

Table Showing the Occupation and Percentage of Persons Killed and Injured while Following these Occupations During the Year 1893.

Occupation.	Killed or fatally injured.	Per cent.	Injured.	Per cent.	Total.	Per cent.
Miners,	18	35.3	35	36.45	53	36.0
Miners' laborers,	20	39.2	28	29.16	48	32.7
Runners,	2	3.9	3	3.12	5	3.4
Drivers,	3	5.9	18	18.80	21	14.3
Door boys,	2	3.9	3	3.12	5	3.4
Company laborers,	4	7.9	1	1.04	5	3.4
Foot men and head men,			5	5.20	5	3.4
Shaft sinkers,			1	1.04	1	0.7
Slate pickers,	2	3.9	2	2.07	4	2.7
Total,	51	100.0	96	100.0	147	100.0

IMPROVEMENTS MADE IN 1893.

Delaware and Hudson Canal Company.

At the Marvine shaft a new plane was made, 1,430 feet long, area 98 square feet, grade 8 degrees.

At No. 1 shaft, **Carbondale**, two new air shafts were sunk a distance of 20 feet, which greatly improved the air at the extreme end of the workings.

At Grassy Island a second opening was driven at the extreme end of the plane working from the "Grassy" vein to the surface; length, 275 feet; area, 84 square feet.

Hillside Coal and Iron Company.

At Glenwood three new planes were made, the length of which are 400, 600 and 600 feet, respectively; sectional area of each 84 square feet, on angles of 12, 18 and 19 degrees.

At Erie two new planes were completed, one 150 feet long, with an area of 112 square feet; the other has 98 feet area, and is 175 feet long, on a pitch of 14 degrees.

At Forest City, No. 2 shaft, a new plane, 600 feet long, 6 feet high and 14 feet wide was put in operation.

A new plane, 275 feet long, 14 feet wide and 6 feet high was also put in operation at the Clifford shaft.

Carney and Brown Coal Company, fair.

Edgerton Coal Company, fair.

Finn Coal Company, good.

Black Diamond Coal Company.—This mine was in a very bad condition generally, but on my last visit I found the ventilation greatly improved.

COLLIERY IMPROVEMENTS

By the Delaware and Hudson Company

Clinton.—Sinking new slope from surface to Grassy vein, section 7x14 feet, present depth 125 feet.

Extension of present haulage in old slope Top vein 2,400 feet begun.

Erection of supply store 16x28 feet and office for mine foreman 14x18 feet. Installation of 3 cylinder boilers, 90 horse power total.

New local sales pockets in Carbondale City of 4,500 to 5,000 tons capacity, with elevator and conveyor driven by 26 horse power gas engine.

Carbondale No. 1.—Air shaft from surface to top vein, 151 feet, completed.

One ten foot ventilating fan driven by 26 horse power gasoline engine.

Powderly No. 2.—Erection of new breaker and washery combined. Machinery driven by one pair of 16x36 inch engines, 150 horse power. Conveyors driven by one pair of 18x36 inch engines, 90 horse power. Washery supplied with one 18x12x18 inch Jeansville Duplex pump of 1,000 gallons capacity. Installed six new return tubular boilers of 150 horse power each.

Jermyn No. 1.—One direct current generator of 180 kilowatts driven by direct connected engine. Mines wired for electric haulage, and one electric locomotive of 12 tons weight put in use. One 24x14 x36 inch Jeansville Duplex pump of 1,800 gallons capacity installed, but now under water and not being operated.

One new gravity plane 1,200 feet long. Foot of shaft, head and foot of inside slope wired and light furnished by arc lamps.

White Oak.—One 17 foot fan erected, driven by 14x36 inch engine to ventilate the Dunmore vein.

New slope sunk 500 feet in Dunmore vein.

Proposed 3,000 feet haulage road begun.

Grassy Island.—One three stage air compressor with 16x11½x5 5-8 inch diameter air cylinders, 22 inch diameter steam cylinder by 24 inch stroke, 140 horse power. One locomotive type boiler installed, 250 horse power. Three small air motors sent to this mine, but not all in use.

MT. JESSUP COAL COMPANY

Mt. Jessup.—Ventilation bad. Roads and drainage bad. Condition as to safety, fair.

EDGERTON COAL COMPANY

Edgerton.—Ventilation fair. Roads and drainage fair. Condition as to safety, fair.

CARNEY AND BROWN COAL COMPANY

Murray.—Ventilation, roads and drainage fair. Condition as to safety, fair.

BLACK DIAMOND COAL COMPANY

Black Diamond.—Ventilation good. Roads and drainage fair. Condition as to safety, fair.

FINN COAL COMPANY

Finn.—Ventilation fair. Roads and drainage fair. Condition as to safety, fair.

IMPROVEMENTS

DELAWARE AND HUDSON COMPANY

Clinton.—New slope in Grassy vein sunk to a depth of 1,000 feet. Also a second opening completed. Three thousand six hundred feet of track laid from Grassy slope to breaker with 40-lb rail. One 6-wheel, 12-ton locomotive added to haul the coal from Grassy slope to breaker. Three new cylinder boilers 30 inches by 50 feet added to boiler plant. Two thousand feet of tail rope for haulage in the main slope completed.

No. 1 **Carbondale**.—One 10 foot Guibal fan installed driven by direct engine 8x10 inch to ventilate third vein in No. 3 shaft. One 16 inch bore hole from foot of slope to surface for delivering water from slope pumps.

White Oak.—Three thousand six hundred feet of tail rope for haulage from the Clark vein to the surface completed. One pair of double engines 14x20 inch cylinders to operate the same. Slope in Dunmore vein sectional area 7x10 feet driven through "anticlinal" 250 feet completed.

Jermyn.—Rock plane section 7x14 feet driven from Grassy vein to the Clark vein, a distance of 400 feet. Also a second opening 600 feet in length driven to the surface.

Grassy Island.—The old shaft is being sunk from the 14 foot vein to the bottom split, a distance of 45 feet. The purpose is to make a second opening for the same vein in the new shaft. A large sump is being made to be used in emergency. A new brick engine room has been erected at new shaft for shaft engines, which are on the ground.

IMPROVEMENTS

DELAWARE AND HUDSON COMPANY

Clinton.—New tail rope installed 1,000 feet in length, with a pair of double engines 14x20 inch in River Side Slope to pull coal north and south. A new hospital "First Aid," and wash house has been erected outside for employes of the Dunmore vein. Two new ventilating fans erected, each 20 feet in diameter.

No. 1. **Carbondale**.—Tail rope has been extended 1,000 feet, delivering cars to main line.

Powderly.—New car shop, supply house and blacksmith shop erected.

Jermyn.—Rock tunnel completed from the Archbald vein to the Dunmore vein, distance 125 feet. New electric motor $4\frac{1}{2}$ tons with 12x18 inch reel on top for lowering loaded and hoisting empty cars in chambers.

White Oak.—New car shop has been erected. New plane in Dunmore vein finished.

PRICE-PANCOAST COAL COMPANY

A rock slope has been sunk in the Diamond vein over the "Anticlinal." A pair of double engines has been put in same vein to hoist the coal from this slope; size of engines 24x36 inch. In No. 3 vein a slope has been sunk 600 feet in length to the river line, and a pair of engines put in to hoist the coal, 12x12 inch in size. No. 2 Gravity Plane that was abandoned six years ago has been opened. In the Clark vein a new plane has been built, 600 feet in length. Dunmore No. 2 vein, the west slope, 900 feet in length, has been graded, and a pair of engines 12x12 inch in size erected outside to hoist the coal. One 250 horse power boiler was installed.

PENNSYLVANIA COAL COMPANY

No. 1 Colliery, Outside.—In 1904, work was commenced on the installation of 300 additional horse power "Babcock and Wilcox" boilers, and new 10 foot forced draft fan; also new "Cochrane" feed water heater and 12x8x12 inch "Duplex Scranton Pump" and new 50,000 gallon water tank. This work has all been completed during the year. The following buildings have been erected during the year. A new stone powder house 12x14 feet; a new stone oil house 12x12 feet 7 inch; also new brick wash house for miners 16x24 feet. Work is progressing on new brick building 16x36 feet to contain three rooms; office for outside foreman, shifting shanty for firemen, and shifting place for breaker men.

No. 2 Shaft, Outside.—The fan and head house, which was burned during the year, has been replaced by concrete buildings. A 12 inch concrete wall has been built between the down-cast and up-cast from foot of shaft to fan.

No. 1 Shaft, Inside.—Water tunnel from Lackawanna river to No. 1 Shaft. No. 1 Colliery has been driven in 1,600 feet during the year, and on the No. 1 end, 1,900 feet. Total distance driven since the tunnel was commenced, 5,200 feet. Distance yet to be driven, 1,600 feet. Another tunnel has been driven 675 feet from the third Dunmore vein to the second Dunmore vein, to carry the water to main tunnel, sectional area 6x9 inch.

CONDITION OF COLLIERIES AND IMPROVEMENTS

DELAWARE AND HUDSON COMPANY

Clinton Colliery.—A new slope was sunk from the surface to the Grassy vein, distance on pitch 1,800 feet. Coal hoisted to the surface by a pair of 14x20 Flory engines using tail rope system. Breaker has been overhauled and a new trestle 300 feet in length to head of breaker has been completed. Condition of mine roads good; drainage good; ventilation fair.

Coal Brook Colliery.—One six-ton electric motor has been added, making 8 air motors and 7 electric in use pulling coal, and one Turbine pump driven by an electric motor and delivering 2,500 gallons of water per minute to surface, has been added to equipment. A new opening to Grassy vein on the company farm connected by railroad 3,000 feet in length has been made. Also one new 16 ton mine locomotive for pulling coal from opening has been added. Ventilation fair; other conditions good.

No. 1 **Carbondale** Colliery.—New engine plane on east side No. 1 slope, 1,200 feet in length, delivering cars to foot of slope haulage road north of No. 3 shaft, has been rebuilt pulling cars to foot of No. 1 slope distance about 4,000 feet. Condition of colliery, ventilation, roads and drainage, good.

Powderly Colliery.—Locomotives has been placed on east side, pulling coal from Grassy opening to head of plane, a distance of 3,000 feet. Electric lights have been placed in breaker office and buildings. Ventilation fair; other conditions good.

Jermyn Colliery.—New 6-ton electric motor added for pulling coal, and one pair of 10x12 engines delivering supplies from surface to foot of shaft, a distance of 1,800 feet. A new washery, capacity 800 tons per day, equipped with the latest improved machinery, is near completion. Ventilation in many places is bad; other conditions good.

White Oak Colliery.—Slope driven through anticlinal 900 feet in length. Condition of colliery, fair.

HILLSIDE COAL AND IRON COMPANY

Clifford Colliery.—A tail rope and engine plane combination haulage system has been installed. A transmission line has been run from the power house at No. 2 shaft over a mile away and through bore hole from the surface to the south section of Dunmore vein, for the purpose of haulage and pumping. One motor and one electric pump have been installed there. Condition of colliery, fair.

No. 2 Shaft Colliery.—A new fire-proof boiler house has been erected. One turbine pump of one thousand gallons capacity driven by electricity, and two triplex plunger pumps of 600 gallons capacity each, driven by electricity, have been installed in the Clark vein, the water being delivered to surface through boreholes. A saw mill has been erected, driven by steam power, for the purpose of cutting all prop timber, which is extensively used on account of so much robbing being done. A tunnel has been driven from the bottom Dunmore vein to the second one overlying the bottom, the distance between being 16 feet vertical, the length of tunnel 450 feet, the area 6 feet by 10 feet. Condition of colliery, fair.

Erie Colliery.—A slope is being driven in the New County vein 6x12 feet in area, from head of Rock Plane towards the basin; its length is now 400 feet. Two 10x18 hoisting engines, formerly used in the Clark vein, have been installed, and the slope is continuing toward the outcrop as an engine plane. A 7½ ton chamber haulage electric motor has been installed on the west rise in New County vein. Ventilation good, drainage and safety fair.

Glenwood Colliery.—A Jeanesville Duplex Plunger pump, 24x12x-18, has been installed, delivering water from Clark vein to surface. Condition of colliery, fair.

SCRANTON COAL COMPANY

Raymond Colliery.—The main shaft was sunk from the Clark vein to the Dunmore vein, a distance of 90 feet, cutting a vein 3½ feet of coal of good quality. Two slopes have been sunk to the New County vein, thereby increasing the output of that vein. The general condition of the colliery is good.

Riverside Colliery.—Condition fair.

Black Diamond Colliery.—Ventilation good, other conditions, fair.

NORTHWEST COAL COMPANY

Northwest Colliery.—Ventilation, bad. Other conditions, fair.

FINN COAL COMPANY

Finn Colliery.—General condition, fair.

CARBONDALE COAL MINING COMPANY

Carbondale.—New slope in progress of sinking from surface to Dunmore vein; length at present 150 feet. General condition, fair.

MORSS HILL COAL COMPANY

Morss Hill Colliery.—Installed two Lehigh jigs with 20 horse power upright engines for operating same. One new 150 horse power tubular boiler; one 50 ton track scales enlarged screen and shaker capacity. Re-timbered the breaker; built new mule barn, blacksmith shop and oil house; new railroad switch from Erie main line to breaker. Inside.—New slope from surface to 3 feet vein. The condition of mine improved generally.

NORTHEAST COAL COMPANY

Northeast Colliery.—A new breaker erected, equipped with the latest improved machinery; capacity 600 tons daily. Two new boilers, tubular type, 90 horse power each, new boiler-room, office and weigh scales, new 12 foot ventilating fan, Guibal type. Condition of mine, fair.

CLINTON FALLS COAL COMPANY

Clinton Falls Colliery.—General condition of mine, fair.

SUNNY SIDE COAL COMPANY

Sunny Side Colliery.—General condition of mine, fair.

EAST MOUNTAIN COAL COMPANY

East Mountain.—Condition of mine, fair.

CARBONDALE COAL COMPANY

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

BARTON COAL COMPANY

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

CLINTON FALLS COAL COMPANY

Clinton Falls Colliery.—Ventilation good, drainage fair, condition as to safety fair.

FINN COAL COMPANY

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

ARCHBALD COAL COMPANY

Tappans Colliery.—Ventilation and general condition good.

 IMPROVEMENTS

DELAWARE AND HUDSON COMPANY

Clinton Colliery.—Plane in Clifford vein extended 2,300 feet cutting off 1,800 feet of rope haulage. Steam plane in Clifford vein driven 2,400 feet, dispensing with mule haulage, operated with a Flory engine, 12½ by 16 inch cylinders. A new Guibal fan, 20 feet in diameter, driven by a Dickson engine 16 by 36 inch cylinder, has been installed to ventilate No. 8 slope, Clifford vein, in place of Riverside slope fan. In the Bottom vein a water course is being driven a distance of 3,800 feet to drain the Clinton mine through Coal Brook. 3,300 feet of this water course has been completed. When finished the pumping plant now in use in Clinton will be abandoned. An eight inch bore hole driven from the surface to the Clifford vein a distance of 259 feet for conveyance of steam for plane and pumps. One 12 inch bore hole from surface to Clifford vein a distance of 195 feet for pumping water.

Coal Brook Colliery.—One 6 ton electric motor with drum attached, for hoisting and lowering cars in chambers, has been installed. One 12-foot Guibal fan, driven by electric power, to ventilate the New County vein has been installed. A large sump has been made at the foot of Stanton shaft for electric and steam pumping plant. A new outside culm plane of wooden structure has been erected 1,800 feet in length. One 8-inch and one 6-inch bore hole driven from surface to bottom vein for conveyance of air to operate slope. Depth of bore hole 230 feet.

No. 1 **Carbondale** Colliery.—No. 5 Tunnel driven from surface to Archbald vein, distance 400 feet. No. 4 Tunnel driven from surface to Archbald vein, distance 250 feet. Tail rope haulage road driven and graded from No. 1 Tunnel to No. 4, a distance of 3,050 feet. A new engine house built, and a 14 by 20 inch cylinder engine of the Flory type installed to operate the haulage.

SPRING HILL COAL COMPANY

Spring Hill Colliery.—Ventilation good; general condition fair.

FALL BROOK COAL COMPANY

Fall Brook or Murrins Colliery.—Ventilation and general condition fair.

ARCHBALD COAL COMPANY

Tappans Colliery.—Ventilation and general condition fair.

FINN COAL COMPANY

Finn Colliery.—Ventilation and general condition bad.

WEST MOUNTAIN COAL COMPANY

West Mountain Colliery.—Ventilation bad; general condition fair.

SALEM HILL COAL COMPANY

Bartons Colliery.—Ventilation and general condition fair.

IMPROVEMENTS

DELAWARE AND HUDSON COMPANY

Clinton Colliery.—Water course completed connecting with No. 2 shaft of the Hillside Coal and Iron Company. One twelve-inch bore hole drilled 210 feet for pumping purposes. Pumping plant is installed in North side, River Slope. No. 4 plane extended 100 feet and completed. Breaker repairs consist of 12 emery pickers, new 27 inch by 36 inch rolls, and 2 new scales for weighing railroad cars.

Coal Brook Colliery.—New drift at Wilson Creek, 400 feet in length, driven to take the place of the old drift, which will be used as a water course in the future. Coal Brook and Clinton mine water course driven 1,100 feet and completed. Breaker repairs consist of steel conveyor, 350 feet long, 16 emery pickers, 8 spiral pickers and 2 lump coal shakers. Electric power house extended 12 feet by 54 feet (extension built of brick). One electric generator, 540 K. W., driven by a Compound Duplex Hamilton Corliss engine, 20 x 36 x 42 inches, has been installed.

Carbondale No. 1 Colliery.—New rope haulage 3,050 feet long, and a fan shaft, 10 feet x 10 feet in area and 50 feet in depth, completed; a Buffalo 5-foot fan, driven by a 10 H. P. electric motor, for ventilating new tunnel, installed; Rock plane from bottom to top vein driven 70 feet.

Powderly Colliery.—Two 8 inch bore holes 60 feet deep drilled; 6 inch slush line laid, 4,000 feet long, preparatory to filling workings

locomotive to dispense with the dumping of coal at the chutes and transportation by means of large cars. A pump shaft was sunk 80 feet to the Top split of the Clark vein, where a single Goyne pump 22x16x36 inches was installed at the foot.

Jermyn Colliery.—A rock plane 700 feet in length was completed from the Archbald to the Grassy vein. To improve transportation on the inside, a 6-ton electric motor was installed. New hoisting engines with double drums of the Flory type, size 14x20 inches, were placed in the Archbald vein haulage extension and Grassy vein plane. *Outside.* A plane for rock dump was built, operated by a 25 horse power electric motor. To drain the upper veins of the West side workings, a concrete culvert 300 feet long, and an open ditch 350 feet in length were built. A new electric power house, 36x50 feet, was built of brick.

White Oak Colliery.—From the Archbald vein No. 6 tunnel a second opening or tunnel 250 feet long, 7 feet high and 12 feet wide, was driven to the surface, and a new return was driven for the installation of a fan. The rope haulage at the head of No. 8 plane, Dunmore vein, was extended 2,500 feet.

HILLSIDE COAL AND IRON COMPANY

Forest City Colliery.—A rock tunnel was driven 7 by 10 feet in section and 275 feet in length, to serve for a second opening for the "Ring" vein. A new 16-inch bore-hole was put down a depth of 225 feet, located 540 feet east of the shaft, and a 12-inch casing pipe inserted, to get rid of the excess water from the 2nd and 3rd Dunmore veins in rainy seasons. The same kind and size of bore-hole was put down near the Forest City Washery to supply the washery with water from the mine. One new 7½ ton cable reel electric motor was installed for the purpose of increasing the output.

The fan and air shaft at No. 2 Shaft are undergoing extensive repairs which have not yet been completed. A new concrete locomotive house was built, size 45 feet 2 inches x 57 feet 3 inches.

Erie Colliery.—The colliery has been shut down since August on account of extensive repairs to the breaker. The result will be better preparation and a larger output. New shaking screens and patent pickers are being added.

The shaft was overhauled, new buntings and guides placed, also new carriages installed. The East side fan was remodeled and rebuilt entirely on the old foundation.

Glenwood Colliery.—The breaker was abandoned May 3, 1909, and has been torn down, with the exception of the North wing, which will be used for a washery. The coal from the Glenwood mine will be transported underground to the Erie shaft and hoisted to the Erie breaker, where it will be prepared.

HUMBERT COAL COMPANY

Sunnyside Colliery.—Two new drifts were opened to the Dunmore vein. A new breaker is in course of erection, with a capacity of 800 tons per day, to replace the one destroyed by fire July 3, 1909. A new boiler plant has been erected of concrete 120 feet from new breaker.