TABLE No. 1.—*Giving details relative to the progress of new shafts in the Wilkes-Barre District, and their depth, December 31, 1881.*

NAMES OF THE SHAFTS.	Names of Operators.	Purposes.	SIZE.		Depth on December 31, 1881.	Number of men employed.	Deepest coal seam to be cut at present.	Probable depth in feet.	Capacity of production per day in tons.	Fatal accidents to employees.	Non-fatal accidents to employees.
			Length in ft.	Breadth in ft.							
1. Dorrance,	Lehigh Valley Coal Company,	Hoisting coal,	52	13	250 ft.	25	Baltimore,	1 000	1,000		
2. South Wilkes-Barre	Lehigh and Wilkes-Barre Coal Company,	Hoisting coal,	24	12	586	21	Baltimore,	1,100			
3. Stanton Air Shaft,	Lehigh and Wilkes-Barre Coal Company,	Hoisting and ventilating,	26	12	630	25	Baltimore,	830	. . .	2	1
4. Lance Air Shaft,	Lehigh and Wilkes-Barre Coal Company,	Ventilation,	18	10	385	63	Baltimore,	530			
5. Extension of Lance Shaft,	Lehigh and Wilkes-Barre Coal Company,	Hoisting coal,	28	12	559		Baltimore,	559	800		
6. Woodward,	Del're, Lackawanna, and Western Coal Co.,	Hoisting coal,	53	10	80	30	Red Ash,	800	1,000		1
7. Alden,	Alden Coal Company,	Hoisting coal,	28	12	28	18	Baltimore,	270	1,000		
8. Bennett Shaft,	Thomas Waddell & Co.,	Hoisting coal,	20	10	290	37	Baltimore,	310	1,000	2	
9. No. 3 Shaft, Kingston,	Kingston Coal Company,	Hoisting coal,	33	12	544	22	Red Ash,	544	800		
10. Gaylord Shaft,	Gaylord Coal Company,	Hoisting coal,	47	12	575	20	Red Ash,	575	1,000		
11. Raubville Shaft,	Waddell & Walters,	Hoisting coal,	22	12	192	21	Bennett,	192	600		

The Alden Coal Company.

The Alden colliery is situated near the east end of Newport township, and is a new establishment. The shaft is 11×24 feet area and 225 feet deep to the Bennett vein, which is five feet thick of good coal. They have a tunnel driven from the surface into the Bennett and Baltimore veins; this is 800 feet long, having an area of 7×9 feet. The breaker was nearly completed and ready for occupation at the end of the year.

The Clear Spring Coal Company.

This again is a new coal firm and have opened a colliery in West Pittston which will be ready for operation the beginning of 1883. The shaft is 12½×28 feet and 160 deep, cutting the Seven-foot and Pittston veins. An air-shaft has been sunk also, to which connections are made in both veins. The breaker is ready to commence shipping coal in the beginning of the following year.

The Fuller Coal Company.

This company is sinking two shafts, one for hoisting and the other to comply with the law requiring second opening. The main shaft is 10×34 feet, and will have a probable depth of 250 feet, the air-shaft is located 185 feet from the main one, and has an area of 10×14 feet, is expected to be the same depth as the main one. The breaker, which is now in course of erection, will have a capacity of 1000 tons per day. The hoisting engines will have direct motion, cylinders 34×40 inches, and a conical drum. A fan 14 feet diameter, open periphery, will be erected at once upon the completion of the shafts, and the colliery is expected to be in operation by next June.

The Delaware, Lackawanna and Western Company.

The Woodward shaft, reported in last year's report was down at the close of this year a depth of 300 feet, and has employed about 60 persons. Its size is 10×53 feet, and will have probably a depth of 800 feet when completed. Another shaft has been commenced to constitute a second opening for the Woodward. This is 12×35 feet, and was just begun at the close of this year. I am informed that this shaft will also be utilized to work some of the upper veins. This company has also began preparations to sink a shaft on the Pettibone property, in the center of the valley, a little north of Wilkes-Barre, which is to be 10×35 feet area.

The Hanover Coal Company.

This new colliery is located in Hanover township, south of Sugar Notch, and is leased by this company from Mr. W. Maffitt, of Wilkes-Barre. A breaker is already nearly completed, and a tunnel driven into the Red Ash vein, where the coal is found seven feet thick. They will also work the Ross Seam from a temporary slope, made out of an old chamber driven up from old workings which had crossed the boundary line into this property.

The General Condition of the Mines.

During the year 1883, several new collieries began to operate in this district, swelling the list to an appreciable degree, and increasing the inspection work in the same proportion. The Clear Spring colliery began to send coal through the breaker January 3; the Alden colliery began January 18; the Hanover March 10; the Fuller colliery the last week in August; the Schooley breaker started September 3, and the Hillman vein breaker September 28. Beside these, the new breaker at the Lance colliery started to ship coal June 30, and the new breaker at the Stanton mine September 1. Thus eight new breakers are added to the list of this district for 1883. These new collieries are all equipped with the latest improved colliery-plant, and each is starting the operation of mining in good condition.

The ventilation of the Lance, Stanton, and Fuller collieries is largely in excess of the need of the present workings, and evidently it will continue so for some time. The ventilating systems of the other new collieries have not been completely established yet, but I expect it will be efficient when the contemplated work is accomplished.

In the old collieries, the good condition reported last year is generally maintained. A few instances exist where there is sufficient ground to complain, but even in these a slow progress is being made, and I am promised that a more satisfactory condition will soon be effected.

With the large amount of coal mined at present, the workings underground spread out rapidly, requiring extraordinary care in the manipulation of the air-currents to supply an efficient quantity of ventilation at the face of the workings. This is done remarkably well, considering the difficulties of the work.

Some difficulty is experienced in maintaining an effective discipline, from which laxity accidents frequently arise, causing injuries to the workingmen which might easily be avoided provided the discipline was more effective.

Events Causing Fire-Damp to Accumulate in Collieries.

Great danger exists when a large body of fire-damp accumulates in a coal-mine, and this danger had to be contended with at three of the collieries of this district for several months in 1883. During the first part of January the pillars of a large extent of workings in the Baltimore slope were crushing and showing the usual signs of an approaching cave, and about five o'clock, A. M., January 25, the expected cave transpired, breaking the strata clear through to the surface, and damaging a number of houses. While the pillars were being crushed, all the hitherto occluded gases were suddenly relieved and evolved into the cavities of the mine, causing the atmosphere of a large area of workings to become explosive. At the same time, from the same cause, the second opening of the Conyngham shaft was deranged and made for a while unavailable as an escapage for the latter colliery's workmen in case of emergency. The ventilation of this mine was also affected, so that a large section of the workings became

Dininny & Co.

The air-shaft at the Schooley colliery of this company was completed to the Pittston seam, at a depth of three hundred and twelve feet. Its sectional area is one hundred and forty square feet. It was connected to the workings by June 1, 1884, since which time the colliery has been working upon its full capacity. A fan was erected at the main shaft, the diameter of which is eighteen feet, and it produces a ventilation of about seventy-five thousand cubic feet per minute. They have had more than ordinary trouble in opening this colliery, but the work has been successfully accomplished, and the mine is now in a fair condition.

The West End Coal Company.

The East End colliery of this company began to produce coal for the market in the month of March, 1884, and has been in operation since that time. Their openings are all above water-level, having driven a tunnel to the seams. At the West End colliery an air-shaft was sunk to improve the ventilation. Its sectional area is one hundred square feet, and depth eighty feet. At the old tunnel a sixteen-foot fan was erected, which has improved the ventilation very materially.

The Hanover Coal Company.

This company sunk a shaft on their premises during the year 1884. Its size is $11\frac{1}{2}\times20$ feet, and its depth from surface to the Ross seam, which is mined at present, is one hundred and ninety-four feet. This, with other improvements effected at this colliery, has increased its capacity for producing coal and for giving employment to persons in and about the mine. Other improvements are in contemplation, which will be effected during the year 1885.

The Alden Coal Company.

The tunnel at the Alden colliery was extended to the Ross seam, having passed through three workable seams including the Ross. The latter is 6 ft. 2 in. thick, and it was reached at a distance of one thousand seven hundred and sixty-four feet from the entrance of the tunnel. The Bennett vein was cut at a distance of two hundred and sixty-three feet, the Twin vein at three hundred and fifty-eight feet, and the Ross at one thousand seven hundred and sixty-four as stated. The first is 4 ft. 6 in. thick, the second 5 ft. and the third 6 ft. 2 in. The tunnel is driven on the level of the breaker, and the coal is brought out by mules.

The Hillman Vein Coal Company.

A tunnel was driven at the Hillman Vein shaft from the Three-foot seam to the Hillman, cutting the latter at a much lower elevation than it was at the shaft. Its sectional area is 8×14 feet, and its length is four hundred feet. This opens a fair lift of good coal at a point convenient to the shaft. They sunk a slope also to the South basin, from which they are now obtaining a large portion of their production of coal.

Alden Coal Company.

The shaft-tunnel of this company was extended to the Red Ash seam. A new fifteen foot Guibal fan was also erected on the mine, making the second fan in use for the purpose of producing ventilation. While running at lower speed than it is capable of it is exhausting 50,000 cubic feet of air per minute, which, at present, is found sufficient.

Delaware, Lackawanna and Western Railroad Company.

The Woodward colliery of this company was completed and began to prepare coal for shipment in July, 1888. The breaker is a large double structure, capable of preparing 2,000 tons of coal per day for the market. It is well lighted and is heated throughout by steam. Everything in the breaker and around the colliery is finished in an exceedingly satisfactory shape. No expense has been spared to make everything as safe as possible. The main shaft is a double one; *i. e.*, it has four cages for hoisting coal—two working for the Red Ash seam and two for the Bennett. The hoisting engines are powerful and are directly connected with the drums. From each of the seams conversation with the engineers can be had by telephones, and signals are given by pneumatic gongs.

The main shaft is 53x12 feet area, and is over 1,000 feet deep to the Red Ash seam.

The No. 2 shaft is 35x12 feet area, and is also sunk to the Red Ash seam, a depth of 1,013 feet, and both are connected by openings in the Bennett and Red Ash seams. This shaft is being fitted with cages and machinery to work the Cooper seam. Two fans were erected, one on each shaft, and one is twelve and the other sixteen feet diameter, exhausting respectively 55,000 and 59,700 cubic feet of air per minute.

Lehigh Valley Coal Company.

The Dorrance shaft having been extended to the Baltimore seam a second opening was effected by a slope sunk from the Hillman to the latter on a grade of 30 degrees. This was 7x12 feet area and 400 feet long, all in rock.

Plymouth Coal Company.

At the Dodson colliery a new Guibal fan, 15 feet diameter, was erected to replace the old one. By running 70 revolutions it produces a ventilating pressure of one and two-tenths inches of water gauge, and 108,000 cubic feet of air per minute. The driving engine is 16x13 inches, connected directly to the fan.

Hanover Coal Company.

The Maffet shaft of this company was sunk from the Ross to the Red Ash seam, and is now at a depth of 385 feet below surface. This opens a new lift of good coal extending up to the level of the old Ross tunnel.

Delaware, Lackawanna and Western Railroad Company.

At the Woodward colliery in the Bennet seam an underground slope was driven to a distance of 1,228′, and its sinking is still continued. Its grade is about 10°, and its sectional area 7′x16′. It was started east of the shaft from the level gangway in a southeasterly direction and it opens a wide extent of excellent coal.

At the Avondale colliery a new underground slope was completed and a new pair of hoisting engines were erected on the surface to hoist the mine cars from the slope. The cylinders are 30″x60″, connected directly to the crank of a parallel drum 9′ diameter by 14′ in length. The foundation of the engines and drum is built of concrete, consisting of broken stone one part, sand three parts and cement two parts. The rope passes down into the mine through a bore-hole 12″ in diameter and 238′ deep. Communication between the engineer and slope men is maintained by electric signals and conversation may be held by telephone. Everything is finished in good order and equipped for convenience and dispatch in doing the work.

Lehigh Valley Coal Company.

The Franklin colliery was leased by this company in March, 1889. Since then they have made many improvements which tend to make the mine safer and more productive. New pumps were put in the Old slope, and new steam pipes were put in from the surface leading through a bore-hole which effected a great improvement.

An air-shaft is being sunk from the surface to the workings of the Red Ash seam in the Rock slope. This shaft has a sectional area of 11′x15′ feet and is at a depth of 230′. In the meantime the necessary openings for connecting with the air-shaft are being driven, and will be ready when the shaft is finished.

Alden Coal Company.

In the Alden colliery a rock tunnel was driven from the Ross to the Red Ash seam from the shaft level. This tunnel is 1,035′ long and has a sectional area of 84 square feet. The Red Ash seam was found to be 7′ in thickness. The water level tunnel was also extended from the Ross to the Red Ash, and penetrated the latter at a distance of 195′. This tunnel also has 84 square feet of sectional area and found the seam 6′ in thickness. The workings of these tunnels are connected by a passage driven up from the lower tunnel.

An underground slope was made in the Ross seam 700′ long, on a grade of 20°. With the aid of this most of the coal between the lower and upper tunnels can be mined from the Ross seam.

SUSQ Coal

At the No. 6 shaft, Glen Lyon, another opening was effected by driving to connect with the No. 6 tunnel, and a part of this is utilized as a gravity plane, which has a grade of 30°. This was driven through disturbed faulty strata from the Ross seam and connects to the side of No. 6 tunnel.

Improvements by the Delaware, Lackawanna and Western Railroad Company.

At the Avondale colliery the new underground slope on the Red Ash seam is being sunk. It extended below the lower level gangway a distance of 750′ on an average grade of 12°.

At the Woodward colliery a new slope was sunk on the Red Ash seam, from the east level gangway, a distance of 700′ on a grade of about 5°. A tunnel was driven from the same seam, west of the shaft, to the Ross seam a distance of 500′ and having an area of 7′×14′. Important improvements were also made in the ventilation of this colliery by erecting new air bridges of substantial brick work. This colliery is opened in excellent shape, and the officials spare no pains in having everything arranged in the best order.

Improvements by the Lehigh Valley Coal Company.

At the Franklin colliery a new air shaft, 8′×10′, was sunk near the outcrop of the Abbott seam and connecting with the workings of that seam. This effected a very desirable improvement in the ventilation of the thin upper seams of this mine.

Improvements by the Alden Coal Company.

The main shaft of this company was extended from the Twin to the Red Ash seam and has now a total depth of 586′. An underground slope has also been sunk in the Red Ash seam to a length of 1,741′ on a grade of 14°, the average dip of the seam. This work is chiefly in the Ross and Red Ash seams.

Improvements by the Plymouth Coal Company.

At the Dodson colliery a new slope was sunk through the rock across the strata from the Bennett to the Ross seam. Its area is 7′×15′ and its length 382′ on a grade of 21°. A second opening is now being driven and will be completed in a few weeks. The hoisting engine is located underground near the head of the slope and the engines are worked by compressed air taken down from compressors on surface.

Improvements by the Parrish Coal Company.

The Baltimore seam slope of this company was extended a distance of 700′ and opened a productive extent of excellent coal. They leased also the old Buttonwood shaft property and are at work enlarging the old shaft and making preparations to reopen the mine on a large scale.

Improvements by the Lehigh Valley Coal Company.

At the Franklin colliery a new tunnel has been driven from the Bottom Split of the Red Ash to the top split, a length of 210 feet, and a sectional area of 7×12 feet.

Improvements by the Alden Coal Company.

In the Red Ash seam of the Alden mine, a tunnel was driven across an anticlinal to the basin north of the present workings. It has an area of 90 square feet and is 1,400 feet in length. This is expected to open an extensive area of a good quality of coal.

Improvements by the Parrish Coal Company.

The underground slope of the Baltimore seam in the Parrish colliery has been extended a length of 1,450, feet making it a total length at present of 2,150 feet. It has a grade of about 6½ degrees and a sectional area of 7×12 feet.

Improvements by the Hillman Vein Coal Company.

This company has driven two tunnels, one from the Hillman to the Kidney seam, and the other from the Hillman to the Abbott seam. The former is 170 feet in length and the latter 337 feet. The sectional area of each is 7×12 feet.

Improvements by A. J. Davis.

At the Warrior Run colliery, a new pair of first motion hoisting engines have been erected. The cylinders are 30×48 inches, and the Cone Drum is large enough to carry 2,500 feet of 1.5 inch rope. This was procured to take the place of a single geared engine and is an effective improvement A short tunnel was also driven from the B to the C vein, a length of 120 feet, having an area of 90 square feet.

Improvements by the Newport Coal Company.

At the Lee colliery two new drifts were opened to the Red Ash seam, and a new slope was driven to a length of 546 feet. It has a varied pitch, the steepest being 70 degrees.

NEW SHAFTS IN PROGRESS OF SINKING.

The Maxwell shaft No. 20, of the Lehigh and Wilke-Barre Coal Company, after being sunk to the rock, was walled with excellent mason work up to the surface. The size of the shaft inside of the walling is 54×12 feet, and at the end of the year 1892 it was at a depth of 134 feet. Workings are being opened ready in the Jersey mine to run coal for this shaft, and the construction of a breaker is in progress.

The Delaware, Lackawanna and Western Railroad Company is sinking three new shafts in Hanover township. The first is named Bliss,

William H. Sayre, second vice president, South Bethlehem, Pa.
John R. Fanshawe, secretary, Philadelphia.
John B. Garrett, treasurer, Philadelphia.
Israel W. Morris, general land agent, Philadelphia.
W. A. Lathrop, general superintendent, Wilkes-Barre, Pa.
Directors, Robert H. Sayre, George H. Myers, Joseph Wharton, Thomas McKean, Beauveau Borie, John B. Garrett, Wm. L. Conyngham, James I. Blakslee, C. O. Skeer, Charles Hartshorne, W. A. Ingham, John R. Fell.

Collieries of the Miscellaneous Coal Companies.

Beside the collieries commented on in the foregoing articles, there were twelve collieries operated by smaller companies in the Fourth district. These together produced 1,296,722 tons of coal and shipped to market 1,192,806 tons, in an average of 129.76 days of work. They employed 3,890 persons and mined 185,246 tons of coal per life lost. Three of the seven fatal accidents took place in the Hillman vein colliery, two in the West End, and one each in the Alden and Dodson collieries. The Nos. 1 and 2 collieries of the Red Ash Coal Company, the Parrish and Buttonwood, of the Parrish Coal Company, and the Maffet, Warrior Run, Lee and Chauncey, did not have one fatal accident.

These mines are all in safe condition and efficiently ventilated. More or less firedamp is emitted in each, but not in such quantities as we find in the deeper mines. They are working closer to the outcrops where the roof is generally better than in the deeper portions of the basin.

The names of the collieries and of the officers are as follows:

Nos. 1 and 2 Red Ash Coal Company.

M. B. Williams, general superintendent, Wilkes-Barre, Pa.
P. H. Ganahan, assistant general superintendent, Wilkes-Barre, Pa.
Daniel J. James, mine foreman No. 1 Red Ash.
Joseph Hopie, outside foreman No. 1 Red Ash.
Timothy Theopilus, mine foreman No. 2 Red Ash.
John Herriotts, outside foreman No. 2 Red Ash.

Officers of the Parrish Coal Company.

H. H. Ashley, general superintendent, Plymouth, Pa.
Thomas R. Evans, general mine foreman, Plymouth, Pa.
Parrish colliery, Henry G. Wililams, inside foreman, Plymouth, Pa.
Parrish colliery, Thaddeus Eddy, outside foreman, Plymouth, Pa.
Buttonwood colliery, Wm. T. Pritchard, inside foreman.
Buttonwood colliery, Merrit Frederick, outside foreman.

Delaware and Hudson Canal Company.

No. 2 Baltimore—

A new double fan was erected, 17½ feet diameter, enclosed in brickwork, and an underground slope was driven to a depth of 700 feet, which is still being extended.

Boston—

The new shaft was sunk to a depth of 475 feet, and its sinking is continued. It is 12x33.5 feet, and has passed through three coal seams.

No. 5 Colliery—

The new shaft was sunk to a depth of 725 feet during 1894, and its sinking was continued. Its size is 10½x33 feet.

Susquehanna Coal Company.

Five new tunnels were driven in the mines of this company:

One 8x14 feet and 800 feet in length from the Ross to the Twin seam.

One 8x14 feet and 400 feet in length from the Hillman to the Hillman seam.

One 8x12 feet and 200 feet in length from the Forge to the Forge seam.

One 8x14 feet and 800 feet in length, from the Forge and was unfinished at end of year.

One 8x14 feet and 500 feet in length, from the Mills to the Mills seam.

Three of the underground slopes were extended. The No. 10 slope was extended a length of 2,000 feet. No. 12 was extended 500 feet, and No. 13 1,500 feet.

Five new gravity planes were made, varying in length from 200 to 1,500 feet. These improvements open new areas of coal property in each of the seams.

Improvements by the Parrish Coal Company.

The underground slope on the Baltimore seam in the Parrish colliery was extended a distance of 900 feet, making the total length of this slope 2,316 feet.

Improvements by the Alden Coal Company.

A new air shaft was sunk for the Alden colliery from the surface to the Cooper seam, a depth of 612 feet. Its sectional area is 416 square feet. A new fan, 24 feet diameter, is in progress of construction. The engine is 20x36 inches, directly connected. This will be applied to ventilate the north basin workings of the property.

of 830 feet from the Twin to the Ross seam. It is 7x14 feet area. Three new short gravity planes were made, one of which was in the No. 6 slope.

Improvements by the Delaware, Lackawanna and Western Company.

At the Woodward mine a rock tunnel was driven through an anticlinal a length of 621 feet, having a sectional area of 7x14 feet. A new barn has been built in the Red Ash seam which is lighted by electric incandescent lamps. It is the safest, cleanest and best lighted in the whole district. At the Bliss mine two rock tunnels were driven one 1,000 feet in length and the other 179 feet. Each has an area of 7x12 feet. Two slopes were driven, one 1,120 feet and the other 1,140 feet in length. The grade on the first is 20 degrees and on the other 24 degrees.

Improvements by the Parrish Coal Company.

At the Buttonwood Colliery a slope has been driven in the Hillman seam to the dip south of the shaft a length of 515 feet on a grade of 27 degrees. Two gravity planes were made, one in the Hillman seam, 850 feet in length and 8 degrees grade, and one in the Kidney seam, 1,100 feet in length on a grade of 11 degrees.

Improvements by the Alden Coal Company.

At the No. 2 shaft of the Alden Colliery a new steel head-frame has been erected instead of the old timber one; a very great improvement.

Several other minor improvements were made in the most of the mines which are not of sufficient importance to be recorded in this report.

Annual Examination of Applicants for Mine Foreman Certificate.

The annual examination of applicants for certificates of qualification of mine foreman and assistant mine foreman was held at the Union street school building, Wilkes-Barre, Pa., June 12, 15 and 16. The board of examiners was G. M. Williams, Inspector of mines, Edward Mackin, superintendent; Andrew McGeehan and William D. Morgan, miners.

Twenty-three applicants for mine foreman certificates appeared in the examination and the following eleven were recommended to have certificates:

William H. Thomas, Lee, Luzerne county.
James D. Nichols, Nanticoke.
William L. Jones, Peely, Luzerne county.
William J. Lloyd, Wanamie.

CLASSIFICATION OF FATAL AND NON-FATAL ACCIDENTS.

Cause of Accidents.	Fatal.	Non-Fatal.
By explosion of fire damp,	16	86
By falls of roof and coal,	33	80
By mine cars in various ways,	9	53
By explosion of powder and blasts,	7	25
By falling down shafts,	1	1
By miscellaneous causes in the mines,	5	18
By miscellaneous causes on surface,	4	15
Total,	75	278

Number of wives left widows, 47; orphans, 158.

Classification of Fatal and Non-fatal Accidents.

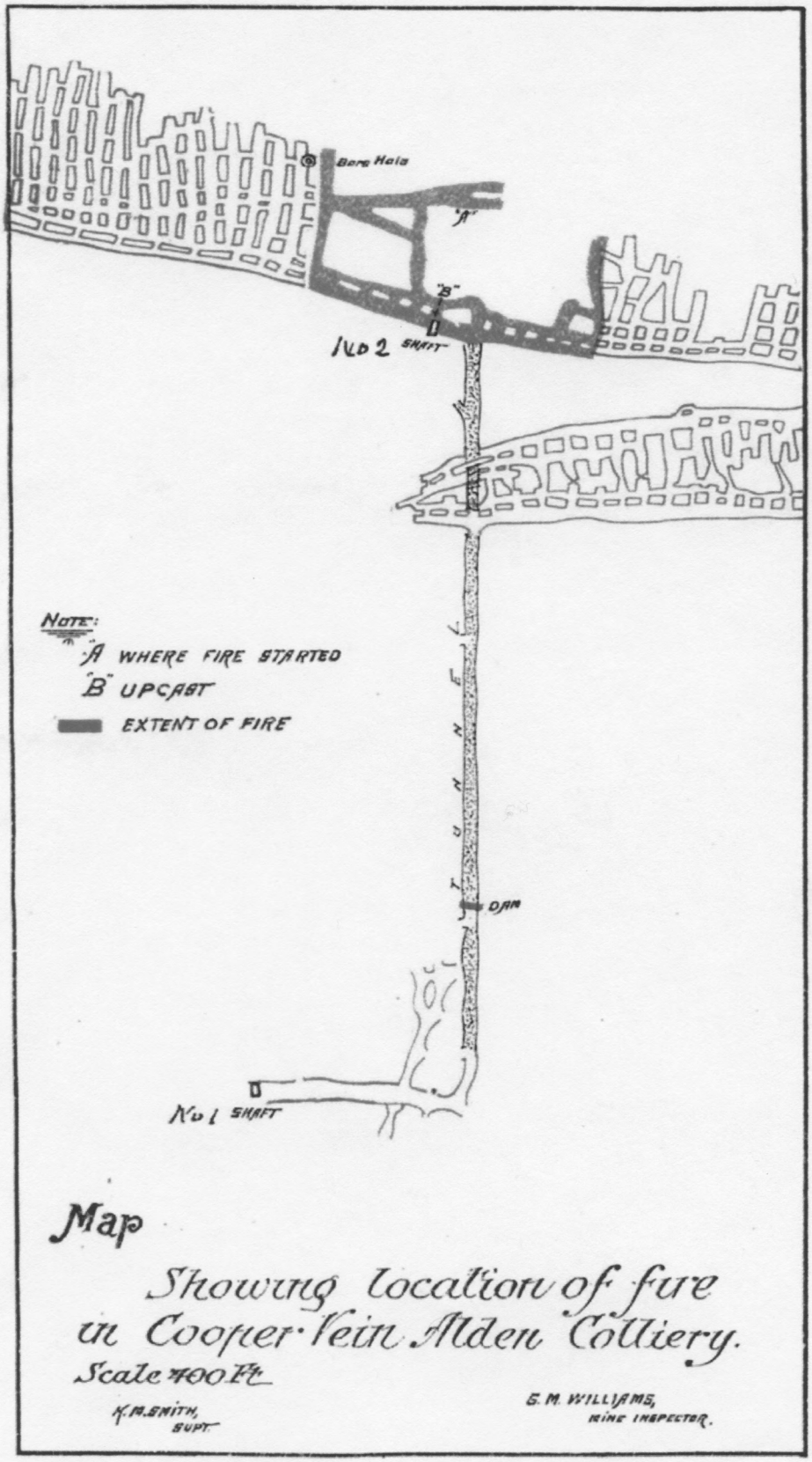
On June 22, Martin Cavanaugh, a plane headman in the No. 9 colliery at Sugar Notch died suddenly while at head of plane in the mine. This was not included in the list of fatal accidents.

There were 104 very slight accidents reported that are not included in the tables. In all these cases the person injured was not disabled for more than from one to four days.

Destructive Fire in No. 2 Shaft, Alden Colliery.

Tuesday evening January 25, 1898, at about 7 P. M. a party of men that were driving a back counter gangway in the Cooper seam of the No. 2 shaft Alden colliery set a few cartridges of dynamite in an empty box around a lighted Clanny safety lamp to thaw, and in a few minutes the dynamite ignited and burned setting the brattice on fire. This occurred at the crossent A on the accompanying sketch of the Alden workings. A line of water pipe had already been laid into the gangway but the water was not on. The miners, not knowing how to manipulate the valves so as to let the water on, lost considerable valuable time, and the fire by that time had extended. Other men, led by Superintendent K. M. Smith, and the fire boss, Daniel Fine, Frank Richards and others, went in and joined in the work of beating the fire back by applying water from hose, etc., and when they were progressing successfully, explosive gases accumulated and exploded, burning six of the men and blowing the others about roughly. All found their way out through the tunnel to the No. 1 shaft.

At 10 P. M. the writer was called to the mine and immediately took the electric cars for Alden. On reaching that place he found that the fire had spread in a remarkably short time down the return airway to the shaft, and was burning up the fan shaft almost to the top. The air current had a short circuit down the hoisting compartments and up the upcast, and the brattice was on fire in the



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shaft and it was burning fiercely. When the writer reached there, the top of the shaft was covered with plank and the planking again covered with earth and clay so as to prevent a current of air going down the shaft and the fan was stopped. The next morning, after an examination by Superintendent K. M. Smith, James W. Turner, two fire bosses and the writer, a pair of doors were erected across the tunnel a short distance inside of the point where the dam was afterwards constructed. The object of the doors was, that if deemed necessary, they could be closed so as to shut the air off entirely from the fire.

On the morning of January 27, the writer, accompanied by Superintendent M. R. Morgans, of the Lehigh and Wilkes-Barre Coal Company, Mr. K. M. Smith, James W. Turner, and a fire boss, went in to the bottom of No. 2 shaft and made a careful examination of the situation and found the fire burning furiously at the bottom of the shaft at the upcast side, and the workings filled with explosive gas to within about twenty feet of the fire, and it was decided at once that the fire could not be fought out, and that preparations should be made to flood that part of the mine with water. To effect this without flooding the whole mine, a dam had to be erected across the tunnel leading from the No. 1 shaft. (See sketch.)

On January 28, while a gang of men was busy cutting hitches and working on a dam at a point near the inner end of the tunnel, Superintendent K. M. Smith, Mine Foreman Thomas E. Griffiths and one of the fire bosses went in to the No. 2 shaft again and just as they were leaving to return, an explosion took place, the gas igniting from the fire. The foreman, Thomas E. Griffiths, was fatally injured, and Superintendent Smith and Fire Boss Thomas Turner were slightly burned and roughly blown about. The workmen went to their aid at once, and Griffiths was carried out. Mr. Smith, although being bruised and hurt, after seeing that all were out, closed the doors erected on the 27th across the tunnel, which shut the air current off from that direction.

James W. Turner was put in charge of a gang of men to replace the planking covering on the top of No. 2 shaft which had been blown off by the explosion.

On January 29 a strong battery of props and braces was erected against the doors, so as to resist the force of an explosion should one occur, and compel it to go up the No. 2 shaft. Then a dam was constructed across the tunnel at the point indicated on sketch, and when this was completed, water was poured down the No. 2 shaft, filling it to a vertical height of 100 feet. While the water was filling a bore hole was drilled at the point indicated on sketch to let the penned up gases escape. The hole was completed on March 4 at a depth of 563 feet, and the water was up to the bottom, being at

a height of 103 feet from the bottom of the shaft. On March 13 they began hoisting the water out, and by April 3 it was all out and they commenced to repair the brattice separating the upcast in the shaft, and by April 16 all was completed ready to start the fan. The men were withdrawn and the fan was operated. On the night of the 18th an explosion took place, followed by several other explosions, showing that the fire was not completely extinguished and that it was increasing. Water was poured in again until the bottom gangways were sealed air-tight and it was kept at a height of 30 feet from the bottom. An opening was made above the water from the shaft to the return airway at B. All the workings above the water were filled with carburetted hydrogen gas unmixed with air. Conducting air with brattice the return airway was opened all the way up to the counter gangway A, and both east and west as far as indications of fire had been seen. By using a Vajen Bader smoke protector and an electric lamp the open workings beyond the points where the fire had been seen were examined and no fire was found. It became evident now that the non-combustible gases had extinguished the remnant of the fire at all points and it was concluded to hoist all the water out so that the fan could be set in motion. This was done, and since that time no fire has been seen. The work of re-opening the airways required extraordinary care and skill, and it was efficiently executed without a mishap. As in all other cases where it becomes necessary to flood the workings, the roof is very generally brought down and it has taken many months of steady work to reopen the gangways which were filled with water. The parts of the workings that were not under water have stood without being damaged and work was soon resumed therein.

Lessons Derived from Mine Fires in this District.

Fires have originated from the following causes:

From fires under steam boilers located in the mines. This was the cause of expensive and destructive mine fires several years ago but now the steam boilers are located on the surface and the danger from that source is obviated.

From carelessly constructed ventilating furnaces in the mines. But the law prohibiting the use of furnaces for ventilating purposes in gaseous mines has excluded them from all the mines of this district, therefore this cause of mine fires has been eliminated.

From the use of fires in grates for heating purposes in shanties at bottom of shafts and slopes in winter. This now has nearly all been superseded by steam conducted from the boilers on surface, and combustible shanties have been changed for others constructed of non-combustible material.

effect on November 29, 1901, is provided with an emergency hospital in accordance with the law; the supplies and furnishings vary with the different companies, but the above list is a fair average of the materials provided. The majority of the companies have employed physicians to hold schools of instruction at which the foremen, fire-bosses and driver bosses have been taught how to stop the flow of blood, dress burns, set a broken bone, and give what aid they can before the arrival of a physician.

Improvements Made by the Lehigh Valley Coal Company During the Year 1901.

Dorrance Colliery.—A rock plane has been started, to be driven on on angle of eighten degrees, from the Baltimore to the five foot seam; during the year this plane has been driven a distance of 357 feet. The plane is eight feet high and eighteen feet wide. A rock tunnel driven through the measures 372 feet long from the Hillman to the Abbott seam. The volume of gas given off in the West Hillman plane worknigs was so large, that during the first part of the year this portion of the mine was stopped, until the intake airway was enlarged. When this was completed, the quantity of air at the face, was increased from 55,000 cubic feet per minute to 75,000 cubic feet, which has enabled them to resume mining in that seam, although they use locked safety lamps exclusively as a precaution. Outside, two horizontal tubular boilers, six feet in diameter and eighteen feet long were put in, replacing six old cylinder boilers.

Improvements Made by the Alden Coal Company During the Year 1901.

Shaft No. 1.—Tunnel over synclinal from mill to mill seam, 300 feet long seven feet by fourteen feet. Airshaft as a second opening from Forge to Cooper seam 100 feet deep, size eight feet by ten feet. A slope driven on a pitch of twenty degrees from the surface in the Mill seam 297 feet deep, size eight feet by twelve feet.

Shaft No. 2.—Rock airshaft from the Rosy to the Red Ash seam, to be used as a second opening fifty feet deep, seven feet by eight feet. Outside, five Anthracite separators, or spiral slate pickers and a fifty light acetylene gas plant.

Annual Examination of Mine Foremen.

The examination of applicants for certificates of qualification for mine foremen and assistant mine foremen was held in this district on the 4th, 5th and 6th of June, 1901, at the City Hall, Wilkes-Barre.

The board of examiners were, G. M. Williams, Mine Inspector; Edward Mackin, superintendent; Frank Mills and Thomas D. Lloyd,

Inside: New openings in Cooper seam, Shaft No. 1, in two places in No. 13 tunnel.

Enlarged main gangway from foot of No. 1 North Shaft to head of No. 9 Slope, and to No. 13 tunnel.

New bore hole, 960 feet deep, from surface to Lee seam, for No. 10 Slope hoisting rope.

Improvements at the Delaware and Hudson Collieries During 1902.

Plymouth No. 2.—Tunnel in G vein through fault 200 feet long, 7′x12′. Tunnel from Red Ash to top split, 275′ long, 7′x16′.

Outside: A Norwalk compressor, 24″x14½″x22″x24″, was installed for furnishing air for pumping.

Shaft No. 1.—A Dickson compound triple expansion pump, with a capacity of 3,000 gallons per minute, size of pump 15″x26″x16″x48″.

Shaft No. 3.—Tunnel from Red Ash seam to top split, 275′ long, 7′x16′. A 10″x48″x24″ Jeanesville pump was installed at the foot of shaft.

Outside: A new breaker engine, 16″x30″, was attached to the old one, changing it into a double engine.

Boston: Reopened tunnel and sank slope in the Bennett seam, and put in a pair of 24″x48″ haulage engines to take coal from the slope to the breaker.

Outside: Installed nine new cylinder boilers, 34″x36′ in length.

Placed one pair of engines, 26″x48″, at the bore hole to hoist out of plane from top split of Red Ash.

Improvements at the Alden.

A slope in the Cooper seam 550′ long to reach the basin.

Tunnel 100′ long from the Cooper to Hillman seams, 14′x7′ through the rock.

There has also been provided for cases of emergency two "Vajen's" improved head protectors.

Improvements at the Delaware, Lackawanna and Western Collieries During 1902.

Woodward.—A new steel trestle connecting the breaker with the shaft, and four batteries of Sterling boilers have been installed. One electric hoist and one electric motor have also been installed at this colliery.

Avondale.—One electric motor has been placed inside.

Auchincloss.—An electric breaker of 500 tons daily capacity has been placed in operation and is giving perfect satisfaction.

feet on an average dip of 19 degrees. Ross vein No. 2 shaft has been re-opened east of shaft for a distance of 400 feet. Concrete brick and iron air-bridge was constructed across shaft level gangway east of No. 1 slope, Baltimore vein. Concrete walls have been erected at the entrance into air shaft at Mills and Ross seams. Concrete and iron pump room, located in George vein was completed during the year, and 20x36x10x36 double acting steam condensing pump was installed.

Bliss Colliery.—No improvements worthy of note at this colliery.

Truesdale Colliery.—No. 1 shaft has been sunk to a depth of 567 feet to the Red Ash seam. No. 2 shaft has been sunk to a depth of 562 feet. Preparations are being made for developments at No. 1 shaft east and west for mining purposes, north and south for ventilation and drainage. Permanent hoisting engines and other necessary apparatus for the mining of coal are now being installed. Breaker and washery will be completed early during the coming year. The work of development in the tunnel and slope is being pushed as rapidly as possible. A 24 foot Guibal Vulcan ventilating fan is on the ground and will be installed as soon as weather conditions will permit. Three high pressure Babcock and Wilcox steam boilers have been completed, enclosed in brick and iron building, which will be equipped with modern electric ash and coal conveyors and other up-to-date improvements. In connection with the above it would be well to state that it is the intention of the management to drive all the machinery in above breaker and washery by electricity. In order to accomplish this a large electric plant is now being erected on the east shore of the Susquehanna river to generate power for this work as well as the other collieries located in this section.

This plant will consist of Babcock and Wilcox boilers, five steam turbines, which will generate 5,000 H. P., to be distributed along high tension lines at high voltage to be converted to 250 and 275 volts at the collieries.

ALDEN COAL COMPANY

Alden Colliery

No. 1 shaft—Outside.—1 boiler plant with 3 sets of the 200 H. P. each finger water tube safety boilers.

No. 2 shaft—Outside.—1-8 inch bore hole, 507 feet deep, from surface to E vein for inside slope.

No. 2 Shaft—Inside.—Rock tunnel from Cooper to Hillman, 110 feet long; rock tunnel from Cooper to Cooper, through Anticlinal, 156 feet; rock tunnel from Cooper to Hillman and Mills, 120 feet; not yet completed.

this plant, consisting of improved and up-to-date machinery. Great results will be expected from this colliery some few years hence, when the shafts are fully developed, which of course is absolutely necessary in cases of this kind.

ALDEN COAL COMPANY

Outside.—A concrete reservoir 40x60x7 with a capacity of 112,000 gallons, has been erected to supply the colliery and dwellings with water.

An addition has been made on the breaker to be used for a washery for the purpose of washing the small size coal.

A steel conveyor line 300 feet long has been erected to carry fuel from washery to boiler house.

One set of 200 H. C. water tube boilers has been erected and enclosed.

An air shaft 16 feet x 18 feet has been sunk from surface to George vein, over which has been erected a 24 foot Vulcan fan, all of which is made of steel.

Inside.—A tunnel from Cooper to Hillman vein, 120 feet, completed.

A slope has been driven in the Cooper vein about 800 feet, also one in the Bennett vein; 900 feet of these slopes will continue to the basin.

Mine Foremen's Examinations

The examination for mine foremen and assistant mine foremen was held at Wilkes-Barre high school May 8 and 9.

The examining board was James Martin, Mine Inspector; Gwilym Edwards, Superintendent; Thomas Finn and Felix Wisniefski, miners.

The following persons received certificates:

Mine Foremen

Clarence S. Robbins, David W. Phillips, Walter E. Davis, Fred Lancaster, H. C. Kreiger, George A. Bound, John F. Kane, Joseph P. Evans, James C. Anderson.

Assistant Mine Foremen

Andrew Seletski, Henry Amos, William T. Dickie, Joseph P. Gibbon, D. J. Jones, Nicholas Cook, Lemuel E. Fine, Harry A. Mills, William Gwyn, Alfred W. Downs, David M. Stanton, Charles F. Gallagher, Edwin J. Richards, Wm. Broderick, John B. Corgan, John C. Hermansen, David W. Davies, Albin Molin, Evan T. Fulton, Zachariah Davis, Evan W. Owens, Evan O. Owens, Howard Davis, William James Varker.

Several air bridges have also been erected to improve the ventilation.

WEST END COAL COMPANY

West End Colliery.—One 7 x 12 foot tunnel at Lee 200 feet long, from No. 3 to No. 2 vein.

One 7 x 12 foot tunnel, Sand drift, 275 feet long from Ross to Red Ash.

One 7 x 12 foot tunnel on No. 1 slope, Long drift, 400 feet long, through fault.

One 7 x 12 foot tunnel, Long drift, 100 feet long, Ross to Ross split.

One 5 x 5 foot drainage tunnel, in Sand drift basin, 500 feet; not finished.

The Red Ash vein was opened in the extreme west end of Pricilla Lee basin.

LEHIGH AND WILKES-BARRE COAL COMPANY.

Wanamie No. 18 Colliery, Inside.—No. 21 Tunnel, Bottom Red Ash to Top Red Ash.

No. 22 Tunnel, Bottom Red Ash to Top Red Ash.

No. 23 Tunnel, Bottom Red Ash to Top Red Ash.

ALDEN COAL COMPANY

Alden Colliery.—During the year a rock slope has been driven from the Bennett to the Red Ash vein, 740 feet. This slope will be the second opening for the lower workings in No. 2 shaft.

A 24,000 gallon concrete tank for hot water boiler feed has been erected at No. 2 shaft boiler house.

An Ames Multipolar generator has been installed for lighting the various buildings around the colliery.

A ten-foot fan has been put in the breaker for removing dust, and five spiral pickers have been added to the breaker equipment.

A 1,200-gallon centrifugal pump installed on the wagon road near water dam, in a brick and concrete building, to furnish water for coal washing purposes.

Rock crusher installed to pulverize the refuse coming from the breaker, so that it can be flushed into the old workings.

A new 30 x 60 concrete and brick wash-house was erected.

A brick and concrete engine house for electric hoist on No. 6 slope was also completed.

A combination lamp room, mine foreman and fire boss office, was completed during the year.

A 1,000-gallon fire pump was installed.

Brick and concrete locomotive house was erected and the original wooden building removed.

One 300 H. P. Babcock and Wilcox boiler has been added to the boiler plant.

The work of installing a 500 KW Rotary converter in Sub-station is under way. This machine will furnish power for additional locomotives that are to be installed during the year, all of which was authorized in 1909.

Inside.—Rock tunnel driven from Ross to Twin vein, No. 2 slope, Truesdale tunnel; also one short rock tunnel on 30 degrees pitch for second opening and ventilation.

New concrete and steel mule barn is under way and will soon be completed.

The following rock tunnels have been driven inside for development, second opening and ventilation purposes.

Tunnel No. 2 slope, Ross to Twin vein, 7 x 12 by 455 feet long.

Tunnel No. 1 shaft, Ross to Forge vein, 7 x 12 by 350 feet long.

No. 1 slope and airway Mills to George has been completed, 7 x 12 by 350 feet long.

Tunnel Forge to Baltimore for second opening, 7 x 12 by 150 feet long.

Tunnel No. 2 slope, Ross to Red Ash, 7 x 12 by 260 feet long.

In addition, eight concrete and steel air bridges have been erected to provide for the proper ventilation of the workings.

The following electrical operating pumps have been installed to drain the various parts of the workings:

One 800 gallon centrifugal pump.

One 300 triplex pump for 300 horse power motor.

One 700 gallon centrifugal as an auxiliary to pump at foot of shaft.

Four small 250 portable truck pumps have also been installed at various points.

LEHIGH AND WILKES-BARRE COAL COMPANY

Wanamie Colliery.—Two tunnels, one from the Baltimore to the Cooper vein, and one from the Ross to the Baltimore vein, were completed, and No. 19 tunnel was extended from Ross to Ross vein.

ALDEN COAL COMPANY

Alden Colliery.—At No. 2 shaft a concrete block wash-house 18 x 22 feet, with hot and cold water shower baths, equipped with steel lockers, was erected.

A second opening was driven through rock from Mills to George vein.

Outside slope driven to Baltimore vein, and a shaft 13 by 13 feet was driven for a second opening.

Two Webster Lane and Camp friction engines, 8½ x 12 inches, installed inside.

Two Goyne pumps, 9 x 5 x 10 inches, have been installed at Nos. 1 and 2 boiler houses for hot water feed, and one Goyne pump, 12 x 6 x 12 inches, installed in Loomis slope.

Inside: A new emergency hospital has been erected at No. 1 shaft.

Several air bridges have been erected during the year as necessity demanded.

Outside: An endless rope haulage has been installed on the trestle leading to foot of conveyor line, where coal is being dumped.

Five 6½ ton electric locomotives have been installed for transportation purposes, and one 10-ton locomotive, which assists very materially in handling the output.

A large, concrete and steel mule barn has been erected inside at the foot of No. 2 shaft.

Concrete side walls and "I" beams are now being placed on the head of No. 3 slope, doing away with a large amount of timber.

The following rock tunnels have been driven during the year for development, transportation, ventilation and second opening purposes:

One from Ross to Forge vein; one from Ross to Red-ash vein; one from Forge to Hillman vein; one from Top Split Red Ash to Bottom Split Red Ash.

All of these tunnels have been duplicated for second openings and ventilation.

ALDEN COAL COMPANY

Alden Colliery.—No. 2 Shaft: On February 1, 1909, the Alden Coal Company started to drive a shaft upwards from the Bennett to the Cooper seam. Figure 2 herewith shows the side elevation and method adopted while driving between the seams. When the shaft reached a point 18 feet from the bottom of the Cooper seam work was stopped, the face of the shaft securely timbered, and a rope hole 2 feet in diameter connecting the Cooper seam with shaft below was driven. The shaft was driven upwards a distance of 104 feet, timbered, and all loose rock removed in four months, working three shifts per day, with six men per shift, after which, work of sinking from the Bennett to the Bottom Red Ash seam, a distance of 419 feet, was commenced. Figure 1 shows method of hoisting and removing rock while sinking. A platform was erected at the Bennett seam, at which point the rock was dumped into cars and taken to other parts of the mine. The engine by which hoisting was done was located on the surface, the rope passing down the pump way compartment of the old shaft, thence through the bore hole mentioned above, the rope being controlled and centered by two sheave wheels placed between the Cooper and Bennett seams. After the Bottom Red Ash seam was reached the 18 foot rock protection left below the Cooper seam was removed and the shafts connected.

Figure 3 shows plan of shaft at the Bennett seam. Holes about 1 inch in diameter and about 1 foot deep were drilled in each corner, into which iron rods about 3 feet long were inserted when it was desired to plumb the shaft. The four open corners shown in this plan were used for manways and ventilation.

The dimensions of the new shaft are 12 feet by 20 feet 4 inches without timber, 14 feet 3 inches of which are to be used for hoisting purposes and 3 feet 5 inches for pump way.

The shaft required 248 sets of 8 by 10 inch yellow pine timber and 180 bearing sticks 10 by 12 inches by 16 feet long. The rock being of a hard laminated nature it was found necessary to case the shaft with 2 inch plank through its entire depth.

The parallel tunnel being driven from the Twin to Red Ash vein is about completed. It will serve as a second opening and return for the seams intervening between this vein and the Bottom Red Ash split.

The surface improvements consist of a brick and concrete powder house, a brick and concrete oil house, and a brick and concrete foreman and assistant foreman's office and lamp-room, all of which are considered fireproof.

Installed in the outcrop of Red Ash vein a 12-foot open-end running fan, electrically driven by belt connection.

LEHIGH AND WILKES-BARRE COAL COMPANY

Wanamie Colliery.—Completed Nos. 3 and 6 slope pumping plants.
No. 12 tunnel extended to Stanton.
No. 29 tunnel driven Baltimore to Cooper.
No. 28 tunnel driven and outside plane.

ALDEN COAL COMPANY

Alden Colliery.—One set 300 horsepower Harrisburg boilers.
New boiler house at No. 2 shaft.
One 20 by 12½ by 20 by 24 inch Norwalk air compressor.
One 7 ton Milwaukee gasoline locomotive.
One 12 by 6 by 12 inch Goyne pump.
Two 8½ by 12 inch Webster, Camp and Lane friction hoists.

PROSECUTIONS FOR VIOLATIONS OF THE MINE LAWS

December 18. Joe Wintergrass was prosecuted for swearing falsely to the age of his son. He entered a plea of guilty and was sentenced to pay the costs.

December 18. Frank Lavopis was prosecuted for swearing falsely to the age of his son. He entered a plea of guilty and was sentenced to pay the costs.

Commonwealth of Pennsylvania vs. Stackhouse Coal Company

The Stackhouse Coal Company erected a new breaker in Shickshinny, and, in violation of Section 2, Article 5, Act of June 2, 1891, were erecting a steam heat plant with boilers for the generation of steam less than 50 feet from said breaker. Under the law I served the required notice on the Company and notified them not to proceed with the erection of said steam plant, as, when operated, it would be a direct violation of the law.

I petitioned the court to issue an injunction to restrain the Stackhouse Coal Company from erecting said steam plant and generating steam therein nearer than 100 feet from said breaker. The Company in their answer to bill of complaint denied "that the steam plant in question when erected less than 50 feet from said breaker would be a violation of Section 2, Article 5, Act of June 2, 1891."

The plaintiff and the defendant agreed "that the Bill of Complaint and the Answer thereto should be submitted to the Court of Common Pleas of Luzerne County for judgment thereon, and that they would be bound by the decision of the court.

LEHIGH AND WILKES-BARRE COAL COMPANY

Wanamie Colliery.—No. 36 tunnel extended from the Baltimore No. 12 tunnel extended from the Hillman seam. No. 38 tunnel driven from Ross to Ross. No. 40 tunnel driven from Red Ash to Red Ash. No. 39 tunnel driven from Hillman to Kidney.

ALDEN COAL COMPANY

Alden Colliery.—A tunnel 410 feet long has been driven from the Red Ash to the Ross vein in No. 2 shaft workings. One 10 inch by 14 inch Vulcan hoist has been installed on Red Ash slope. A Chambersburg steam hammer and a Wiley and Russell bolt machine have been added to the shop equipment.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held in the Susquehanna Coal Company Building, Nanticoke, May 18 and 19. The Board of Examiners was composed of Joseph J. Walsh, Mine Inspector; F. H. Kohlbraker, Superintendent; John Keating and Albon Gonsoski, Miners.

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

MINE FOREMEN

Thomas J. Arnott, Daniel P. Bolton, John W. Jones and Mark Lloyd, Nanticoke; Martin Burns, Evan T. Jones, Charles R. Price, Glen Lyon; George Hutchinson, William L. James, Concrete City; Edward Dearing, Kingston; Thomas Fenton, Dorranceton; Lewis Keating, Edwardsville; Thomas Murphy, Wanamie.

ASSISTANT MINE FOREMEN

Daniel Blackwell, John Clark, John T. Davies, Joseph Hocken, James H. Jenkins, Daniel Jones, Reese Jones, Thomas Klugo, Thomas X. Palmer, Louis Ramlow, Thomas H. Roberts, William H. Ruck, George Ruck, John H. Thomas, Jr., Charles B. Trenery, Henry L. Watkins, Nanticoke; James Connor, Larkesville; David Jones, Concrete City; John E. Richards, Warrior Run; Martin Zawatzki, Glen Lyon.

Installed 25 new steel body mine cars at colliery.
Placed 139 sets of steel timber in the North shaft.
No. 59 tunnel, from Middle Ross to Top Ross seam, South shaft, was driven 45 1-3 yards during the year.
No. 62 tunnel from Mills to Hillman seam, North shaft, was driven 35 yards.
Installed in the North shaft 3 Westinghouse 8-ton locomotives.
At No. 8 shaft, electric sub-station was erected.
An air compressor 14 by 9 by 12 was installed.

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Auchincloss Colliery.—Outside: Renewed cross-arms carrying high tension lines. Installed two 27-ton steam locomotives to transport coal from Auchincloss to Loomis.
Inside: Rock tunnel, Baltimore to Mills vein, 72 feet long, was driven.
Installed electric hoist, No. 24 tunnel, Baltimore vein, No. 2 shaft.
Rock tunnel from Hillman to Mills vein, 150 feet long, was driven.
Installed one 7-ton reel locomotive, Ross vein, No. 2 shaft.
Installed one 7-ton locomotive, No. 23 tunnel.
Bliss Colliery.—Outside: A new sprinkling system was installed in the breaker.
Air shaft from the surface to Mills seam was enlarged and provided with iron stairway.
Inside: No. 15 slope was driven from Ross to Ross vein through fault, 159 feet long.
New pump station at Baltimore landing was completed, and one Scranton pump, size 28 by 12 by 36, capacity 1,200 gallons per minute, was installed.

LEHIGH AND WILKES-BARRE COAL COMPANY

Wanamie No. 18 Colliery.—Outside: Completed during the year, 18 by 30 inch tower hoisting engines and brick house. Brick colliery shop. 24 by 42 inch hoisting engines and brick house, No. 2 slope.
Inside: No. 36 tunnel extended Baltimore to Baltimore; No. 26 tunnel extended Baltimore to Kidney; No. 38 tunnel extended to Ross; No. 6 slope extended Bottom to Top Red Ash; tunnel driven Hillman to Top Hillman.

ALDEN COAL COMPANY

Alden Colliery.—Rock plane driven from Cooper to Hillman; air shaft driven from Cooper to Hillman; rock slope driven from Cooper to Bennett in the North basin.
One pair 15 by 18 inch geared Vulcan engines installed for a tower hoist, at the breaker.
An 18 by 30 by 10 by 36 compound duplex Goyne pump, with a 10 by 14 by 18 condensor, has been installed at the bottom of No. 1 shaft.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held in Nanticoke, June 6 and 7. The Board of Examiners was composed of Joseph J. Walsh, Mine Inspector; F. H. Kohlbraker, Superintendent; John H. Keating and Albon Gonsoski, Miners.