

to a distance of 6,500 feet, with an average dip of 14°, and No. 3 slope is down about one mile, having the same grade as No. 1 slope.

This mine is worked by the pillar and stall system, the coal having an average thickness of four feet. This mine also produces commercial fire-clay, which is made into fire-brick at Union Bay.

The plant of this mine consists of twelve double return flue steel shell boilers of about 50 nominal H. P., set in three batteries. One battery of four boilers is used to supply steam to the haulage-engine. One of four boilers to supply motive power to drive the electric plant, and two steam pumps placed near the mouth of the slope for the purpose of pumping the surface water. The plant has an aggregate of about 600 nominal H.P.

**Haulage Plant.**—This is installed some distance from the mouth of the slope. It is a duplex first motion engine, having cylinders 24x36, four drums 6 feet in diameter, two tail ropes and two haulage drums. This engine has a massive foundation of concrete and stone work. The tail rope drums are placed directly in front or tandem of the haulage drums. The engine has a hauling capacity of 16,000 tons per day (two shifts) from the great distances above mentioned. It was built by the Danville Foundry Co., of Danville, Ill.

Steel cables (1 inch in diameter) are used, and haul eleven cars of coal at a "trip," each car of which contains one and a half tons of coal. The cars are hauled up a trestle from the mouth of the slope onto the pit-head and run into a Phillips automatic cross-over car tip, then dumped onto a screen which divides the coal into two sizes, the small size falling directly into the twenty-ton railway cars, and the large size or round coal falls onto an endless conveying belt, where all the rock is picked out before the belt delivers the coal into the cars.

Electricity is the power used for pumping and lighting purposes. This plant consists of a 100 H.P. Edison generator, driven by an Armington & Sims engine—an 80 H.P. dynamo built by the United Electric Lighting Co., of Springfield, Ill., being coupled by belt to an Ideal engine and a 100 H.P. generator built by the Westinghouse Manufacturing Co., driven by a Ball engine.

There are seven electric motive driven pumps placed in different parts of the mine, two of 50 H.P. and five of 25 H.P.

It was necessary to flood the lower part of this mine last summer in order to extinguish a mine fire, which originated at No. 9 pumping station, about two-thirds of a mile down No. 1 slope. The water is now being rapidly taken out. Work will be resumed in the upper portion of the flooded area in about three month's time.

Fortunately for the company and the men engaged working in this mine, there was a large section of unworked ground above the flooded district. The exploitation of this area has enabled the company to keep about two-thirds of the miners formally employed at work. There are about two hundred and seventy-five men employed under ground in this mine, which produces from 800 to 900 tons per day.

**Ventilating Plant.**—This consists of a Guibal fan, 30x11, driven by a pair of 14-inch coupled engines, which causes 110,000 cubic feet of air per minute to flow through the mine, which carries away the powder

smoke, noxious gases, etc. The machine and electric repair shops are located here.

**No. 5 Pit.**—Worked by a shaft, which is 600 feet deep, and is located about three-quarters of a mile in a northerly direction from the town of Cumberland. This mine is worked by the long-wall method, having been in operation about six years. The coal averages 3½ to 4 feet thick, being very compact and of a superior quality. There are about two hundred men employed in this mine.

**Plant.**—There is a battery of six two-return flue boilers of 50 H.P. each. A coupled hoisting engine 30x60 (Corliss valves), with a drum 15 inches in diameter, built by the Albion Iron Works, Victoria, B.C., a 1¼-inch steel cable is used to hoist the coal and the men from the mine. The underground plant consists of a duplex Prescott pump, 20x7x18, which pumps the water to the surface at one lift; a hauling engine which hauls coal out of the slope.

**The Pit-Head.**—This is built of Douglas fir, and is 70 feet from collar of shaft to bearings of pulleys. The coal is dumped into the chute and treated in the same manner as at No. 4 slope. This mine is joined to the main road by a branch line of about three-quarters of a mile long.

**Ventilating Plant.**—This is a Guibal fan, 15x5, driven by a single engine. It produces about 75,000 cubic feet per minute, running at 102 revolutions per minute, which keeps the mine in a sanitary condition.

**No. 6 Pit.**—This pit lies adjacent to the city of Cumberland, and is of the same depth as No. 5 pit (600 feet). The hoisting and pit-head arrangements are similar to those at No. 5 pit. There is a battery of 450-H.P. boilers, of the same pattern and size as those described above. They were built by the Albion Iron Works, Victoria, B.C.

This mine is not so extensive as the others, having been working for about two years only. There are about 150 men employed in this mine. A Worthington pump 20x7x10, stationed at the bottom of the shaft keeps the mine clear of water. This mine is also worked by the long-wall method.

There is a blacksmith's shop and carpenter's shop here, where all the railroad cars are built and repaired.

This mine is connected with No. 5 pit by a pair of drifts of about a mile in length. A Guibal fan 15x5 feet is the ventilating agent.

Preparations are being made to open up another mine (No. 8). It is situated about two miles in a westerly direction from No. 4 slope, and on the same strike. The out-crop being traceable (with few breaks) from No. 4 slope in an almost direct line past No. 8 to Brown's River, a distance of four miles. This mine will be joined to the branch line at No. 5 pit by a road of four miles in length., three of which have already been built.

**Union Bay.**—The shipping wharf, coke ovens, coal washer and brick yard are located here. There are one hundred coke ovens, seventy being in actual operation. The slack coal is elevated into a Luhrig washer, having a capacity of five hundred tons for ten hours, is washed and dumped into a large bunker, from there into cars and conveyed by different branch lines over the coke ovens, where they empty their contents as desired.

The ovens are of the bee-hive style, and contain each about five tons to a charge, which produces about three tons of coke.