

TAYLOR COLLIERY DRIFT.

This drift is located in Lackawanna township and lying about one-fourth of a mile north-west of the Lackawanna river; it is about 1,800 feet to the face of the drift; size 7½ feet by 7 feet. John S. Powell is mining boss, and J. P. Cooper is outside foreman.

Description.—The coal mined at this drift is prepared at the breaker; they mine about 110 tons of coal per day; they employ 11 miners, 11 laborers, 5 drivers, 2 door-boys and 4 company men in the mine; in all 33 men and boys; they are working the "F" vein of coal; average thickness 7 feet; they work headings 12, airways 15 and chambers 20 feet wide; they leave pillars from 5 to 6 yards to sustain the roof; they leave cross-entrances 60 feet apart for the purpose of ventilation; the roof is good slate; the mine is in a good working condition.

Ventilation.—Ventilation is produced by means of a furnace; it is located about 1,500 feet west of the mouth of the drift; the intake is located at the mouth of the drift; size about 52½ feet; the upcast is in Furnace shaft; area 144 feet; the amount of fresh air per minute is 16,240 cubic feet; there is very little inflammable gas evolved in the mine; the main doors are hung so that they will close of their own accord; they have attendants at the main doors; they have double doors on main traveled roads and an extra one in case an accident should happen to any of the others; the air is circulated to the face of the workings in one volume; the amount of ventilation has been measured and reported; ventilation is good.

Remarks.—There is no machinery required in the workings; they have furnished a map of the mines; they have a second opening; they have a house for men to wash and change their clothes in; the mining boss is a practical and competent man; there are no boys working in the mines under twelve years of age; the parties having charge know their duty in case of death or serious accident.

CORAY BREAKER COLLIERY.

This breaker is located in Lackawanna township, and situated about one-fourth of a mile south-east of the Lackawanna river; it is operated by the Lackawanna and Susquehanna coal and iron company; Thomas B. Williams is general superintendent, William Reese is mining boss and William H. Daily is outside foreman.

Description.—The opening to the coal consists of two tunnels, namely, Nos. 4 and 5; they are located one mile east of the breaker; they mine and prepare from 300 to 400 tons of coal per day; they employ at No. 4 tunnel 20 miners, 8 laborers, 9 drivers, 5 door-boys and 3 company men, and at No. 5 tunnel 20 miners, 20 laborers, 15 drivers, 6 door-boys and 6 company men in the mines; 34 slate pickers, 11 head and plate men, 6 drivers, 16 company men, 8 mechanics and 2 bosses outside; in all 198 men and boys; they are working the — vein; average thickness, 6 feet; they work headings 15, air-ways 15 and chambers 30 feet wide; they leave pillars about 12 feet wide to sustain the roof; they leave cross-entrances about 60 feet apart for the purpose of ventilation; the roof is good; the mines are in a good working condition.

Ventilation is produced by furnaces; the intakes are located at mouth of tunnels, areas from 50 to 60 feet; the outcasts are located in furnace air-shaft, areas from 50 to 60 feet; the amount of pure air is 16,000 cubic feet per minute; the main doors are hung so as to close of their own accord; they have attendants at main doors; the amount of ventilation has been measured and reported; ventilation is good.

Machinery.—They use 1 breaker engine, 60-horse power; the boilers have been cleaned and examined and reported in good condition; they have a steam gauge to indicate the pressure of steam; the breaker machinery is boxed and fenced off so that operatives are safe; there is no machinery required at the tunnels.

Remarks.—They have furnished a map of mines; they have a second opening; they have no house for men to wash or change in; the mining boss seems to be a practical and competent man; there are no boys working in the mines under 12 years of age; the engineer seems to be a practical and sober man; the parties having charge know their duty in case of death or serious accident; they use 2 locomotives to run coal from the mines to the breaker; the engines will average about 20-horse power each.

TAYLOR COLLIERY SHAFT.

This colliery is located in Lackawanna township, and lying about one-fourth of a mile north west of the Lackawanna river; it is 180 feet deep to the Clarke vein; the size of the opening is 10 feet by 19 feet; it is operated by the Delaware, Lackawanna and Western railroad company. Wm. R. Storrs is general coal agent, Benjamin Hughes general mine superintendent, Thos. D. Davis assistant general mine superintendent and E. R. Walter is general superintendent of collieries outside. The above named gentlemen have charge of all the collieries operated by the Delaware, Lackawanna and Western railroad company. John S. Powell is mining boss and J. P. Cooper is outside foreman.

Description.—There is a double breaker connected with this mine, attached to the shaft tower. The coal mined in the shaft and drift of this colliery is prepared here; they mine 490 tons and they prepare 600 tons of coal per day; they employ 59 miners, 50 laborers, 28 drivers, 5 door-boys and 18 company men in the mine; 74 slate pickers, 9 head and plate men, 5 drivers, 21 company men, 10 mechanics and 2 bosses outside; in all 281 men and boys. They are working the Clarke vein of coal; average thickness 9 feet; they work headings 12, air-ways 18 and chambers 30 feet wide: they leave pillars from 5 to 7 yards wide to sustain the roof; they leave cross-entrances from 40 to 50 feet apart for the purpose of ventilation; the roof is slate; the mine is in a good working condition.

Ventilation.—Ventilation is produced by means of a fan located close to the main shaft; the intake is located in the second opening; it contains an area of fifty-two feet; the upcast is located in main shaft; it contains an area of 100 feet; the amount of pure fresh air is 50,960 cubic feet per minute; there is no noxious and inflammable gas evolved in this mine; the mine is examined every morning before the men go to work and every evening to see that the main doors are all closed; the main doors on headings and airways are hung so that they will close of their own accord; they have attendants at main doors; they have double doors on main traveled roads and an extra one in case an accident should happen to any of the others: the air is circulated to the face of the workings systematically by the aid of check doors, &c.; the amount of ventilation has been measured and reported according to law; ventilation is good.

Machinery.—The engines in use at this colliery are one pair of hoisting engines of 120-horse power; one fan engine of 80-horse power, one pumping engine of 110 horse power, one breaker engine of 60-horse power, all in shaft and pumping engine rooms, two steam pumps, one 20 and the other 12-horse power, in fire engine and boiler rooms, and one steam-pump at foot of small shaft, which is located twenty-feet north of main shaft, of 100-horse power; they have a metal speaking tube in the shaft; they have two safety-carriages with all the modern improvements on it: they have flanges of sufficient strength and dimensions for safety and an adequate brake on the hoisting drums; they use standard wire ropes with clevis and cone attachment; the boilers have been cleaned and examined and reported in good condition according to law; they use a steam-gauge and safety-valves for safety and to indicate the pressure of steam; the breaker machinery is boxed and fenced off so that operatives are safe; the shaft-landings are protected by safety-gates.

Remarks.—They have furnished a map of the mine; the second opening is a traveling way driven to the surface, and it is in a good safe condition; they have a house for men to wash and change their clothes in; the mining boss is a competent and practical man; he has a fire-boss to assist him; there are no boys working in the mine under twelve years of age; the engineers seem to be experienced, competent and sober men; there are no persons allowed to ride on carriages in the shaft: the mine rules compel persons to walk in and out the second opening; the parties having charge know their duty in case of death or serious accident; all the mines operated by the Delaware, Lackawanna and Western railroad company compare favorably with any others in this country for uniformity and system; they established a code of mine regulations which are executed and they prevent a great many deaths and accidents; the ventilation of their mines and their mode of conducting the air currents to the face of the workings are systematical.

whole number at present in the district is forty-nine. One old fan was replaced with a new one, and two have been removed from one mine to another. Several air-shafts have been sunk, and a large amount of work has been done inside of the mines, for the purpose of utilizing a greater proportion of the air entering them.

The Delaware, Lackawanna and Western Railroad Company still carry the palm for having the best ventilated mines—all of their collieries having excellent ventilation, with the single exception of Tripp's slope. This slope needs attending to, and it is expected that long before the close of the current year, there will be no cause of complaint even here. A new fan, twelve feet in diameter, and three feet six inches face, was erected at the air-shaft connected with the Hampton shaft in place of a furnace, which has increased the ventilation from forty-four thousand six hundred to sixty-two thousand six hundred cubic feet per minute. This fan commenced running on the 27th of October.

The Dodge shaft is also ventilated at present by the fan at the Scranton Coal Company's slope adjoining, which has been lying idle for years. This also is a change from the furnace heretofore used, and has undoubtedly been affected, because it is so much cheaper to run a fan than to keep up a fire in a large furnace. The furnace in this instance produced more air for the Dodge shaft than the fan does, but the fan furnishes ventilation for the Scranton mines in addition to the Dodge. The furnace at the Dodge has produced as high as one hundred and forty-two thousand cubic feet per minute, exerting a horse power of 26.66 to move the air, and I doubt very much that another furnace is to be found in any colliery in the country, that will give so favorable a result. It is a double furnace, having an aggregate grate surface of one hundred and twelve square feet, the depth of the upcast being three hundred and thirty feet, and the sectional area, one hundred and thirty-two square feet. As an example of a first class furnace, I here insert a plan of it. There are two other furnaces—one at the Hyde Park shaft, and the other at the No. 2 Diamond slope—both of them sisters to the one at the Dodge, but neither of them has ever produced the quantity of air that this one has, and the difference is accounted for by the comparative shallowness of the upcasts which makes a great difference in the height of the motive column. A new fan has been put in to replace an old one at the Sloan shaft, the old one being so much worn as to require the change.

A number of the collieries of this company are quite fiery, especially the Taylor shaft, Bellevue shaft, Bellevue slope, Dodge Shaft, Sloan shaft, Central shaft, and Hampton shaft, while there is considerable gas generated in nearly all of the others. But the ventilation is so sweeping, that no explosion can occur unless it be through want of proper distribution, or through some inexcusable blunder. I find the general mine superintendents, Messrs. B. Hughes and T. D. Davies, always careful, and prompt to inaugurate improvements whenever such are needed, and they always manifest a cheer-

16 MINE REP.

P. at 150 pounds pressure, divided into seven and one-half batteries Babcock & Wilcox vertical headed water tube boilers. They are fitted up with McClave & Brooks Automatic Stokers and self-feeding arrangement for fuel from storage pockets, and also have attached the Green Economizers, divided as follows: One for eight batteries and one for seven and one-half batteries, with induced fan draft in connection with forced fan draft. This plant is all under one roof. The steam pipe connections are as follows: To Sloan shaft 1,420 feet of 8 inch pipe. To Central shaft 1,400 feet of 8 inch pipe. To Hyde Part shaft, 3,140 feet of 8 inch pipe. To Hampton Shaft, 1,400 feet of 12 inch pipe. To Continental shaft 1,500 feet of 8 inch pipe. The above plant takes the place of ninety-five boilers, cylinders and locomotives. A new reservoir 100 feet in diameter has also been located near the plant which will hold 500,000 gallons of water.

At Pyne shaft a tail rope system of haulage is being installed. Length of main rope 4,000 feet; size of engines 15 feet x 30 feet geared.

Sloan Mine.—A new air shaft has been sunk to the surface vein and a connection driven from the bottom to the upcast compartment of main shaft. A new ventilating fan will soon be erected over this shaft. The fan which is now ventilating the mine and is located at the breaker over the main shaft will be removed, thus reducing the risk from fire, and at the same time doing away with the possibility of the air—which is being exhausted, entering the downcast again.

New Water Shaft.—A new shaft is being sunk at a point between the Central and Sloan shafts. This shaft is 8'x33' in the clear, and will be 500 feet deep. It is to be used to drain the mine workings of the company's Keyser Valley collieries. When the work is finished it is proposed to raise 7,000,000 gallons of water every twenty-four hours, by the use of buckets.

An electric motor system of haulage has been installed in the Dodge mine, and a new steam generating plant erected, at a point between the Dodge and Bellevue breakers. This plant will supply steam to the two mines and breakers.

A new ventilating shaft has been sunk at the Taylor mine from the surface to the Clark vein.

In the Manville shaft of the Delaware and Hudson Company and the Delaware, Lackawanna and Western Railroad Company, and the Delaware, Lackawanna and Western Company's Holden shaft, the old cribbing has been removed and replaced by expanding metal. The work was successfully accomplished in each case, and the result is highly satisfactory.

The improvements made in the several mines in the district are of the usual kind, and as important as the condition of the mine required and the increased output demanded.

Taylor Colliery.—General repairs in breaker and bracing tower. Installed electric lights in breaker and buildings. Concreted and timbered pump shaft. New brick hoisting house. New supply engine house. New brick and concrete oil house. New water line for fire purposes.

Holden Colliery.—General breaker improvements. New set bony rolls. Braced breaker tower. New brick fire pump house and mine foreman's office. Fuel conveyor line from breaker to boiler plant.

National Colliery.—Installed new scales for light and loaded tracks. Concreted main shaft. Erected new scale house and office. New washery annex. Now in course of construction new boiler house and heater and pumps.

DELAWARE AND HUDSON COMPANY

Greenwood Colliery.—No. 1 slope in No. 2 Dunmore vein driven 375 feet.

SCRANTON COAL COMPANY

Capouse Colliery.—Sunk main shaft from Clark vein to bottom vein, distance 194 feet. Sunk No. 2 shaft from Clark vein to bottom vein, distance 194 feet. A water level tunnel was driven on west side of shaft from Clark vein to Dunmore vein, distance 794 feet.

Pyne Colliery.—A second opening rock tunnel was driven from the New County vein to the Big vein, size 7 feet x 12 feet, length 200 feet, pitch 18 degrees. Installed one 200 K. W. electric rotary converter for mine haulage purposes. Installed and working two 6½ ton motors without reels, and five 6½ ton motors with reels. Installed new water fire lines for protection outside to breaker and out-buildings. Installed 2½ batteries or 10 boilers of the Babcock and Wilcox water tube type, 1515 horse power. Brick building, boilers brick lined, iron trusses for roof, and equipped with Parson's steam blower. Cylinder boilers and old boiler house removed. Hoisting engines were remodeled and removed further away from breaker onto a new foundation and in a new brick building.

Archbald Colliery.—Installed two batteries or 8 boilers of the Babcock and Wilcox water tube type, 1212 horse power. Brick buildings, boilers brick lined, iron trusses for roof, and equipped with Parson's steam blower. Old cylinder boilers removed and old boiler house torn down and removed. Installed fire lines and plugs on the outside for fire protection. Rock tunnel driven from Rock to Diamond vein, size 7 feet x 12 feet, and 75 feet long. Rock plane tunnel from New County vein to Big vein, size 7 feet x 14 feet, length 220 feet.

Continental Colliery.—Second opening rock tunnel driven from Dunmore No. 2 vein to Clark vein, size 7 feet x 12 feet, length 125 feet.

Sloan and Central Collieries.—Second opening rock tunnel driven from Clark vein to New County vein, 7 feet x 12 feet, length 150 feet. Also to do away with hoisting coal at the Central main shaft to the surface, and hauling over with steam locomotive to Sloan breaker; the coal is now transported by electric motor from Central to Sloan under ground, in the Clark vein. Six additional reel motors were installed at this mine during the year.

Dodge Colliery.—A new brick hoisting engine house, size 36x36; and a new pair of direct acting engines, size 22 inches x 36 inches. A new washery annex, size 24 feet x 60 feet for small sizes, capacity 400 tons per day.

Taylor Colliery.—Installed 4 new tubular boilers, 150 horse power each, also brick boiler house for the same, size 53 feet x 41 feet. Installed pair of breaker engines 12x30 inches in a new brick building 36 feet away from breaker. Rock tunnel driven from New County vein to Clark vein, size 7x14x184 feet, also new air shaft for ventilation from New County vein to Clark vein to ventilate above tunnel, size 8x10x23 feet.

LEHIGH VALLEY COAL COMPANY

William A. Colliery.—A new boiler plant consisting of seven batteries, with 2100 horse power was completed. A steam line was extended from this plant to the Lawrence and Babylon mines, and the steam for the three collieries is now furnished from this plant. New cribbing was placed in the main shaft. One pair of 12x22 inch hoisting engines was placed in the Clark vein to replace the old pair which was too small for the work. One 1000 and one 600 gallon pump was placed in the Red Ash vein for silting.

Lawrence Colliery.—A William's crusher was installed to dispose of refuse from breaker, which is run in the mine.

Sloan.—One 100 H. P. electric hoist on Dunmore vein slope, induction motor. Three $6\frac{1}{2}$ ton electric locomotives installed to operate in the Surface and New County veins.

One 200 K. W. rotary converter at water shaft to supply power to Sloan New County vein. One 4x14 feet dust fan, in progress of erection, to take the dust from the breaker.

Bellevue.—One 450 gallon capacity electric pump installed in Clark vein. Electric pumps installed in Nos. 1 and 2 slopes and No. 3 tunnel. Electric chain hoist installed at foot of main shaft. Four electric locomotives to operate in the Clark and Dunmore veins, and one rotary converter. A new concrete wash house with lockers erected. New fire pump and fire line.

Dodge.—One 30 H. P. motor for endless rope, three electric locomotives inside, one rotary converter sub-station installed.

Taylor.—Lighting breaker and buildings with electricity, one 300 K. W. rotary converter and sub-station building.

Holden.—Four electric locomotives installed in Clark vein and one electric pump in Clark vein.

National.—One electric hoist in Clark vein, three electric locomotives, and a new water reservoir outside.

DELAWARE AND HUDSON COMPANY

Greenwood.—Checker vein plane at No. 1 new shaft extended 600 feet. No. 1 slope in No. 2 shaft driven 125 feet and completed. No. 1 plane in No. 2 shaft driven 900 feet.

The general condition of almost all the collieries in the district, as to ventilation, drainage and general safety, is good.

IMPROVEMENTS

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Taylor Colliery.—Installed one 6½ ton electric locomotive in Big vein. Rock plane from New County to Big vein. Concreted main shaft from surface to rock. Installed electric track pump on main gangway, Clark vein. Electric pump on B gangway, Clark vein, 300 gallons capacity. New concrete breaker and washery in course of erection.

Hallstead Colliery.—Two rock planes from No. 1 Dunmore to Clark vein. Installed drums, branches, ropes, etc., on one of the above planes, one being second opening. Re-opened Marcy vein tunnel, and installed fan to ventilate same. Covered steam lines, inside. Remodeled breaker, installed pickers, etc. Installed ash handling system at Feder-Dam boiler plant.

JERMYN AND COMPANY

Jermyn Nos. 1, 2 and 3 Collieries.—New slope and shaft to surface vein. New slope and air shaft to Marcy vein. New drift and air shaft to Clark vein. New fire room 2,000 horse power, also new jigs and shakers in the breaker.

NORTHERN ANTHRACITE COAL COMPANY

Murrays Colliery.—Wooden tower over shaft has been replaced by a steel structure.

An 80 horsepower electric hoist was installed at Corey slope and a fireproof engine house built. A fan 15 feet in diameter, driven by a 55 horsepower motor, was installed in a fireproof fan house to properly ventilate the workings of the Corey slope.

Central Colliery.—No. 13 shaft has been abandoned as a hoisting shaft. A motor road was made from No. 13 to Laws shaft, and the coal is hoisted at Laws shaft. No 13 shaft is only used as a pumping station and for lowering and hoisting men.

A new electric pump has been installed in Laws shaft, capable of handling 1,000 gallons of water per minute.

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Pyne Colliery.—A second opening and return airway, 7 by 12, was driven from the Clark to the No. 1 Dunmore vein, pitch 25 degrees, total length 78 feet. A Welch automatic overwind device, or engine stop, was installed on the hoisting engines.

Taylor Colliery.—Concrete breaker and washery completed and put in operation during the month of July.

JERMYN AND COMPANY

Jermyns Colliery.—A new wash-house was built of brick and concrete, 80 by 20 feet, to accommodate 200 men and boys, with shower bath and lockers. A supply house was built of brick and concrete, 80 by 24 feet. Made slope from outside to Clark vein, to be used as second opening, also air shaft from Clark vein to Monkey vein. Balance plane in No. 2 mine. A new tower was erected at No. 3 shaft.

ELLIOT, McCLURE AND COMPANY

Sibley Colliery.—Concrete stables were completed in No. 2 Dunmore vein, also one in No. 3 Dunmore vein. Two Lehigh Valley double jigs for the preparation of egg and stove coal were installed in the breaker. An additional air compressor is being installed. A new compound duplex Jeanesville pump, with steam cylinders 22 and 34 inches, 16 inch plunger, 36 inch stroke, is being placed in position in the Dunmore vein. Big vein is being opened by a drift north of shaft. This drift has been driven about 300 feet.

HILLSIDE COAL AND IRON COMPANY

Consolidated Colliery.—Made a new opening on the North dip for hoisting slope for Red Ash vein. Engines moved from inside to outside. Fan and fan-house, car and blacksmith shop, barns, storehouses, locomotive house, foreman's office, emergency hospital, wash-house and boiler plant, were built near slope. This was done on account of fire in surface vein under location of old buildings near breaker.

shaft to the Clark vein. A new fireproof motor barn has been built near the foot of No. 1 shaft. A new and large hospital has also been made on the inside at this place. At Coray slope a fireproof motor barn and a fireproof hospital have been placed in the Clark vein.

Central Colliery.—Overwinding devices have been placed on the engines at Laws and No. 13 shafts.

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Taylor Colliery.—Installed one 1,500 gallon centrifugal pump, for the purpose of pumping water from Clark vein to surface. Tunnel driven from Rock vein to bottom split of Diamond vein. Air shaft sunk from Clark to No. 1 Dunmore vein, for the purpose of ventilating Dunmore vein. Brick and concrete washhouse with steel lockers, erected on the outside.

Halstead Colliery.—Re-opening Nos. 2 and 3 Dunmore veins. Rock tunnel made from Clark to Marcy vein. Re-cribbed Feeder Dam shaft. Slope made from surface to Marcy vein. Built new reservoir for Feeder Dam shaft, to replace old one.

JERMYN AND COMPANY

Jermyn Colliery.—Installed 3 electric pumps. Concreted No. 3 shaft and fanway.

CONDITION OF COLLIERIES

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Taylor, Pyne and Holden Collieries.—Ventilation, drainage and condition as to safety, good. Pillars are being removed.

Halstead Colliery.—Ventilation, drainage and condition as to safety, fair. Pillars are being mined.

PENNSYLVANIA COAL COMPANY

Old Forge and Central Collieries.—Ventilation, drainage and condition as to safety, good. Pillars are being mined.

JERMYN AND COMPANY

Jermyn Colliery.—Ventilation, drainage and condition as to safety, good. Pillars are being mined extensively.

DELAWARE AND HUDSON COMPANY

Langcliffe Colliery.—Ventilation, drainage and condition as to safety, good. Mining pillars exclusively.

HILLSIDE COAL AND IRON COMPANY

Consolidated Colliery.—Ventilation, drainage and condition as to safety, good. Pillars are being removed.

MOOSIC COAL COMPANY

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

IMPROVEMENTS

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY

Taylor Colliery.—Inside: Installed one 7-ton electric locomotive.

Pyne Colliery.—Inside: Installed four new electric locomotives.

Outside: Installed recaging device at head of breaker, one Sullivan 10 by 10 portable electrically driven air compressor with Ingersol Rand jackhammers, also an electric motor drive to take the place of steam drive in breaker annex.

JERMYN AND COMPANY

Jermyn Colliery.—Inside: Installed one electric coal cutting machine in No. 3 Dunmore vein, No. 3 shaft.

DELAWARE AND HUDSON COMPANY

Langcliffe Colliery.—Inside: Installed two 800 gallon electric pumps.