some of them in regard to this matter, and received fair promises, but the mines still continued at work, with more than the stipulated 20 men inside at one time, when I was finally compelled to apply for an injunction, which I did on the 17th day of November last, employing H. W. Palmer, of Wilkesbarre, as counsel for the Commonwealth. On this day, the Lance shaft stopped work from local causes. The case of Messrs. Broderick & Co., was postponed until the 19th day of December, when they said they should test the constitutionality of the new mining law, &c. Since which time nothing

has been done in the case, and I have questioned my counsel several times, but can find no reason why it is not attended to, more than that is in the hands of the court.

In the case of the **Henry** shaft of H. N. Burroughs, an injunction has been granted. I make these things known to you, because many persons are wondering why these parties can continue violating the law with impunity, as well as to relieve myself from responsibility, should any serious accident happen at those mines from those violations. I shall have performed my duty as far as it was possible for me to do. I have tolerated many things which the law requires should be improved, knowing as I did that these improvements could not be made at once, needing some time and money to accomplish them; not wishing to make either myself or the law obnoxious to the operator, I have had no law suits only in the cases before mentioned.

I am pleased to state for your information, that a great deal has been done in preparing plans and surveys of the mines, of which I have a copy, except in about a dozen instances, where they are not quite completed.

Great improvements have been made in the proper distribution of the air through the various working places by enlarged air-ways, increasing the ventilating currents by the more general use of the fan as a means of increasing ventilation, and in many other ways. Was I to describe the condition of many of the mines in this district as they were twelve months ago, it would be no credit to this Commonwealth. But before another year passes great changes will have been made, not the least of which will be in the ventilation of the mines, as by the monthly reports of air measurements each mine foreman will be enabled to judge if any improvement has been made, or where any losses of the current take place; in fact, he will know just what he is doing, if he understands his business as he ought to do. These air measurements are required to be made weekly and reported to me monthly.

Before the passing of the present mining law it was not known at one mine in fifty how much air passed through the intake of the mine or what proportion was utilized. At the present time many of the mine foremen have some idea of what amount of air they have in the whole and in the separate currents of their mines. There are also some places mines that are so completely riddled and cut up that no kind of ventilation could be adopted until such time as an (air-tight) air-way can be made through the old workings, which can only be done at the expenditure of much time and money. During my first visits I found many mines at work with insufficient air in the workings to even move the anemometer (an instrument used to measure the velocity of air-currents.) Brakes have been put into many of the hoisting drums, and some of them not answering the purpose intended have been condemned and changed. Bridle chains and covers over the carriages used in hoisting men up shafts, many speaking tubes, &c., all of which have given great satisfaction.

The condition of steam boilers I am not able to speak very positive about, further than to state that I have ordered examinations and reports of them to be made as the law directs, and have communicated with each company or individual operator requesting reports for this month, but many of them have failed to comply with such request. I am of opinion that some boilers are used which, if properly tested, would be found wanting and condemned accordingly. Nearly all boilers were at work, with a common lever safety-valve, and the attendant in many cases had no idea of what pressure he was carrying, some of the safety-valve levers not having any visible figures or marks to denote the pressure of steam, some levers carrying weight of any kind beside the original weight made with the valve.

I examined the interior part of the mine near the locality of the cave, on two different occasions, in company with the mine boss, Nichols, and others, and observed that there had been an immense amount of timbering and filling done under the canal, in places that looked in any way weakened from any cause. I did not see any deficiency in that particular. I have in my possession a map of the same up to the time it was abandoned. The parties owning the adjoining mine east, called my attention to the fact that if the water was left to fill up this mine it would eventually run over to their workings, the Enterprise; and further, that if at any future time another cave-in of the roof should take place in this old and abandoned mine, by which a large body of water would be let in, it must overflow and enter the Enterprise mine. I answered the party thus: "That as far as damages to property from such an event is concerned, I did not think I had anything to do with it, but if they apprehended any danger to the lives or limbs of their employees from any cause that came within my jurisdiction, I would cheerfully co-operate to have the same looked after." The party referred to answered "No; that no immediate danger appeared to them; but could not see how the mines would be likely to continue without having falls of roof and perhaps bring in the water as before, since there would be no person to look after it, to timber, &c., it being abandoned and partially filled with water." I then promised to submit the matter to my counsel, H. W. Palmer, which I did. He told me that in his opinion I had nothing to do with the mine after they had abandoned it, but that it was a legal matter between the two parties, and thought that any party has the right to abandon a working and are not compelled to keep the same in repair for any further time; and thus the matter now stands.

F. Mercur, general superintendent for the L. C. and I. Co.

Henry shaft.—This colliery is located on the Plank road, Plainsville township. It is a shaft 400 feet in depth, and has been sunk through the Hillman to the top bed of the Baltimore vein, on which the mine was first opened. A tunnel has been driven from foot of shaft south into the under bed, which is very fiery, and a connection has been effected with the second opening by sinking the second opening shaft of the top vein from the top to the lower bed of the Baltimore vein, and an air-way driven from the tunnel under said shaft.

On the sixth day of February, 1872, a serious explosion of fire-damp took place in this mine, which resulted in the death of four persons, as follow:—Robert Hays, Robert Morris and Patrick M'Culloch, also Michael Barret, who ignited the gas, but he lived three or four days after the explosion.

The explosion occurred as near as could be learned about as follows:—The mine had been lying idle for some time except for repairing which was being done at the time. The Luzerne coal and iron company not having had the mine very long, and desirous of making many changes in the manner of working the same, were putting in new roads and a different kind of mine cars. The mine boss, John Nicolls, who had been looking after this place for two or three years, was in charge of the mine, and Mr. F. Mercur, general superintendent. On the morning of the calamity, the four men above mentioned descended the shaft as usual, and proceeded on their way into that part of the mine known as the middle lift, where their place of working was, and where they had been at work some days previous, which was on the main road, and on the same level as the foot of the main shaft. Mr. Collins who was in charge of the gang, he being the head track layer, had occasion to remain in the rear of the party as they came near their place of working, and before he had time to catch up to them again, a terrific explosion took place. Immediately some other men that were in another part of the mine, also repairing, on hearing the explosion, ran to the spot where it occurred and found Messrs. Collins, Barrett, M'Colloch and Hays, immediately. Mr. Collins was not much the worse; Mr Barret was fearfully burnt, and died in a few days; the latter two were dead when found. The fourth, Mr. Morris, was not found for several hours, he having fell at the inside end of a fall of roof on the gangway, where he could not be got at without going around through the cross-cuts of the chambers. This was done when a fresh lot of men came to assist; he was dead when found, and in all probability had not lived long, if any time, after the explosion. At 12 A. M. of the same date, I was informed of the sad calamity, but was too sick to leave my bed until the next day at noon. when, in company with Mr. J. W. Miles, I proceeded to the mine. Messrs. Miles, Coryell and Evans accompanied me through that part of the mine where the explosion took place. We descended the shaft at 3 P. M., and after having examined the parts where it was supposed that the gas was ignited, we ascended the shaft at 7.15 P. M.

ANNUAL REPORT OF THE

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, $1\frac{1}{2}$ 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.

Conyngnam 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.

If these points had been at all times observed, the vast difference now apparent in many collieries, between the amount of ventilation in summer and that of the winter season could not occur, and the result would have been the enjoyment of a much better and safer system of ventilation. Certainly, for the deep mines, which must be opened in the future, every point upon which safety depends, should never be overlooked or forgotten.

RECORD OF IMPROVEMENTS FOR 1880.

Lehigh Valley Coal Company.

At the Mineral Spring slope, three short tunnels were driven from the Baltimore into the Ross vein. Their lengths are forty-nine, sixty-two, and ninety-two feet, and the thickness of the seam where they have entered is in the upper lift four feet six inches, and in the lower lift six feet.

At the **Henry** colliery, the Baltimore vein is divided by a very thick rock, and a tunnel was driven from the bottom part of the vein into the upper part. It is two hundred and twenty-four feet in length. Two air-shafts were sunk through the same rock, from the upper part of the Baltimore vein to the lower one. They are thirty-four and forty-five feet in depth.

Lehigh and Wilkes-Barre Coal Company.

At the Diamond shaft, a tunnel was driven from the Baltimore vein to the Hillman. It is five hundred and twelve feet in length, and a sectional area of one hundred and twelve feet. The grade is about eighteen degrees. A large territory of the Hillman vein is convenient to work from this tunnel, and they are now driving a second opening in order to bring forward the ventilation for the purpose of working it.

At the Hartford colliery, a new slope was opened from the surface down to the lower lift of the workings, and is to be extended to the bottom of the basin after working the upper lift out. It is now fifteen hundred feet in length, on an average grade of fifteen degrees. Two new tunnels were also driven at this colliery; one from the Baltimore vein to the Ross, and the other to the Red-Ash vein. Both these veins are now being worked from these tunnels, and each has a large territory to mine from.

At Sugar Notch, No. 9, colliery, a new tunnel was driven from the Ross, to work the Red-Ash vein. It is three hundred and sixty feet in length, and eighty-four feet sectional area.

At No. 10 slope, a tunnel was driven from the Kidney to the Hillman vein. It is two hundred and forty feet in length, and the vein at the point entered is ten feet thick, and of a good quality of coal.

Delaware and Hudson Canal Company.

At the Mill Creek slope, a tunnel was driven to be used for an air-course. It is one hundred and fifty feet in length, and one hundred and twelve square feet of sectional area.

At the Laurel Run slope, they sank a new air-shaft, twelve by thirty feet sectional area, and erected a new fan, thirty-five feet diameter, upon it,

7 MINE REP.

rious effects produced upon them from inhaling its fumes, unless the quantity of air passing is sufficiently large to carry that away quickly. It proves a valuable expedient to work places which are almost impossible of driving with common blasting powder, owing to the presence of unusually strong blowers of gas, and only under those circumstances can it be recommended for use in blasting coal.

The timber was discovered on fire in an air-way, near the pump, in the Lance colliery, Lehigh and Wilkes-Barre Coal Company, May 14, and it burned furiously for several hundred feet along the gangway. The roof fell to a height of about ten feet, and complicated the situation to an alarming extent. They succeeded, by strenuous efforts, and the application of plenty of water, to check it in a day or two, and finally extinguished it by that means, in the course of three weeks.

The origin of this fire could not be ascertained, but it started at a point where the steam pipe had dried everything to tinder, and where the heat was intense, and it probably ignited spontaneously.

RECORD OF COLLIERY IMPROVEMENTS FOR 1881.

Lehigh Valley Coal Company.

At the **Henry** shaft, compressed air was introduced to supersede steam, for the purpose of working the underground machinery. The heat radiating from the steam pipe underground, raised the temperature of the ventilation to a degree so as to cause serious disadvantage to the workmen and operators, in several ways; and to repair this, compressed air was tried, and the change proved very agreeable to all concerned.

The compressing engine is located near the boilers, at the top of the shaft, and the compressed air conducted underground through the pipe formerly used to convey steam. A description of the compressors, and the benefits resulting from the change, is given in the following letter, addressed to the writer, from Mr. Lines, outside foreman:

HENRY COLLIERY, *August 6, 1881.*

G. M. WILLIAMS, Esquire:

SIR: I give you herewith the results thus far obtained from using compressed air in our inside workings. Our compressor is a "Duplex;" size, fourteen inches to seventeen inches; stroke, thirty-six inches; with a boiler pressure of sixty-five pounds. We get an average piston speed of three hundred feet on compressor, and an air pressure of forty-eight pounds on receiver. It is running four direct acting pumps; size, lifts, &c., as follows: One pump, twenty inches; diameter of cylinder, twenty inches; length of stroke, twenty-four inches; piston speed, eighty feet per minute; discharge of water, one hundred and sixty gallons; vertical height of lift, two hundred feet.

One pump, ten inches, diameter of cylinder; twelve inch stroke; piston speed, sixty feet per minute; discharging sixty gallons of water; a vertical height of seventy-three feet.

One pump, ten inches, diameter of cylinder; twelve inch stroke; piston speed, forty feet per minute; discharging fifty gallons water; one hundred and five feet, vertical height.

One pump, ten inches, diameter of cylinder; twelve inch stroke; piston speed sixty-four feet per minute; discharging eighty gallons of water; eighty-one feet, vertical height.

We do our pumping at night, lifting about seven hundred tons of water to foot of shaft. The ventilation of our lower levels is greatly improved; the temperature normal; and the total quantity increased.

We hoist the coal from our lower (No. 2) slope, with air; it does the work nicely, far better than steam, owing to the great condensation of the latter; the pipes leading to engine being somewhere over a mile in length.

In summing up the advantages of compressed air over steam, I find that, when the pipes leading the steam are longest, there we have the best results with air. Take our lower pump as an illustration, we have somewhere about six thousand one hundred feet of pipe leading to it. With steam pressure of sixty pounds on boilers, we could get only twenty-eight feet per minute of piston speed. Now, with air pressure of forty-eight pounds, we can get a piston speed of sixty feet. The ratio of gain is less as we approach the boilers. The temperature of the air exhausting from the pump into the air currents is about thirty-five degrees Fahrenheit.

My impressions are that for deep workings compressed air is a grand success. There is necessarily a small loss by condensation in long pipes when steam is used, and, besides, the pressure with air is effective at all points.

I have written this for your information, at your request, and trust it may embody all you expected.

Yours respectfully,

WILLIAM E. LINES.

This company is sinking a new shaft called Dorrance, on the Bidlack farm, near Wilkes-Barre, the sectional area of which is fifty-two by twelve feet, and it is expected to cut the Baltimore seam at a depth of one thousand feet. When completed, it will have two distinct hoisting departments, one for the Hillman, and the other for the Baltimore seam. There are twenty-five men employed in it, and at the time of this writing, December 31, it is down two hundred and fifty feet. Several years will elapse before it will be completed ready to ship coal.

Lehigh and Wilkes-Barre Coal Company.

At the Empire shaft a tunnel was driven from the Baltimore vein to the Red Ash. It is one thousand and twenty feet in length, and has a sectional area of seven by fourteen feet. The coal is fourteen feet thick, and of good quality.

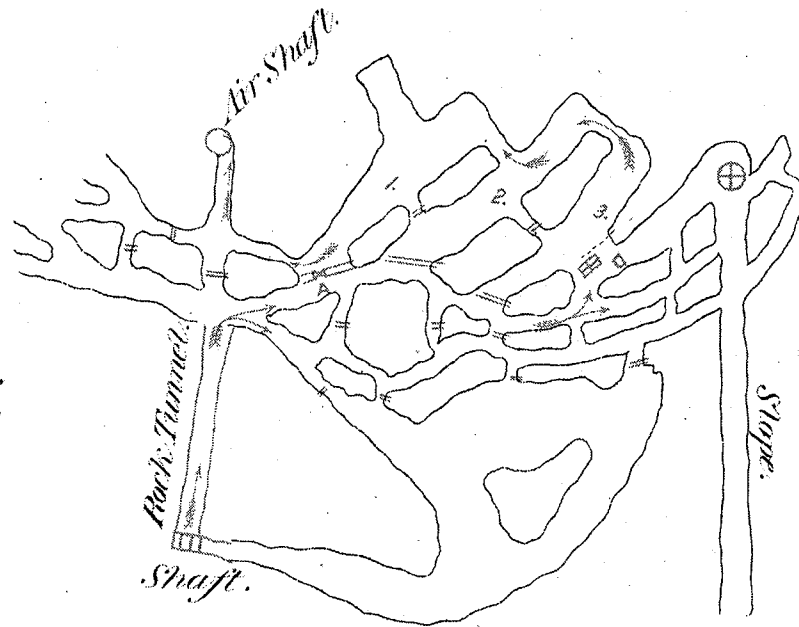
At the Hartford slope a new tunnel was driven from the Baltimore to the Ross seam, the area of which is seven by twelve feet, and is five hundred

— PLAN OF —

Section of **Henry** Shaft Workings, L. V. Coal Co.,

Showing the location where John E. Lewis was killed,

January 4, 1881.



REFERENCES :

- x. Small Trap-door through which Lewis passed.
- A Where his body was found after the explosion.
- Direction of the air currents.
- ▨ Engine hoisting from the inside slope.
- ⊕ Pulley-wheel around which the rope passed.
- == Stone walls.

SCALE, 150 feet to one inch.

automatically as soon as the bucket ascends through the door-passage. The Delaware and Lackawanna plan has balance arrangement, so that the headman can easily close it when the bucket passes. Both are very good arrangements, and either one is worthy of adoption.

COLLIERY IMPROVEMENTS DURING 1884.

The Lehigh Valley Coal Company.

In February, 1884, a new shaft was commenced by this company on the tract of land now worked from the Exeter shaft. It is located a short distance west of the Exeter shaft, and will be sunk to mine the seams lying beneath those mined in the Exeter. The size of the new shaft is twelve and a half by forty-eight feet, and it will reach a depth of about six hundred feet before cutting the intended seam. A block of coal was left unmined in the Pittston seam, through which this shaft passes, without making connection with the workings of the Exeter colliery. It was sunk at the close of the year 1884 to a depth of three hundred and fifty-five feet.

In the Prospect mine, a slope was sunk to the basin on north side of shaft to a depth of eight hundred feet, and an engine, worked by compressed air, is located at the top of the shaft to hoist the coal up. The engines which compress the air are located on the surface near the shaft, and the air is conveyed through pipes to the hoisting-engines in the mine.

At the Henry colliery, a new breaker was erected about three hundred feet north-east of the shaft. It was completed ready to connect with the shaft by the beginning of December, 1884, when work was suspended to tear the old structure away, and connect the new one. It was started about one week prior to the close of the year. This was a very important improvement at this colliery. It has decreased the risk of descending the mine, besides increasing the facilities for shipping coal.

The Dorrance colliery breaker was started June, 1884, and they are shipping a small quantity of coal every month since. The second opening to connect the two shafts was completed by the beginning of October; but, owing to faults and dislocations interrupting the gangways, they have not been able to mine much coal. The mine is ventilated by a thirty-five-foot fan, Guibal pattern, which was started April 24, and is ever since producing ventilation far in excess of their present need, although running but very slowly. Mr. Mercer, the general superintendent of this company, evidently is bent on securing the best kind of machinery, as well as insuring the highest known degree of safety for both men and property.

The Lehigh and Wilkes-Barre Coal Company.

On April 1, this company began sinking their new shaft at South Wilkes-Barre, and located it about three hundred feet south-west of the old shaft. Its size is twelve by fifty-two feet, and it is intended to work the Red Ash and over-lying seams. It is expected to reach the Red Ash seam at a depth of about one thousand three hundred feet, and had reached a depth of two hundred and thirty feet at the close of the year 1884. Its sinking

The new breaker is quite an improvement on the old one. It is furnished with first-class machinery for cleaning and preparing coal for market. Its capacity will be about 800 tons per day. It was started to prepare and ship coal on August 25, 1890.

Lehigh Valley Coal Company.

At the Maltby colliery a new Guibal fan, 18' diameter, was erected on a shaft sunk for the purpose close to the out-crop of the 11-foot seam on the mountain north of the main hoisting shaft. This makes the second fan at this colliery.

In the Prospect colliery a rock tunnel was driven from the Baltimore to the Skidmore seam, a distance of 250 feet, with a sectional area of 9.1 square feet. A tunnel was likewise driven from the Abbott to the Bowkly seam in the same colliery, a distance of 100 feet. Thickness of Skidmore vein 4' 6". Thickness of the Bowkly seam 7'.

In the Midvale colliery a rock tunnel was driven from the level of old slope in the Hillman to the five foot seam, a distance of 300 feet. Sectional area 91 square feet. Thickness of seam 4'.

In the **Henry** colliery two rock planes were driven through the strata from the Baltimore. The first to the Hillman seam on a pitch of 25°, a distance of 650 feet. The other was driven to the five-foot seam, a distance of 550 feet on the same pitch. Sectional area 100 square feet. This opens up a large district of coal for this colliery.

At the Heidelberg No. 1 slope a new fan 15' diameter has been erected on an opening driven for the purpose on the side of the hill, back of the slope opening. It ventilates the new workings at foot of slope, and the old tunnel workings which were formerly ventilated by a furnace

Delaware and Hudson Canal Company.

In Pine Ridge colliery a rock tunnel was driven from the top split of the Baltimore seam to the bottom split, a distance of 165 feet. Sectional area 72 square feet.

In the Delaware shaft a new gravity plane was driven on a pitch of 7°, a distance of 1,100 feet, with a sectional area of 128 square feet.

Delaware, Lackawanna and Western Railroad Company.

In the Hallstead colliery an underground slope has been sunk in the red ash seam 400 feet, which opens up the coal to the dip of the old slope.

A new inside plane has been completed 900 feet in the same seam on a grade of 4°. These improvements will increase the output of the shaft considerably, likewise shortening the transportation to the foot of the main shaft.

Wyoming Valley Coal Company.

At the Forty Fort colliery an underground slope was sunk on a line with No. 1 tunnel in the bottom split of the Baltimore seam, with a sec-

coal trade, which has been such as to cause considerable distress and suffering among the toilers of the mines. On an average the breakers of this district worked only a few days over half time for the year. The miners in many instances do not make a day's work when the breaker does by reason of not getting sufficient cars to load their coal. There are several reasons for this, the principal one being the overcrowding of the collieries with miners, especially in the collieries where the coal seams are low and of an inferior quality. Then, again, delays are caused by unavoidable breaking of some part of the machinery in the breakers, which causes a delay of from an hour to two or more, as the case may be; all of which has a tendency to shorten the hours of work for the miner.

The Burning of the Maltby Breaker.

On April 2, 1897, the Maltby breaker of the Lehigh Valley Coal Company, located at Maltby, was discovered to be on fire. Strenuous efforts were made to save the structure, but they were of no avail. It was completely destroyed, with all the machinery, in a few hours.

A new breaker has been erected on the site of the old one, which started to prepare and ship coal on Saturday, July 17. This is the quickest work on record, as the plans had to be drawn and lumber and machinery provided. The structure was completed in 106 days.

The Burning of the Hunt Breaker.

The Hunt breaker, located at Maltby, and owned by the D., L. & W. R. R. Company, and leased to the Wyoming Coal and Land Company, in June, 1895, was totally destroyed by fire early on Friday morning, May 28, which caused a suspension of the mine until a breaker could be built on the company's land close to the mine opening. The new breaker was commenced on August 7, and commenced to prepare and ship coal in December, 1897. The capacity is 800 tons per day and the breaker is so arranged that the coal from the pockets can be drawn into the cars on two separate tracks under the breaker. A new branch of the Lehigh Valley Railroad was constructed from their main line to the breaker, a distance of a mile, on which company's road the coal will be shipped to market.

Colliery Improvements for 1897.

Lehigh Valley Coal Company.—The **Henry** hoisting shaft was re-timbered from the rock to the surface, 83 feet, with the best 12x12 yellow pine timber. New buntons and guides were also put in, which puts the mine in first class condition.

At the Maltby colliery two new horizontal tubular boilers of 150 horse power each were erected at the shaft, and the old cylinder boiler

shaft at a point where it will break through to the Red Ash vein. A gangway is now being driven to pass the new shaft so that by the time the rock work breaks through, the foot will be in readiness for business.

The Hillman vein, which has heretofore been worked from the Wyoming Colliery, is now being worked through the slope which has been driven during the past year from the head of the old underground Hillman slope to the surface, which it reaches about half-way between the Wyoming and Prospect collieries. The coal is now hoisted directly to the surface by a pair of engines installed during the past year, and from that point it is handled by a locomotive which enters the old Hillman water course and under the new Prospect breaker to the Midvale Hillman slope, where it is hoisted and dumped into the conveyor line leading to Prospect breaker.

At the Wyoming colliery of the Lehigh Valley Coal Company a narrow gauge railroad has been constructed during the year which connects Wyoming and Prospect collieries. This narrow gauge road also extends to the Henry Colliery so that these three collieries are now connected on the surface.

At the Henry colliery of the above company, extensive improvements have been made in the breaker which greatly increases its facility for cleaning coal. The principal improvements were a traveling platform, and increase of the head room for cleaning the coal in the larger sizes. The breaker has been also equipped with the Ziegler slate pickers. The air shaft has been re-timbered and put in first class repair. The large ventilating fan has been thoroughly overhauled and repaired. A boiler house almost exactly the same as the one erected at the Prospect colliery has been erected at a point half way between Wyoming and Henry collieries, and these two workings are now supplied with steam from this plant.

At the Maltly colliery an opening has been made during the year to the old four-foot workings near the breaker which was abandoned a great many years ago, and coal is now being mined from this seam.

At the Exeter colliery, the Red Ash shaft was sunk to the Red Ash vein and gangways have been driven a considerable distance on each side of the shaft. No chambers have yet been driven, as the second opening is not connected. A four-compartment steel tower has been erected over the shaft, and a 20-foot fan, which is so arranged that it can be used as an exhaust or blower, has been erected and this plant is now in first class condition. Work was commenced at sinking an air shaft which will be about 575 feet deep and is 13 feet 10 inches by 15 feet. It is expected that this shaft will be through to the vein and connections be made in the coal by the middle of August next.

for winding flat ropes five-eight inches thick by six inches wide. These ropes are now in service and giving great satisfaction.

A rock tunnel was driven from the Baltimore vein to the Five foot, a distance of 488 feet. The vein was found in good condition and about five feet thick. The second opening for this tunnel is a rock plane on a pitch of thirty degrees. The total length of which is 199 feet. At the end of the year a connection was made in the coal from the plane to the tunnel.

In the above colliery a tunnel has been driven through the fault at the fourth lift of the Midvale Hillman slope which enables the company to concentrate all the transportation from the lower levels of the Midvale slope at one point.

At the Prospect Hillman slope a fire was discovered in the airway of the proving slope Hillman vein, on the 12th of April, which was caused by a gas feeder becoming ignited from a Bratticeman's lamp. The fire was fought for some hours but it was found that gas was accumulating inside of the location of the fire. It was therefore decided to fill the slope with water which was promptly done and the fire was extinguished.

During the year it was decided by the Lehigh Valley Coal Company to reopen the Mineral Spring Colliery which has been shut down since 1889, and work was commenced sinking two shafts to the Red Ash vein. The old Baltimore slope has been reopened to the third lift and preparations are being made for sinking a slope in the Checker vein to open up the coal to the north. A ventilating fan has been erected which will ventilate this slope.

The Coal Brook slope which has been idle since 1889, is being put in condition. The water has been pumped out and the gangways are being put in order for mining coal. The foundation for a new breaker has been constructed and the foundation for a 1,000 horse power boiler plant of the Babcock and Wilcox type, has been completed.

The Henry breaker has been converted into a washery and is now being operated as such. Two shafts have been commenced from the surface to reach the Red Ash vein, which are being sunk through a large pillar left in the Baltimore vein for that purpose. The idea being that all veins under the Baltimore, shall be mined without any connection with the overlying seams. Both of these shafts were down to the rock, and about twenty-five feet into the solid rock at the end of the year, and the concrete cribbing was completed. The cribbing is forty-five feet in depth.

A rock tunnel has been driven from the Upper to Lower Baltimore vein in the north workings of the Henry colliery. The total length of which is 569 feet. The second opening for this tunnel is a shaft from the Upper to Lower Baltimore vein, forty-one feet in depth.

During the year connection has been made through the Barrier pillar between the **Henry** and Wyoming collieries in the Baltimore vein, so that each shaft will act as a second opening for the other colliery in case of an emergency.

The old Mountain tunnel of the Maltby colliery was reopened in 1900, and during the year a second opening, which is a tunnel on an elevation of about 200 feet vertically lower than the Mountain tunnel, was driven from the Four Foot vein which cut all of the veins developed by the Mountain tunnel, a distance of 593 feet, at which point work was stopped, it not yet having reached the Red Ash vein.

Examination of Mine Foremen.

The annual examination of applicants for certificates of qualification for mine foreman and assistant mine foreman was held in this district on the 4th, 5th and 6th of June, 1901, at the rooms of Y. M. C. A., Pittston, Pa. The board of examiners was, H. McDonald, Mine Inspector; J. L. Carke, superintendent and John J. Morahan and David P. Williams, miners. Twenty applicants for mine foreman certificates were examined, and the follownig named were recommended to the Secretary of Internal Affairs for certificates: Henry Campbell and Oscar Alpaugh, of Pittston; Joseph F. Routledge Inkerman, Seward Putton, Anthony J. Healey, Wm. J. Kane, John F. Gilhooly and George A. Davies, of Avoca; John McCutcheon, Old Forge; James Frail, Coalridge; David S. Morris, Luzerne borough; Robert C. Wallice, Parsons, and Wm. E. Johnson, Bernice.

The following named received certificates of qualification for assistant mine foreman: John V. James, Henry H. Hughes and Chas. Pyne, Wyoming; John T. O. Boyle, Thos. H. Barrett, Maltby; Archie Ramage, Gwilym Evans, Chas. M. Williams, Christian Henzelmann, John Grubitz, Andro Sholtis, John H. King, Michael J. Egan, Pittston; John E. Earley, John J. Moore, Wm. J. Morgan, Walter J. Hutchings, Ebenezer Davis, Daniel J. Thomas, and John P. Mitchell, Avoca; Wm. Pattison, Ridgewood; Jas. J. Boyle, David J. Thomas, Plains; Wm. A. Piper, Edward J. Carlin, Luzerne; Wm. Gardner, Albert Harris, Parsons; Henry Nothoff, Wilkes-Barre, and Lewis S. Smith, Plainsville.

LEHIGH Valley
COAL Co

placed at the head of slope to hoist the coal to breaker. Likewise a pair of engines was erected at the head of Coal Brook slope to hoist the coal.

At the Prospect Shaft a brick addition to the boiler house was made enclosing a 250 horse power B. & W. boiler. A new brick engine house has been completed. In the Midvale slope on different levels. Three rock tunnels were driven from the Hillman to Brookley veins, which will be used for the transportation of coal.

In the Hillman slope a rock tunnel was driven from the Hillman to the Bowkley veins.

At the **Henry** colliery the hoisting shaft was extended from the Baltimore to Skidmore veins. A rock tunnel was driven through an overlap to the five-foot, 220 feet. The second opening tunnel is being driven at present.

The two new shafts begun in 1902, were sunk to Red Ash vein, a distance of 675 feet from the surface. A brick engine house 34x72 feet was erected for the hoisting engines of these shafts.

The Wyoming shaft, the old wood cribbing from the surface to the rock, was replaced by concrete, which makes a good job at this shaft.

At the Heidelberg No. 1 slope a new rock plane, 18 degree pitch, was driven from the lower split to the upper split of Red Ash vein, a distance of 212 feet. The second opening was driven on a 30 degree pitch. A rock slope is being sunk from the Marcy to Clark vein, also a second opening shaft for same.

A new 12-foot diameter ventilating fan was erected. A new brick boiler house was built, enclosing a 450 horse power return tubular boiler. Dispensing with the old boiler plant.

Improvements by the Delaware and Hudson Company

At the Baltimore tunnel the General Electric Company has installed an electrical haulage which handles all the coal from the Red Ash vein to the mouth of tunnel, doing away with the use of a rope haulage plant and hoisting plant at No. 4 shaft. The Stanton vein slope has been extended 250 feet. A new breaker is in course of erection to prepare the coal which is now taken to No. 5 breaker for preparation.

Improvements by the Hudson Coal Company

A new breaker has been completed at Pine Ridge with a new steel head frame erected over the shaft. The foot of the shaft has been remodeled by brick arching and a chain hoist put in for handling the empty cars. To accomplish all of the above work at the foot of

No. 33 Tunnel driven through over turn basin in Mineral Spring shaft district, Red Ash vein.

Inside slope extended in Red Ash 600 feet.

Rope hole completed to Red Ash vein.

300 H. P. return tubular boiler installed at Coal Brook.

Breaker has been equipped with mechanical pickers.

William Crusher, new bore holes and pipe lines extended, taking care of all the silt and refuse from breaker.

New 20 foot double intake Guibal fan driven by Corliss engine.

Brick house.

Henry Colliery.—300 H. P. B. and W. water tube boiler installed.

New 25 foot double intake fan driven by Corliss engine.

Concrete air shaft completed in Five Foot vein.

New 25 foot double intake fan driven by Corliss engine, brick house, completed in Red Ash shaft.

New 16x24 hoist engine and brick house completed and Five Foot slope reopened.

New second outlet completed in Borroughs tract, Five Foot vein.

Two tunnels with second outlet completed in Red Ash shaft district.

New inside barn completed in Red Ash.

New brick overcast, empty car foot turnout, column and steam lines installed in Red Ash shaft.

Rock slope completed in Wyoming shaft district, from lower Baltimore to Skidmore vein.

Rock slope from Baltimore to Skidmore vein completed in Henry shaft district.

Nos. 21, 22 and 23 subslopes started in Red Ash district.

Prospect Colliery.—300 H. P. B. and W. water tube boiler added to the plant, brick house.

New inside barn Red Ash.

New electric transportation outfit has been installed consisting of one 175 K. W. 250 volts generator, directly connected to 20x18 McEwen engine, 225 R. P. M.

Two electric locomotives installed in Red Ash and Baltimore.

William crusher and extension of silt lines.

Additional mechanical pickers in breaker.

Additional fire emergency pump 16x10x16.

Lafin.—No. 4 plane, bottom split Red Ash, extended 900 feet in rock and coal.

No. 3. plane, bottom split Red Ash, extended 230 feet.

Pine Ridge.—No. 31 tunnel driven from Rock to Hillman 240 feet.

No. 12 slope Rock vein extended 650 feet and pair of 12x16 inch engines installed.

Pair of 8x12 inch engines installed for sinking No. 13 slope in Hillman vein.

Pair of 8x12 inch engines installed for sinking No. 14 Kidney slope.

Laurel Run.—No. 11 tunnel extended 750 feet toward Red Ash vein. Haulage road toward Pine Ridge driven 950 feet in Checker vein. New 28 foot Guibal fan installed, but as yet not in commission. The laurel Run breaker was abandoned August 1, and all coal from this colliery prepared at Pine Ridge breaker.

Baltimore No. 2.—No. 7 slope extended 950 feet Red Ash vein.

IMPROVEMENTS

LEHIGH AND WILKES-BARRE COAL COMPANY

Hollenback No. 2.—Outside: Brick locomotive house, new engines, Hillman slope.

Inside: Number 20 Tunnel Hillman to Stanton, No. 21 Tunnel Hillman to Stanton, No. 22 Tunnel Kidney to Stanton, No. 23 Tunnel Hillman to Stanton. Compressed air haulage plant.

South Wilkes-Barre No. 5.—Inside: No. 16 Tunnel Hillman to Kidney, No. 17 Tunnel Kidney to Hillman. Compressed air haulage plant.

Stanton No. 7.—Outside: 488 H. P. water tube boilers, steel head frame Empire No. 4 shaft, extension railroad to Empire shaft, brick engine house Empire shaft, brick locomotive house, brick oil house.

Inside: Compressed air locomotive. No. 11 Tunnel Red Ash to Ross.

Maxwell No. 20.—Outside: Supply house.

Inside: No. 7 Rock slope. Compressed air haulage plant.

No. 21 Tunnel Red Ash to Red Ash. Tunnel Hillman to Hillman.

LEHIGH VALLEY COAL COMPANY

Henry Colliery.—A series of safe cover test holes was drilled to determine the working limits in the 5 foot Hillman and Bowkley Veins.

A permanent concrete steel overcast was completed in Red Ash Vein.

New empty car plane and turnout were completed in Red Ash Shaft.

Numbers 21, 23, 27 and 28 sub-slopes have been started in Red Ash Shaft and are being extended.

A new 28x10x36 inch Goyne pump with 12 inch column and 8 inch exhaust pipe from the foot of shaft to the surface has been installed in the Red Ash Vein.

Numbers 51, 53, 54 and 56 tunnels have been finished through the Red Ash anticlinal.

A new permanent concrete steel overcast was completed in Wyoming Marcy Vein.

Preparations have been made and plans outlined and work commenced unwatering the Enterprise workings lying to the east of Henry.

Additional pumps have been placed in the 5 foot vein at the counter level of the Henry Shaft and a series of Diamond drill holes put through the pillar. These holes are being reamed out, so that it is expected by the close of the coming year the Enterprise workings will be unwatered and the coal in that property reclaimed.

Additional steam lines and column pipe lines and emergency pumps incidental to this work have been set in place. The new permanent plant to follow.

The **Henry** Washery has reclaimed all of the old Wyoming banks on the north side of the L. V. R. R. and the shovel and locomotive outfit has been transferred to the Enterprise banks to reclaim the coal through the Henry Washery.

A new bridge was constructed across the C. R. R. of N. J. and public road for the culm dump.

Stanton No. 7 Colliery.—Ventilation good, roads and drainage good, condition as to safety good.

Maxwell No. 20 Colliery.—Ventilation good, roads and drainage good, condition as to safety good.

DELAWARE AND HUDSON COMPANY

Baltimore No. 5.—Ventilation good, roads and drainage good, condition as to safety good.

Baltimore Tunnel.—Ventilation fair, roads and drainage good, condition as to safety good.

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

RED ASH COAL COMPANY

Red Ash Nos. 1 and 2.—Ventilation fair, roads and drainage fair, condition as to safety fair.

WILKES-BARRE AND SCRANTON COAL AND IRON COMPANY

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

MINERS' MILLS COAL MINING COMPANY

Healey Colliery.—Ventilation fair, roads and drainage fair, condition as to safety good.

IMPROVEMENTS

LEHIGH VALLEY COAL COMPANY

Henry Mine.—No. 28 Slope, Red Ash vein was graded through rock. Gravity plane driven in south workings. A new steel overcast is under construction in the south workings. A new concrete hospital near the foot of shaft completed.

Considerable work was done in securing foot of shafts, such as retimbering, etc.

Engines from Merritt slope moved to Skidmore slope and coal hoisted from Skidmore landing.

Considerable rock grading was done in the lower Baltimore workings.

Two tunnels were driven through fault in No. 8 Slope in Wyoming 5 Foot vein.

Considerable testing was done on the inside by means of diamond drill holes to prove Red Ash vein. Holes were also driven to tap Enterprise 5 Foot and Hillman workings.

No. 6 Plane Lower Baltimore to 5 Foot equipped and is now in operation.

A tunnel was driven through rock fault in No. 2 Level.

Haulage road from No. 6 Plane to main slope under construction.

New 14x16 concrete steel overcast was put in Henry 5 Foot vein, shaft level. New guides and buntons were put in Henry shaft. New 8 inch steam line from boiler house to 5' fan and to Henry shaft.

Outside barn remodeled to Lehigh Valley Standard; concrete floor and mangers. New 18x30 mule hospital.

Enterprise bank west of Plank road exhausted and Henry bank being reclaimed.

Preparations are under way to reclaim old Prospect bank. This is to be taken to Henry Washery by means of locomotive.

Prospect Colliery.—Stables for 75 mules in Red Ash completed. New electric hoist in operation on new slope west workings.

No. 10 Slope regraded through fault. A new concrete steel over-cast has been put in this vein over No. 10 Slope. Second opening for Rock slope, Skidmore workings.

New mule stable in Midvale Hillman slope. New 500-ton washery completed and in operation.

Extensive repairs have been made to breaker and jig foundation. Colliery office remodeled and new loaded scales installed.

Dorrance Colliery.—Red Ash tunnel and plane completed. Second opening to No. 6 Extension Tunnel completed. 5 concrete steel over-casts in Baltimore vein completed. 1 Undercast and direct return at head of Slant slope completed.

Vein connection made through Mill Creek anticlinal from No. 18 Tunnel Upper Baltimore to Plank road, Upper Baltimore workings.

2-10 ton electric locomotives installed in Hillman vein.

New slope is being driven in Hillman to connect with No. 15 and No. 17 tunnels from 5 Foot vein.

Extension was made to new Hillman vein stable.

Outside

New 350 K. W. 250 volt generator installed. Work is now being done on new 25x14 upcast shaft, from surface to Baltimore vein.

Franklin Colliery.—Central pumping plant in Red Ash vein completed. No. 8 Plane equipped with engine, steam from surface through bore hole. Nos. 23 and 24 tunnels Top Red Ash to Bottom Red Ash. No. 9 Slope district completed.

10 inch Water line from Column bore hole to reservoir completed. New steam line from boiler house to Red Ash Central pumping plant completed.

LEHIGH AND WILKES-BARRE COAL COMPANY

Hollenback No. 2 Colliery, Inside.—No. 18 Tunnel extended to Ross.

No. 19 Tunnel extended to Ross.

Rock Plane airway Stanton to Hillman.

No. 5 Slope graded through rock.

South Wilkes-Barre No. 5 Colliery, Inside.—No. 7 Slope extended from Abbott to Hillman. Pumping plant No. 2 Slope.

Stanton No. 7 Colliery, Outside.—Slush hole, Surface to Hillman. Slush hole, Surface to Stanton.

Inside.—Mule barn Red Ash Shaft Level. Pumping plant No. 4 Shaft Level.

Maxwell No. 20 Colliery, Outside.—Breaker remodeled. Timber saw mill. 500 H. P. water tube boilers. Engines and rope holes for Nos. 8 and 10 Slopes.

Henry, Outside.—Preparations to reclaim Enterprise culm bank on east of Plank Road. Series of surface test holes for Hillman vein rock cover.

Inside.—Second opening traveling way to surface for No. 8 Slope workings.

Rock return air course for Wyoming Lower Baltimore workings completed.

Tail rope engine plane No. 5 Slope, Wyoming Skidmore vein, started.

Concrete steel overcast, No. 15 plane, completed.

Considerable work done repairing and improving No. 2 Lift, No. 10 Slope.

Dorrance, Outside.—No. 4 air shaft 13 feet 10 inches x 25 feet 2 inches from surface to Baltimore completed. 28 x 7½ foot Dickson-Guibal fan, driven by 24 x 48 Allis-Chalmers, 4 valve Corliss engine, capacity 300,000 cubic feet per minute at 3 inches W. G. installed and operating.

35 x 12 foot Guibal fan house and drift completed; to ventilate the Hillman vein district when change from present location is completed.

No. 3 air shaft, wooden cribbing removed and lined with concrete to vein, and provided with iron ladders for second opening traveling way.

Inside.—New motor road in Hillman vein completed.

Rock plain gangways in Abbott vein reopened.

Silting operations in Hillman West Plain district.

Engines installed on No. 23 Red Ash Slope.

No. 6 Extension Slope reopened.

No. 21 Slope, Hillman vein, connected with No. 17 Tunnel.

Hillman vein new stable extended.

Concrete arch at Hillman vein lauding started.

New brick hospital in Red Ash vein.

Franklin, Outside.—Extensive repairs to breaker and breaker machinery.

Washery dismantled.

Series of surface test holes for Snake Island rock cover.

Inside.—New plane in Abbott vein, No. 2 lift, completed.

New manway for No. 7 Slope, Sump vein, completed.

New manway for No. 2 Slope, Sump vein, completed from No. 2 lift to surface.

New manway to No. 9 Slope, Top Red Ash, completed.

Debris from Bowkley surface cave cleaned.

Water in Baltimore vein lowered to No. 2 level.

Baltimore No. 2 West lift reopened, and engine installed on No. 14 Slope. No. 2 Slope Sump vein extended from No. 1 to No. 2 level.

No. 15 Slope in Bowkley started.

Drift level Baltimore West reopened and gangways extended west.

Drift level Skidmore and Ross veins gangways cleaned and reopened.

No. 22 Tunnel Forty Fort vein gangways cleaned and reopened.

Hillman No. 2 west gangway cleaned and reopened. No. 10 Skidmore Slope extended below No. 8 Tunnel level.

Pump installed and water lowered in No. 9 Slope.

No. 8 Slope, Red Ash (Top) extended through rock to Bottom Red Ash on No. 3 Slope level.

Henry—Outside: A series of test holes to prove the rock cover in the vicinity of the river was drilled. The proving of the Five Foot vein by test holes west of Hancock Station was also carried on. The removal of the Enterprise culm bank east of the Plank Road has been completed, the culm having been hauled to Henry and put through the washery, which has since been torn down. The old wooden bridge over the main line of the Lehigh Valley Railroad was also removed. The concrete and brick work for three new boiler stacks has been completed. A new feed water heater has been installed and the water lines and the location of the fire pump have been changed. Disposition of boiler ashes has been made by flushing them into the workings. The hoisting of coal in the Wyoming shaft has been discontinued, the coal going up the Henry shaft.

The appearance of the colliery yard has been improved somewhat by building concrete retaining walls.

Inside: The head of No. 11 slope, Henry shaft, has been extended 188 feet through the fault to the Skidmore vein. The foot of the slope has been extended 320 feet through the rock to the Marcy vein in No. 6 slope district.

In order to connect the Wyoming and Henry shafts, No. 35 slope was driven for a distance of 427 feet in the lower Baltimore vein. No. 28 slope in the Red Ash vein was also extended. A sub-slope for No. 28 slope in the Red Ash vein was started to develop the northeast portion of the property. A concrete steel air bridge was built over No. 35 slope. A motor haulage was installed in the Red Ash vein and high pressure air line laid for same. A haulage concentration is contemplated which, when completed, will bring all the coal heretofore hoisted up the Henry and Wyoming shafts up the Red Ash shaft.

For this purpose, Nos. 67 and 69 tunnels are being driven from the Marcy landing in the shaft to the head of No. 11 slope in the Henry Lower Baltimore vein. No. 68 tunnel was driven to connect with No. 2 or Tender shaft. No. 35 slope is also a part of this scheme. A water concentration scheme is also under way. A central pumping plant is being installed at the foot of the Red Ash shaft, which will handle the water from the Red Ash, Henry and Wyoming, and eventually the Maltby water. This scheme will also put out of service the various small pumps scattered throughout the workings. In this connection the following work has been done:

The Red Ash pump room was enlarged by blowing coal and top rock. Concrete side walls and floor, and reinforced concrete roof with "I" beams, were put in. A pump well and ditch to the same were also made, and the sump cleaned and enlarged. Concrete side walls with "I" beams to support the roof were put in the heading that leads from the sump to the shaft. In order to ventilate the pump room, a heading was driven from the shaft level.

Work on the erection of a Jeanesville triple expansion pump 18-28-48 by 14 by 36 was started.

The following drainage holes were also drilled in connection with this scheme: One 12 inch hole from the Lower Baltimore to the Red Ash vein; one 8 inch hole from the Five Foot to the Lower Baltimore vein, and an 8 inch hole from the Marcy to the Red Ash vein.

In order to prove a fault an inside diamond drill hole was drilled from the Five Foot to the Hillman vein.

Inside.—12x16-inch hoisting engines provided for Nos. 2 and 3 slopes. Installed two compressed air locomotives. Sump tunnel extended. Tunnel, 6th West to 6th East, No. 12 plane.

Sugar Notch No. 9 Colliery.—Inside: No. 20 tunnel extended to Hillman.

Maxwell No. 20 Colliery:

Outside.—Wash house.

Inside.—No. 27 tunnel, Baltimore to Baltimore; 12x16 inch hoisting engines provided for No. 4 plane. No. 28 tunnel, Hillman to Kidney.

LEHIGH VALLEY COAL COMPANY

Prospect Colliery:

Inside.—The work of securing the foot of Oakwood shaft with reinforced concrete and "I" beams, mentioned in last year's report, is still being carried on. Concrete motor house was built in the Red Ash vein. The Red Ash vein pump room was concreted and made fireproof. The inside barns are being reconstructed of fireproof material. A sub-slope off No. 10 slope in the Red Ash vein was started. Electric haulage was extended in the Upper Baltimore vein and a new motor installed. Diamond drill provings were made in the Midvale slope to prove the Abbott and Bowkley veins. Larger engines were installed on No. 23 slope, Five Foot vein, and a new fireproof engine house constructed. Work was commenced for the driving of a tunnel from the Prospect shaft level, Baltimore vein, to the Skidmore vein, for the purpose of landing the Oakwood-Skidmore coal at the Prospect landing.

Outside.—No. 22 slope, near the new machine shop, was concreted from the surface to the Abbott vein, a pair of engines installed and the crippled cars and supplies for Prospect inside are handled on this slope. A reinforced concrete conduit was constructed under the Lehigh Valley and Central Railroad tracks at the river pump house, and new water and steam pipes laid in the same. Extensive repairs were made to the breaker and pockets, and new shakers were installed. A Welch overwinding device was installed in the Prospect shaft engine house. The work of installing an Ottumwa box car loader was nearly completed. The economizers at the boiler house were removed and a new feed water heater and stack installed. An 8-ton crane was erected in the yard near the breaker to handle supplies from railroad cars. The drilling of a new rope hole for No. 10 slope, to replace the hole now outside the yard near the Laurel Line tracks, was commenced.

Henry:

Inside.—All barns are being reconstructed with concrete to make them fireproof. No. 38 slope was driven in coal to mine small virgin area in the Lower Baltimore vein. The work under way in last year's report for the purpose of concentrating the hoisting of coal at the Red Ash shaft was completed. The construction of the central pumping plant in the Red Ash vein, mentioned in last year's report, is nearly completed; the pump room of concrete and "I" beam construction was finished and the second 18" and 28" and 48"x14"x36" Jeanesville Triplex expansion pump is now being installed. For the purpose of getting the Maltby water to these pumps, No. 36 Rock slope was driven in the Lower Baltimore to the Skidmore vein. The driving in the Skidmore vein toward the Maltby line was commenced and

when finished bore holes will be drilled from the Henry Skidmore to the Maltby Six Foot. At the New Skidmore landing in the Red Ash shaft, which is the point at which the Henry and Wyoming coal is concentrated, side walls with roof of reinforced concrete and "I" beams were constructed.

Outside.—Two Welch overwinding devices were installed in the Red Ash engine house. Plans were completed for the installation of an electric plant to light the inside and outside buildings. New conical drums with clutch device were placed on the Red Ash engines, in connection with the new haulage concentration. The old slope in the Hillman vein in the yard near Wyoming shaft was reopened to serve as an airway to the proposed new 20-foot fan to be installed; this will replace the two Hillman fans now outside the colliery yard. Test holes were put down in the vicinity of Anthracite Park, Dorrance-ton, to prove the rock cover for the Hillman and Bowkley veins. Test holes were also put down to prove the rock cover over the Five Foot vein near No. 8 outside slope and Henry shaft. A new feed water heater was installed. The Wyoming shaft engines were removed to Mineral Spring and a small pair temporarily installed, which will be removed on the completion of the Henry Baltimore barn, and the Wyoming shaft will be entirely abandoned.

Warrior Run:

Inside.—A second opening was driven from the first lift west, Hillman slope, to the surface. Tunnel was started in the basin in the Hillman vein to the Mills vein. The second opening Rock plane, mentioned in last year's report, 130 feet in length, was driven from the B to C vein in the robbing territory. A slant slope 350 feet long was driven off No. 2 slope in the B vein to mine the coal south of the fault. Work was started on the reconstruction of the inside mule barns to make them fireproof.

Outside.—Two air shafts 10 by 10 by 35 feet deep, one on each side of the Hillman slope, were sunk from the surface to the Hillman vein and concreted. A concrete air duct was constructed over the slope connecting these two shafts, and a 14-foot Guibal fan installed, the entire construction being of concrete. A concrete powder house was built. A new road was graded along the Lehigh Valley Railroad for hauling timber by team from the colliery yard to the Hillman slope.

Dorrance Colliery:

Inside.—All wood was removed from the engine house on the head of No. 7 Cooper slope and concrete retaining walls put up with roof of reinforced concrete and "I" beams. Diamond drill holes, mentioned in last year's report, from the face of the Bennett workings No. 6 extension slope, through the fault to prove the Cooper and Bennett veins on the other side, were completed. No. 21 tunnel, to shorten haulage in the Bennett and Cooper veins, mentioned in last year's report, was completed, total length 816 feet in the solid and 238 feet of bottom rock grading. The construction of side walls and concrete roof was continued at the head of No. 24 slope, Red Ash vein. The mule barns in the Hillman vein shaft, Baltimore vein, and Rock slope, Baltimore vein, were dismantled and are being reconstructed to make them fireproof. A new barn of fireproof construction is being built in the Red Ash vein. Electric haulage was extended in the Hillman, Baltimore and Red Ash veins, and several new motors installed. A

Outside.—Installed breaker fire lines and remodeled mule barn on No. 4 slope.

South Wilkes-Barre No. 5 Colliery.—Inside: Completed fireproof mule barns on Nos. 3 and 5 shaft levels; No. 8 tunnel extended to Baltimore, and drove tunnel from Abbott to Abbott, 1st east No. 7 slope.

Outside.—Completed addition to power plant.

Hollenback No. 2 Colliery.—Inside: Installed concrete and steel timbering on Baltimore and Red Ash landings to shaft, also in small engine and pump rooms. Completed fireproof mule barn; also No. 31 tunnel, Top Red Ash to Ross; No. 32 tunnel, Kidney to Abbott, and No. 17 tunnel extended to Ross.

Outside.—Completed saw mill and timber yard.

Sugar Notch No. 9 Colliery.—Inside: Completed fireproof mule barn; No. 9 plane Ross to Red Ash; also No. 25 tunnel Hillman to Kidney; No. 26 tunnel, Hillman to Kidney; tunnel, Twin to Ross, 3rd east, No. 5 plane; tunnel, Five Foot to Five Foot, No. 20 tunnel west.

Outside.—Completed fire pump and breaker fire lines, and made addition to mule barn.

LEHIGH VALLEY COAL COMPANY

Prospect Colliery.—Inside: The work of completing fireproof additions to the Red Ash and Baltimore barns was carried out. Man cars were placed on No. 8 rock slope to hoist men from the Red Ash vein to the Oakwood level. No. 57 rock tunnel, 500 feet long, from the Baltimore to the Skidmore vein, Prospect Shaft level, was driven and electric haulage installed therein. No. 58 rock tunnel was driven from the Abbott to the Bowkley vein a distance of 280 feet, for the purpose of mining a virgin area in the vicinity of Oakwood shaft.

Outside.—An addition was built to the breaker to house the box car loader. Three new sets of Compound rolls were placed in the breaker. A concrete engine house for No. 8 slope was completed, in which were installed a pair of second motion engines to replace the old hook engine operating the slope. A mess house, equipped with all improvements and conveniences for the outside employes was started. Work was started on the remodeling of the old car repair shop to accommodate the blacksmith and carpenter shops. A 10 inch rope hole was driven from the surface to the Red Ash vein, a distance of 760 feet, to avoid carrying the rope that operates No. 10 slope over the Laurel Line tracks. A 6 inch hole from the surface to the Abbott vein, for sewage from the mess house, was drilled a distance of 126 feet.

Henry.—Inside: The installation of pumps for water concentration to the Red Ash vein, mentioned in report of 1911, was completed. The fireproofing of the Red Ash, Baltimore and Henry Five Foot barns was also completed. Rope haulage was installed in No. 2 level from No. 11 slope to No. 6 plane and placed in operation. The second opening rock plane from Skidmore to Lower Baltimore vein for No. 36 rock slope was completed. No. 17 plane from Lower Baltimore vein to the Skidmore landing in Red Ash shaft was driven to serve as a manway. Test drilling to prove Hillman and Bowkley veins was also carried on.

Outside.—A concrete fan house was built in which a 20-foot fan was installed to ventilate the Hillman and Five Foot veins, releasing two old 15 foot fans. A concrete crusher house and conduit to take ashes from the boiler house to two 10 inch bore holes from the surface to Lower Baltimore vein were constructed. An addition to the outside barn, to quarter an additional number of mules, was also completed.

Warrior Run.—Inside: No. 8 tunnel was driven from the C to the D vein a distance of 210 feet. No. 22 tunnel was driven from the Hillman to the Mills vein, a distance of 210 feet to develop a virgin area. No. 5 rock plane on 30 degrees was driven a distance of 105 feet from the Hillman to the Mills vein to serve as a second opening. Built pump house of fireproof material at the foot of the old slope in the B vein.

Outside.—A concrete fan-house was built, in which was installed a 16-foot fan to replace two fans that were in poor condition, one of which was destroyed by fire. A concrete powder house was also constructed.

Dorrance Colliery.—Inside: The Hillman, Baltimore, Red Ash and Rock slope fireproof barns were completed. Two electric motors were placed in the Cooper vein, No. 21 tunnel section, and 2 in the Red Ash vein, No. 24 slope section. A 4-inch hole was drilled from the Hillman to Cooper vein 384 feet deep, and a 4-inch hole was drilled from the Cooper to the Red Ash vein 265 feet deep, to carry electric cables. A 4-inch drainage hole, 62 feet deep, was drilled from the Bowkley to the Hillman vein, to release the pump in the Bowkley vein. A 10-inch hole was drilled from the surface to the Baltimore vein for silting purposes, depth 605 feet. No. 19 rock plane was driven at foot of No. 6 extension slope from Bennett to Bennett vein, through a fault a distance of 90 feet. New guides were placed in the Hillman shaft from the surface to the Hillman vein, and also in the Red Ash shaft from the surface to the Baltimore vein. The construction of a pump room in the Baltimore vein and also in the Hillman vein was started, for the installation of two 1,500-gallon capacity pumps to take care of the large silting operations being carried on.

Outside.—The breaker was practically rebuilt, concrete retaining walls being placed at the foot of the breaker plane to replace wooden posts.

Franklin Colliery.—Inside: No. 18 rock slope was driven from the Brown slope in the Baltimore vein to the Sump vein, a distance of 243 feet. The fireproofing of the rock slope barn was completed. A 4-inch drainage hole was drilled from the Skidmore to the Baltimore vein, a distance of 292 feet, to unwater a large territory.

Outside.—The concrete foundation for the new breaker was completed and a shaft 8 feet square was sunk a depth of 60 feet from the surface to the old workings in the Baltimore vein, with a view of silting the openings under the breaker foundations. Entrance of the rock slope was concreted. Built engine house for No. 9 slope and installed therein a pair of 20 by 30 engines.

DELAWARE AND HUDSON COMPANY

Baltimore No. 5 Colliery.—Rock plane air return, Red Ash to Red Ash Top Split in Conyngham shaft, 7 feet by 12 feet by 120 feet, 12 degree pitch.

Hollenback No. 2 Colliery.—Inside: Completed tunnel Stanton to Stanton; Rock plane airway Kidney to Abbott; Nos. 33 and 34 tunnels Stanton to Stanton; No. 35 tunnel top to bottom Red Ash; tunnel, bottom to top, Red Ash, 3rd east, No. 1 plane; No. 36 tunnel, bottom to top, Red Ash and No. 37 tunnel, bottom to top, Red Ash.

Outside: Completed wash house.

Sugar Notch No. 9 Colliery.—Completed No. 24 tunnel Baltimore to Five Foot; Rock plane airway Kidney to surface; No. 28 tunnel Hillman to Hillman; No. 29 tunnel Twin to Ross and installed 10 by 36-inch compound pump on shaft level.

Outside: Completed wash house.

LEHIGH VALLEY COAL COMPANY

Henry Colliery.—In the Wyoming Five Foot slope a tunnel 145 feet long was driven through a fault to the Five Foot vein. The manway in this vein was also extended to the bottom of the slope. A concrete barn to accommodate 30 mules was constructed in the Hillman vein. In the Henry Five Foot vein a new concrete hospital and a fire boss station were erected. A manway from the second life west to the head of No. 14 slope in the Five Foot vein was started. A concrete waiting room was built in the Skidmore Landing in the tender shaft to accommodate the men waiting for the cage. A tunnel 675 feet long was driven from the Baltimore vein from which one 3-inch and two 6-inch holes were drilled to tap the water at the Maltby colliery. A new manway parallel to No. 28 slope in the Red Ash vein was driven.

Outside: The old boiler house was converted into a locomotive house. A new engine house was built for the Wyoming Five Foot slope and the engines from the Prospect-Hillman slope were transferred to this house. A new outside hospital was also erected. A 20-inch terra cotta line was installed to take care of the discharge of the Henry pumps and also the surface water, conveying it to a ditch at the Port Bowkley station. A 28 by 17½ by 20 by 30-inch Norwalk compressor was added to the power plant. Drilling operations for determination of rock cover were carried on in the Susquehanna river. A manway was driven from the surface to the Five Foot vein, and the Henry Shaft was abandoned for hoisting. The head frame at the old Wyoming shaft was torn down and a concrete wall placed around the shaft. The landing at the Red Ash Tender shaft was raised and the yard in the vicinity was filled in and the tracks rearranged.

Dorrance Colliery.—Fireproof hospitals were built in the Hillman and Red Ash veins. A concrete fire boss station was also built in the Hillman vein. Three concrete overcasts were started in the Red Ash vein, two in No. 24 slope district and one in No. 23 slope district. Completed reinforced concrete pump rooms in the Hillman and Baltimore veins and installed two 1,500-gallon pumps. A 15-degree rock plane 45 feet long was driven through a fault from the Cooper to Cooper vein. Second opening on 30 degrees was also driven. A tunnel from the Cooper to the Bennett vein was started. A small pump was placed at the foot of No. 24 slope, Red Ash vein. Removed two 16 by 20-inch engines on No. 20 slope, Baltimore vein.

Outside: An extension to the River pump house was made and a larger pump installed. The loading of refuse into cars was discon-

Maxwell No. 20 Colliery.—Completed No. 29 tunnel, Hillman to Kidney; tunnel, Hillman to Hillman, 2nd South, No. 10 slope; tunnel Red Ash to Red Ash, No. 21 tunnel west; tunnel, Five Foot to Baltimore, No. 27 tunnel east; tunnel, Hillman to Hillman, 1st South, No. 10 slope; two tunnels, Bottom to Top Red Ash, No. 20 tunnel east. Remodeled the Red Ash shaft level barn and built a new barn in No. 5 slope.

Hollenback No. 2 Colliery.—Completed No. 38 tunnel, Top Red Ash to Ross. Installed 16 inch by 8 inch by 18 inch pump in No. 2 slope extension. Outside: Installed an air compressor.

Sugar Notch No. 9 Colliery.—Completed Nos. 27 and 30 tunnels, Bottom to Top Red Ash. Outside: Remodeled the breaker.

LEHIGH VALLEY COAL COMPANY

Dorrance Colliery.—No 23 tunnel, 200 feet long, was driven from the Cooper to the Bennet vein through the fault. No. 24 tunnel from the Cooper to the Lance vein was started and driven about 20 feet. Three concrete overcasts in No. 24 slope district, Red Ash vein, were completed. A new Jeanesville pump in the Baltimore vein was placed in operation. An engine was installed at head of No. 21 plane. The engine at the head of No. 21 slope, Hillman vein, was relocated and a fireproof room is being constructed. An engine was installed at the head of No. 25 slope, Red Ash vein, and a fireproof engine room was constructed. The Red Ash barn was extended by the addition of five concrete stalls. The motor from West plane was transferred to the head of the Five Foot plane.

Outside: A new steel fuel line is being constructed from the breaker to the boiler house. Work has been started on the installation of an additional 300 H. P. boiler plant. A concrete driveway was laid through the colliery yard. A powder house was constructed of metal lath and plastered on the inside as also on the outside. A concrete and terra cotta tile office was built. A new crusher, elevator and engine and fireproof engine house were installed on the ash line from the boiler house to the bore hole. Concrete retaining walls were built along the tail tracks. A fireproof engine house was erected over the conveyor engine under breaker. The shaft tower was braced and concrete pillars placed under the columns.

Henry Colliery.—Inside: No. 74 tunnel, from the Hillman to the Bowkley driven 370 feet. A new concrete hospital is in course of construction. A concrete roof was placed over pumpway in Red Ash vein. Completed manway to No. 28 slope. Started slope in Red Ash vein west to the shaft.

Outside: Mine tracks were regraded from hoisting shaft to colliery fence and a concrete retaining wall built alongside of the tracks. A new brick blacksmith shop was erected. The Henry Five Foot, Baltimore and Wyoming Baltimore fan houses were made fireproof. The reservoir was fenced in. A new road was laid through colliery yard. Feed water regulators and Watts pump governors were installed in the boiler house. A 10-inch bore hole was drilled from the surface to the Five Foot vein and the old culm bank is being flushed into the workings.

Prospect Colliery.—Inside: Installed a Scranton pump in Hillman vein. All refuse from the breaker and boilers is now silted into the mine workings. An 8-inch bore hole was drilled from the Abbott

Ash to Ross; rock plane, Hillman to No. 17 tunnel; tunnel, Abbott to Abbott, 1st East; No. 22 tunnel, Top to Bottom Red Ash; tunnel, Ross to Top Red Ash, and No. 23 tunnel, Abbott to Kidney vein. Extended No. 17 tunnel to Kidney. Drove 10-inch bore hole to the Baltimore vein.

Sugar Notch No. 9 Colliery.—Completed No. 31 tunnel. Twin to Hillman, and a tunnel from Station to Five Foot vein.

Maxwell No. 20 Colliery.—Completed a tunnel from Red Ash to Red Ash, and No. 31 tunnel, Red Ash to Ross vein.

Empire Washery.—Installed pea and chestnut spirals.

LEHIGH VALLEY COAL COMPANY

Dorrance Colliery.—Inside: Two electric motors were placed in service in the Lance, Cooper and Bennett veins. A 4-inch drainage bore-hole was drilled from the Baltimore to the Red Ash to drain silt water. No. 26 tunnel was driven from the Bowkley to Abbott vein, 210 feet long. No. 27 tunnel was driven from No. 21 tunnel into Lance vein. No. 24 slope, in the Red Ash vein, was graded and tunnel commenced through the anticlinal at the foot of the slope, in order to facilitate haulage. Completed No. 24 haulage, Cooper to Lance vein.

Outside: Installed an additional 300 horse power boiler in boiler plant. A spray system was placed in breaker, and a pump installed, and pump line laid from pump to breaker, and pump house erected near reservoir. The construction of a steel fuel conveyor was continued. A fence was built around tracks, and bridge constructed over tracks near head of shaft for traveling way and safety.

Prospect Colliery.—Electric cables in shaft were renewed. Considerable grading was done at the head of Nos. 26 and 29 slopes in the Skidmore vein. A 15-degree rock slope, 80 feet long, was sunk through fault from Lower Baltimore to Upper Baltimore vein, for a return airway. Two bore holes were drilled from the Five Foot vein to drain water from Prospect Hillman slope workings to the Oakwood pump. Edison electric safety lamps were purchased for use in the Red Ash vein. Concrete and steel timbering at foot of Red Ash shaft continued.

Outside: Steam lines were recovered. The fuel line from breaker to boiler house was rebuilt. A new roof was placed on the boiler house. The supply yard was rearranged. Steel bents were put under main conveyor from the Prospect shaft to the head of the breaker. A condenser was placed in the river pump-house. The old boiler house at Oakwood shaft was remodeled for a washhouse and lamphouse.

Henry Colliery.—No. 74 tunnel from the Hillman to the Bowkley vein was completed, and a 30-degree rock plane 152 feet long was driven for a second opening. A 45-degree rock plane was driven from the Five Foot to the Hillman vein, the Wyoming Five Foot slope, for a return airway, and to improve the ventilating conditions. The concrete hospital at the head of No. 11 slope was completed. A concrete roof was constructed over the barn in the Red Ash vein, west of the shaft. A 10-degree rock plane, from the Five Foot to the Hillman vein, was started. An air shaft was sunk and concreted to the Hillman vein, Prospect slope, for an intake. Considerable rock grading was done on No. 29 slope in the Skidmore vein, to improve haulage conditions. The Henry shaft was abandoned.

Outside: Constructed a concrete and hollow tile washhouse for employes. Installed a silent chain for operating the overwinding device on the shaft engine. A feed pump of large capacity was installed in the boiler house, and covered the feed water lines. Completed a concrete curbing around the colliery yard.

PITTSTON COAL MINING COMPANY

Hadleigh Colliery.—Outside: Completed an 8-inch steam line, 400 feet long, equipped with steel flanges, from boiler house to shaft engines and breaker. All lines have been covered with 8 per cent. magnesia covering. Boilers have been reconstructed and rebuilt. Installed small conveyor line for conveying fuel to boiler house. Also installed one GE D. C. current generator, type MP, connected to Harrisburg engine, and one 9 by 14 inch saddle tank locomotive. Constructed a brick building 18 by 60 feet, for generator room, supply store and office. Also reconstructed ambulance house. Completed a 4 inch line 1200 feet long, for fresh water supply to boiler house.

Inside: Installed electric lights throughout the mines; also two 7-ton Baldwin electric locomotives, with overhead trolley; and hung 6000 feet of 2-0 trolley wire. Bonded all rails where locomotives travel. Installed one 100-H. P. D. C. Lidgerwood electric hoist on Red Ash slope, one Goyne duplex plunger pump at foot of Twin slope, and one Scranton duplex plunger pump at foot of Red Ash slope.

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Pettebone Nos. 3 and No. 4 Collieries.—Completed the shafts to the Red Ash vein, a depth of 1086 feet and 1098 feet. Installed the necessary hoisting equipment and ventilating fans.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held May 18 and 19 in the Y. M. C. A. Building, Wilkes-Barre. The Board of Examiners was composed of Thomas J. Williams, Mine Inspector; Samuel R. Morgan, Superintendent, Wilkes-Barre; Patrick McGrane, Miner, Sugar Notch; William H. Chappell, Miner, Wilkes-Barre.

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

MINE FOREMEN

Josiah Beech, Alfred W. Davis, Lewis J. Jenkins, Edmund P. Thomas, Edwardsville; Edward Finn, Thomas A. Welch, Wilkes-Barre; George McKechnie, Courtdale; William James Williams, Parsons; John Wordoski, Peely; Charles D. Dare, Larksville.

ASSISTANT MINE FOREMEN

Edwin B. Charlton, John Crawford, Corey Cannon, David R. Evans, Edward Griffiths, Charles F. Hoffman, John Kovalick, James G. Morgan, James J. McGrath, Roger Sayes, Wilkes-Barre; Daniel Blaine, Larksville; John Bonsall, Plains; John Morris, William Price, Edwardsville; Leonard Payne, Askam.

Two wooden flumes were constructed to divert the waters of Mill Creek from the cave, which occurred on December 12, 1915.

Blowers were installed in the boiler room.

Henry Colliery.—Completed No. 20 rock plane driven on a pitch of 10 degrees from the Top Five Foot to the Hillman vein; No. 75 tunnel, through anticlinal; rock tunnel from Top to Bottom Five Foot, and a rock skip about 200 feet long was made on the motor haulageroad near No. 11 slope. Also made concrete roof on Baltimore barn and Red Ash barn.

A fireproof overcast was constructed for the return air in Hillman vein.

Outside: Constructed fireproof engine house and installed engines therein for hoisting on No. 41 slope. A six-inch bore hole was put down for this purpose. Also constructed concrete and hollow tile wash-house and lamp-house. Fences and an overhead bridge were erected opposite the wash-house and lamp-house to prevent men from crossing the mine car tracks.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held June 6 and 7, in the Y. M. C. A. Building, Wilkes-Barre. The Board of Examiners was composed of Thomas J. Williams, Mine Inspector, Wilkes-Barre; Samuel R. Morgan, Superintendent, Wilkes-Barre; David L. John, Miner, Wilkes-Barre; John H. Harris, Miner, Wilkes-Barre.

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

MINE FOREMEN

Daniel W. Lewis, Miners Mills; Theophilus Davis, Jenkin Evans, Plains; Thomas S. Jones, John O'Neil, John Stainthorpe, Daniel James Thomas, Wilkes-Barre.

ASSISTANT MINE FOREMEN

Emanuel Bona, Thomas Bona, Edward Evans, Harry Ellis, Evan Jones Hughes, Enoch Jones, Taliesin Rowe, Daniel R. Roderick, Thomas Sayes, Wilkes-Barre; Daniel William Davis, Kingston; Ray P. Lewis, Daniel Francis Walsh, Miners Mills; William Morris, Parsons; Robert Richards, Edwardsville.

Prospect Colliery.—Completed No. 59 rock tunnel from Abbott to Snake Island vein; No. 26 slope in the Skidmore vein extension through fault in the Oakwood shaft; 75 degree silt pipe was laid to the water course level through fault in the Hillman vein; three diamond drill holes from the Hillman to prove the Five Foot vein, and top rock was blown across No. 13 slope basin in the Red Ash vein, in preparation for motor haulage.

Outside. A 10 inch bore hole was put down from the surface to the head of No. 5 slope in the upper Baltimore vein, the engine being changed from air to steam power.

Completed a 6 foot by 8 foot shaft from the surface to the Bowkley vein, by way of which massive concrete batteries were constructed in the Bowkley vein in the vicinity of the Mill Creek cave as an extra protection from Mill Creek water. On completion of the batteries the isolated area to the top of the shaft was silted full. Also completed a 10 foot by 10 foot shaft from the surface to the water course, in the Hillman vein, for the purpose of conveying Henry colliery boiler fuel and retail coal from the breaker to the fuel cars.

The work of silting Mill Creek cave, in Suburban park, was continued throughout the year and is nearly completed.

Installed 10 new Wilmot jigs in the breaker and completed new steel roof and ventilators on Oakwood shaft engine house.

Henry Colliery.—Completed rock extension from top to bottom Five Foot vein; No. 75 rock tunnel extension to Top Five Foot; two concrete overcasts in Wyoming Five Foot slope, and No. 42 slope was started to develop the basin north of the present workings.

Transportation on No. 28 slope was abandoned and the new No. 41 slope put in operation. A rock tunnel to tap old workings of the Lower Baltimore vein was started off No. 39 slope in the Skidmore vein.

Installed 50 sets of steel timber for roof support on No. 14 slope in the Five Foot vein.

A mine foreman's office was constructed near the foot of Red Ash shaft.

Outside. Installed shaking grates and combustion arches on 8 boilers to increase the efficiency of the plant.

A 12 inch emergency drainage bore hole was started from the surface to the Red Ash vein; completed an 8 inch bore hole from the surface to the Five Foot vein for the exhaust steam from No. 42 slope engine, also an 8 inch bore hole from surface to the Five Foot vein for the purpose of flushing dirt bank inside.

Test holes were drilled on the river flats for proving the rock cover overlying the Hillman and Five Foot veins.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held May 8 and 9, in the Y. M. C. A. Building, Wilkes-Barre. The Board of Examiners was composed of Thomas J. Williams, Inspector, Wilkes-Barre; Samuel R. Morgan, Superintendent, Wilkes-Barre; David L. John, Miner, Wilkes-Barre; John H. Harris, Miner, Wilkes-Barre.

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

long; and tunnel to the Ross vein in the Laurel Run section. Installed one 7-ton electric locomotive and one 10-ton electric locomotive. The Pine Ridge shaft was relined and wood cribbing replaced by concrete from the surface to the rock.

LEHIGH VALLEY COAL COMPANY

Henry Colliery.—Installed new stacks on the boilers. Completed the electrification of the mines by running power line from Prospect Colliery. A bore hole was put down on the west side of the river from the surface to the Red Ash vein for carrying electric power line into the mines, and sub-station was constructed in the Five Foot vein. Completed No. 76 tunnel from Skidmore to old workings in the Lower Baltimore vein; No. 77 tunnel in Wyoming slope from Five Foot vein to large virgin area in Hillman vein; No. 78 tunnel in Wyoming Five Foot vein to virgin area in this vein south of the fault. Constructed a concrete air bridge to improve ventilation in Henry Five Foot vein. Drainage bore holes were drilled from Bowkley to Hillman vein, from Hillman to Five Foot vein, and from Hillman to Lower Baltimore vein, for the purpose of concentrating the pumping.

Mineral Spring Colliery.—Completed a rock plane for use as a man-way for No. 5 plane, and did considerable rock grading on No. 5 plane. Completed electric power line from Prospect Colliery for the purpose of electrifying Coal Brook workings. Installed a Cochran feed water heater in the boiler house. The mouth of the old slope was improved with reinforced concrete. Made extensive repairs to all the company houses.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held in Kingston, April 23 and 24. The Board of Examiners was composed of John B. Corgan, Mine Inspector, Kingston; Gilbert S. Jones, Superintendent, Dorranceton; W. J. Cotter, Miner, Wyoming; Thomas Thornton, Miner, Parsons.

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

MINE FOREMEN

Guy E. Connor, Plains; Mark J. Luksic, Louis Sulzbacher, Luzerne; William T. Mattick, Miners Mills; Philip H. Kelly, Raymond Muggford, Charles S. Watkins, Parsons; George F. Charlton, Edwardsville; John R. Pattison, Plainsville.

ASSISTANT MINE FOREMEN

Joseph Bonsall, John Shaughney, William J. Corcoran, Charles Neyhard, Plains; John Cosgrove, William Roberts, Ashley; John J. Dillon, Thomas Schmidt, Wilkes-Barre; Thomas H. Rundle, Forty Fort; Julius Lisinski, John Adams, Benjamin Jones, Frank Christopher, Parsons; Michael D. Angley, Pringle.