

electric lamps, pulmotor, etc. They also have a trained corps of employes who are able to equip themselves with this apparatus at any time in case of mine fire.

The working of installing two 20-foot Jeffrey ventilating fans on Woodward No. 3 shaft has been commenced and will be completed in the early part of 1911.

A massive steel frame has been erected over No. 3 shaft.

Avondale Colliery.—Outside: Erected new locomotive house for mine locomotive.

Breaker improvements consisting of additional rolls, elevators, etc.

Inside: The work of extending rock tunnel from Ross vein to Surface vein was progressing very well until interrupted by the general "squeeze" referred to above.

The work of installing a 25-foot ventilating fan is now being held up on account of inside conditions.

Loomis.—The work of sinking these two shafts is being proceeded with and they have now reached a depth of 465 feet in No. 1 shaft and 375 feet in No. 2 shaft.

A 20-foot Jeffrey ventilating fan is being installed on the air drift, equal distance from each shaft, which will provide sufficient ventilation when the desired seams have been reached and connections made.

The shafts are 54 feet 2 inches in length by 12 feet in the clear, and are being timbered with wall plates and studdles from the concrete foundation wall to the bottom.

The outside improvements at these openings are of a temporary nature.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held at Plymouth, Willow Street School, April 19 and 20. The Board of Examiners was composed of the following members: D. T. Davis, Mine Inspector; Thomas R. Evans, Superintendent, Plymouth; William Toner, Miner, East Plymouth, and James Addis, Miner, Edwardsville.

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

Mine Foremen

John Cassidy, Plymouth; Daniel D. Davis, Kingston; James B. Lewis, Plymouth; Richard Lewis, Plymouth; Samuel Pritchard, Edwardsville; George A. Spare, Larksville; William Walters, Plymouth.

Assistant Mine Foremen

Edward P. Davis, Edwardsville; Thomas Dougherty, Plymouth; William Edwards, Plymouth; James Wolf, Plymouth; David J. Thomas, Edwardsville; Handel J. Jones, Wilkes-Barre; Thomas E. Jones, Plymouth; Addison Keating, Edwardsville; William King, Lee Park; Andrew Mahler, Plymouth; Thomas Morcom, Plymouth; John Mitchell, Plymouth; George McKechnie, Edwardsville; Joseph G. Morris, Edwardsville; William J. Morgan, Plymouth; John Nichols, Plymouth; John L. Picton, Plymouth; Timothy Price, Edwardsville; Charles Roberts, Plymouth; Thomas Rowlands, Edwardsville; William Russell, Courtdale; Thomas H. Rowlands, Plymouth.

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Avondale Colliery.—A new ventilating fan 25 by 8 by 8 feet, was placed in operation during the year.

The colliery resumed operations on a small scale during the month of November, after being idle the entire year, due to the subsidence that took place at this plant, by which a large quantity of water was permitted to flow into the workings from the bed of the Susquehanna River. The work of re-opening is being proceeded with as fast as conditions permit.

Installed in No. 1 slope, Red-ash vein, a 3,500 gallon centrifugal, electrically operated pump.

The colliery has also been equipped during the year with four Draeger helmets, and men have been trained in their use. This apparatus is kept in a small brick building, and is examined frequently by a man-detailed for that work to see that it is kept in good condition.

Loomis Colliery.—The two shafts 50 feet 4 inches by 12 feet, sunk on this property have now reached the Hillman vein, 930 feet below the surface. Connections have been made between the shafts and preparations are being made for the erection of a 12-inch concrete partition separating hoistway and airway. When this work is completed and towers are erected, coal will be mined and shipped to Bliss colliery, Hanover township, for preparation.

The slope on 15 degree dip, which is being sunk from the Surface to the George vein, has passed through the upper seams and reached a depth of 645 feet.

A 20-foot Jeffrey ventilating fan is in running condition. Plans for the erection of breaker are under way, and work on the breaker will be started during the year 1912.

BRIGHT COAL COMPANY

During the year the Bright Coal Company put down a well on the property of John Barry. It is 327 feet deep and has a diameter of 6 inches and a capacity of 72 gallons per minute. It supplies the Company with sufficient water for all purposes.

MINE FOREMEN'S EXAMINATIONS

The annual examination of applicants for certificates of qualification as mine foremen and assistant mine foremen was held in the Willow Street School, Plymouth, April 4 and 5. The Board of Examiners was composed of D. T. Davis, Mine Inspector, Wilkes-Barre; H. G. Davis, Superintendent, Kingston; William Toner, Miner, Larksville; James Addis, Miner, Edwardsville.

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

Mine Foremen

Joseph Dzialdowski, Glen Lyon; Milton R. Edwards, David G. Jones, Charles E. Rowe, S. Fuller Reynolds, David J. James, David R. Humphreys, Plymouth; William W. Jones, John E. Morris, Edwardsville; William L. Richards, Courtdale; Edward W. Taylor, Charles T. Gallagher, Larksville.

LEHIGH AND WILKES-BARRE COAL COMPANY

Nottingham No. 15 Colliery.—Inside: Built fireproof mule barn. Remodeling pumping plants, No. 1 slope. Completed rock manway from surface to Ross vein at Reynolds.

Outside: Completed mule barn at Reynolds, steam line to River pump and bore hole.

Lance No. 11 Colliery.—Inside: Completed fireproof mule barn. Installing concrete and steel timbering in No. 4 tunnel and shaft landing and also in small engine and pump rooms. 12-inch bore hole for steam line to shaft level pump; Tunnel for air return, Stanton to No. 2 air shaft.

Inman No. 21 Colliery.—Finished development in Baltimore vein.

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Woodward Colliery.—Completed the installation of, and put in operation the 20-foot ventilating fan on No. 2 shaft to take the place of two 16-foot ventilating fans. The new fan is giving much better results than the old ones gave. The work of sinking a slope on the Five Foot seam is under way, and a rock tunnel has been driven for a second opening from No. 3 East lift, No. 1 slope, Lance vein to Cooper vein.

Avondale Colliery.—The work of reopening this colliery after the squeeze of 1910 in the Red Ash vein is about completed. The Ross vein, however, is still under water. Completed the work of installing large capacity centrifugal pumps, electrically operated, in Red Ash vein. Preparations are now being made for the installation of larger capacity pumps in the Ross vein, by which this seam will soon be unwatered.

Loomis Colliery.—The work of development is going on as fast as circumstances permit. Gangways are being driven east and west of Nos. 1 and 2 shafts in the Mills and Hillman veins. The work of installing and electrically operated plunger pump at the foot of No. 2 shaft is under way. The buildings for the housing of the shaft hoisting engines, mule barns, store room, boiler house, etc., are under way and will be of fireproof construction.

Along the old river road they are erecting large and commodious houses as residences for the foreman and their assistants.

This Company made special effort during the year to reduce the number of accidents in and about the mines. Notices have been posted at the mines calling attention to the fact that "safety is the first consideration," and the pay envelopes have also been printed with the inscription "Safety First Consideration."

PARRISH COAL COMPANY

Buttonwood Colliery.—Inside: Completed 3 concrete engine houses. Built new pump room at foot of shaft, also repaired and concreted the other two pump rooms. Built concrete barn in Abbott vein and one in Stanton vein. Drove 2 rock tunnels through a fault in Stanton vein, each 100 feet long, for production. Extensive work on No. 11 slope in Stanton vein to shorten haulage and place engine. Silting in Abbott vein to strengthen pillars near shaft.

Outside: Washery was completed.

Avondale Colliery.—The work of reopening this colliery after the squeeze of 1910 is not yet completed. The major portion of the workings in which there is virgin coal is in fairly good condition. The Ross vein section, No. 5 slope, is still under water. A large centrifugal electrically operated pump will be installed to remove the water and the mining of coal will be continued.

Loomis Colliery.—The work of development at this colliery is under way; the coal is being shipped for preparation to the Bliss colliery. Installed shaft hoisting engine and steel shaft head frame. The foot of the shaft openings in the Hillman vein is being equipped with concrete side walls and I beams, and single passageways for persons to travel from waiting rooms to foot of shafts when about to be hoisted to the surface. All the work is of a very substantial and permanent character.

The buildings on the surface are of concrete and brick construction.

A 20-foot multi-blade fan is being installed.

The work of widening out the old Dundee shaft to the Mills vein will soon be started. It is also proposed to sink a four compartment shaft from the surface to the Hillman vein, a short distance south of Butzbach's landing, the coal from which will be prepared at the Loomis breaker now under construction. This breaker will have many unique features. It will be constructed of reinforced concrete from the surface to the pocket lines; the rest of the building will be of steel and wired glass. It is intended to make it as nearly fire-proof as possible. It is also to be a very large producer. 6,000 tons of coal per 9 hour day will be shipped to market. The company has a large undeveloped territory of coal surrounding these openings. The boiler plant and other equipment will all be of the latest design.

KINGSTON COAL COMPANY

Kingston No. 2 Colliery.—Completed a 12-inch concrete, reinforced steel partition from the Ross vein to the Orchard vein close to the surface and the old wooden brattice was removed from No. 3 shaft.

Installed an 8 by 25 foot double intake fan at the Old slope, driven by 18 by 30 inch direct connected Corliss engine, all encased in concrete, reinforced steel building and connected by concrete upcast to the fanway at the outcrop of the Eleven Foot vein.

Built an addition 22 by 68 feet to the miners' wash house at No. 2 shaft. The wash house is now equipped with six showers, a battery of twelve wash stands, twenty-eight tubs and two hundred and eighty-eight lockers.

Completed a pump discharge bore hole, 315 feet deep, from the surface to the Checker vein No. 3 shaft, dispensing with the cast iron culm line in the shaft.

Completed the addition to the boiler plant at No. 2 and installed 300 H. P. B. and W. boilers; also transferred from the washery and installed at No. 2 300 H. P. B. and W. boilers.

The boiler house is covered by steel truss galvanized iron roof and Pond steel continuous sash ventilator frames.

Gaylord Colliery.—The pump and boiler at the river for supplying wash water were replaced by an Aldrich vertical triplex pump 11 by 12 inches, with a 50 H. P. A. C. electric motor.

Lance No. 11 Colliery.—Inside: Completed No. 8 slope, Top Baltimore to Bottom Baltimore; No. 28 slope, Bottom to Top Red Ash; and No. 29 tunnel, Top Baltimore to Five Foot. Installed a 10 inch by 36 inch compound pump in Hillman vein.

Parrish No. 23 Colliery.—Inside: Completed No. 1 slope, Baltimore to Baltimore; and built a new barn. Installed electric haulage on 2nd West Baltimore and a centrifugal pump and gravity water pipe to No. 14 tunnel.

Buttonwood No. 22 Colliery.—Inside: Completed No. 10 tunnel, Kidney to Abbott; No. 11 tunnel, Stanton to Stanton; and No. 12 tunnel, Surface to No. 6 vein. Installed electric haulage on shaft level and 2nd East, No. 2 plane; also new pumping plant on shaft level.

Outside: Erected colliery shop, breaker engine-house hoisting house, timber yard and saw mill. Reconstructed the power plant and boiler plant. Installed electric haulage, Buttonwood to Inman No. 21, and breaker wash pump and reservoir.

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Woodward Colliery.—Steam generators have been replaced by electric motor generators. Electric power is being generated at the Nanticoke power plant and transmitted by high tension lines, transformed and stepped down as necessity demands at the colliery.

Concrete walls and I beams have been placed around the shafts, thus reducing the fire risk considerably. Completed several rock tunnels for development and ventilation purposes.

Installed two 20-foot fans outside.

Loomis Colliery.—Completed a new shaft known as Loomis No. 3, near Butzbach's Landing, from surface to Hillman. Preparations are being made for the widening out of the Old Dundee shaft.

Avondale Colliery.—Completed reopening of the Red Ash vein; also second opening for No. 9 tunnel, Ross to Hillman, to be connected at the Five Foot vein. The Ross vein section, No. 5 slope, is still under water. Installed pumping equipment to remove the water from this colliery, the flooding of which was caused by the inflow of a large quantity of water from the Susquehanna River bed after the squeeze of November, 1910.

KINGSTON COAL COMPANY

Kingston No. 2 Colliery.—Inside: Completed two tunnels, one from Cooper to Bennett vein, and the other from Cooper to Lance vein, for haulage and second opening, also a tunnel in No. 3 shaft through roll in the Eleven Foot vein. Installed an electric hoist in No. 1 plane, Ross vein; and a new system of culm and surface clay and rock flushing. An emergency hospital was built near the main turnout of the Eleven Foot vein in the slope. The sides around the foot of No. 2 shaft were reinforced with concrete-steel.

Outside: Installed a new 6-inch bell mouth water line, 2,400 feet in length from fresh water tanks for fire emergency, and a new 8 inch by 6 inch by 10 inch Scranton Duplex pump. Fitted up brick

tunnel airway, Abbott to Abbott; No. 15 tunnel, Baltimore to Five-Foot; No. 9 rock plane, Stanton to Hillman, and rock slope on shaft level.

Outside: Completed an oil and lamphouse, washhouse, lumber shed and motor house. Installed a 27 by 40 by 22½ by 30 inch air compressor and fuel conveyor.

At the Parrish, changes were made to breaker so as to connect with washery operations. Completed lamphouse and inside foreman's office, oilhouse and blacksmith shop.

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Avondale Colliery.—Completed rock tunnel from Ross vein across measures to Hillman vein, a distance of 1650 feet, and made a second opening for same; also rock tunnel through fault in No. 10 slope and rock return airway, parallel with No. 2 slope, to assist in ventilating the live workings. Built a blacksmith and carpenter shop of concrete and brick. Installed pumps for unwatering the mine workings flooded in November, 1910, and pumping equipment in No. 5 slope section of Ross vein. The installation of this pumping equipment has been very costly and the expense of reopening the colliery shows that to mine anthracite coal in the Wyoming Valley requires capital, as the dangers from flooding are quite imminent.

Loomis Colliery.—This colliery is, perhaps, the most wonderful operation of its kind in style and construction, that has ever been erected in the anthracite region. The breaker building and annex or washery is practically fireproof, and is constructed of concrete, steel and wire glass, and all the other buildings are most modern in their equipment. The breaker will be completed during the year 1916. It is electrically operated, with separate units, and is expected to have a large capacity. There are already miles of gangway developed, so that a large tonnage might be expected as soon as the breaker is placed in operation. The work of sinking No. 3 shaft, near the Susquehanna River, is underway. The shaft will be sunk to a depth of about 660 feet to the Hillman vein. The old Dundee shaft is also to be widened and sunk to the Ross vein bed.

Woodward Colliery.—Preparations are now being made to reconstruct the breaker of concrete, steel and wire glass; this building was placed in operation during the year 1888. It has been a large producer for the past ten years. It was the first breaker that prepared 1,000,000 tons of coal in a year, which was accomplished in 1905. Side walls are being built and "I" beams placed for roof support, instead of ordinary mine timber along the haulage roads. This is in line with the progressive movement established some years ago by this company. Completed the driving of rock tunnels for the necessary development and transportation of the coal.

DELAWARE AND HUDSON COMPANY

Plymouth No. 2 Colliery.—In November the breaker was abandoned and the coal is now being prepared at Plymouth No. 5 breaker. Completed a tunnel, 290 feet, from the Stanton vein to the Hillman vein.

CONDITION OF COLLIERIES

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Loomis Colliery.—Ventilation, drainage and roads, good. Condition as to safety, good.

Avondale Colliery.—Ventilation fair. Drainage, roads and condition as to safety, good.

Truesdale Colliery.—Ventilation, drainage and condition as to safety, good. Roads fair.

LEHIGH AND WILKES-BARRE COAL COMPANY

Sugar Notch No. 9 Colliery.—Ventilation, roads and condition as to safety, good. Drainage fair.

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

Buttonwood No. 22 Colliery.—Ventilation, roads and condition as to safety, good. Drainage fair. In the Parrish section, ventilation, drainage, roads and condition as to safety were good.

LEHIGH VALLEY COAL COMPANY

Warrior Run Colliery.—Ventilation, drainage and roads, fair. Condition as to safety, good.

Franklin Colliery.—Ventilation and condition as to safety, good. Drainage and roads, fair.

GEORGE F. LEE COAL COMPANY

Chauncey Colliery.—Ventilation and condition as to safety, good. Drainage and roads, fair.

PITTSTON COAL MINING COMPANY

Hadleigh Colliery.—Ventilation and drainage, fair. Roads and condition as to safety, good.

WEST NANTICOKE COAL COMPANY

West Nanticoke Colliery.—Ventilation, roads and condition as to safety, good. Drainage fair.

IMPROVEMENTS

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Loomis Colliery.—Completed roof cut in Mills vein, No. 1 tunnel, length 307 feet, and built concrete mule barn in No. 2 shaft.

Installed two 1,800-gallon centrifugal pumps, with motors, transformers, etc., one 7-ton locomotive with reel device; 4 self-dumping cages in Nos. 1 and 2 shafts; and steel supports for passing branch at head of No. 2 slope.

Outside: Built a new breaker, blacksmith, carpenter and machine shop, also shaft head-frames for Nos. 1 and 2 shafts, and shaft head-frames for No. 3 and Dundee shafts. Completed feed lines from substation to breaker and PA Mine Inspection 1916

Installed machines, tools, etc., in machine shop. Built bridge to No. 3 shaft. Installed one 500 rotary converter, transformers, etc., loaded and retail scales, main conveyer line from Nos. 1 and 2 shafts to breaker. Placed a concrete floor in compressor and fan house.

Avondale Colliery.—Built a blacksmith, carpenter and machine shop.

Truesdale Colliery.—Completed rock tunnel, 453 feet, in Bottom Red Ash vein; rock tunnel, Mills to Hillman vein, 222 feet in length; rock skip No. 4 west airway, No. 1 slope, Mills vein; surface rock slope, No. 20 tunnel, length 780 feet; rock plane from George to Mills vein, length 249 feet; Rock tunnel, Red Ash to Ross vein, No. 2 slope, length 72 feet; rock tunnel, No. 3 slope, for passing branch, length 87 feet; extension of No. 9 slope in rock, length 363 feet; extension of No. 8 tunnel, Cooper to Hillman vein, length 370 feet; second opening rock plane from Top Red Ash to Ross vein, length 61 feet; second opening to No. 2 west lift, No. 6 slope, Hillman to Mills vein, length 87 feet.

Installed one 500 steam hammer for blacksmith shop; motors in three small air hoists; 7-ton locomotive with reel, etc., in No. 2 East lift, No. 6 slope; 7-ton locomotive with reel, etc., in No. 1 slope, Mills vein; 7-ton locomotive with reel, etc., in No. 3 east lift, No. 7 slope; and steam hoist for Forge vein plane, No. 1 tunnel.

LEHIGH AND WILKES-BARRE COAL COMPANY

Sugar Notch No. 9 Colliery.—Completed No. 31 tunnel, Twin to Hillman; No. 33 tunnel, Five Foot to Hillman; No. 34 tunnel, Red Ash to Twin; and No. 32 tunnel, Twin to Hillman.

Maxwell No. 20 Colliery.—Completed No. 31 tunnel, Red Ash to Ross; and No. 30 tunnel, Hillman to Kidney.

Buttonwood Colliery.—Completed No. 10 tunnel and tunnel airway extension to Abbott; tunnel No. 4 to No. 4 vein, and No. 16 tunnel, Abbott to Abbott.

At Inman No. 21 shaft, completed concrete and steel timbering, Hillman shaft level.

Outside: Installed one 32 by 48 inch duplex Corliss valve shaft engine for Hillman shaft, and also one for Baltimore shaft at Inman No. 21. Also built a brick engine house. Two steel head-frames, one for Baltimore shaft and one for Red Ash shaft, were built.

At Parrish washery, a 600 H. P. boiler plant was installed for Parrish slope.

LEHIGH VALLEY COAL COMPANY

Warrior Run Colliery.—Built a new concrete hospital in No. 4 tunnel level.

Outside: Constructed 2,000 feet of new 4 by 8 foot flume to carry creek and surface waters. The old flume was destroyed and washed out by cloudburst of June 27, 1916.

Franklin Colliery.—Completed No. 33 tunnel, from Baltimore to Sump vein; extension of No. 34 tunnel from Ross to Skidmore vein. Started driving No. 35 tunnel from Skidmore to Skidmore; No. 36 tunnel, from Skidmore to Skidmore through an anticlinal; No. 37 tunnel, Sump to Sump vein through fault; and No. 11 tunnel, on No. 4 tunnel level to the breaker.