

discouraged attempts to divert the whole river through the temporary runway. Accordingly a natural opening was left at the north bank until the following winter season with its decreased flow. The construction, owing to the isolated location of the development, necessitated the building of several miles of sidings as well as quarters for 600 men. A steam plant consisting of two 100-h.p. Leonard boilers supplied steam for the pumps and air compressors, as well as for the work-shop and lighting systems. As the work developed, and power requirements increased, the company's transmission line from Exshaw to Calgary was resorted to and transformers installed for the stepping down of the current from 12,000 volts to ordinary working voltage.

The gravel was obtained, as stated, close to the power works. It was moved by a Marion steam shovel with a one cubic yard dipper. From the pit it was

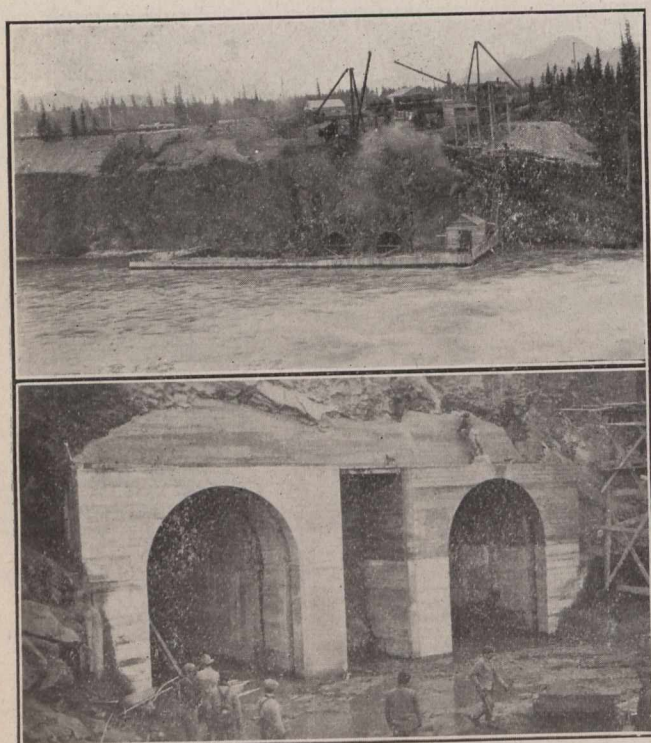


Fig. 6.—Outlet of Tailrace Tunnels.

hauled to the concreting plant in side dump cars of 6 cu. yds. capacity, drawn by Vulcan steam locomotives. The concrete mixers were equipped with hoisting towers and distribution system. They were placed about 30 ft. below the track level. Wooden hoppers with a capacity of 125 cu. yds. received the gravel from the dump cars, and discharged it through sheet metal delivery tubes with arc gates directly into the charging hoppers above the mixers. Cement, in sacks, was received at the mixers through a chute from the storage shed at the top of the bank. The hoisting and distributing towers were two in number, each equipped with Insley hoisting buckets and hoppers. One of them, 40 ft. in height, was used on the construction of the main dam, and the other, 60 ft. high, on the balance of the concreting. Side dump cars, of one cu. yd. capacity conveyed the concrete from the mixers along the deck to the towers. The plant had a capacity of 35 cu. yds. per hour.

An important feature of the construction was the excessive amount of rock excavation necessary. In the canal section a Marion steam shovel with a $\frac{1}{3}$ cu. yd. dipper

loaded into two 12-yd. and eight 6-yd. Peleter side dump cars. Eight Holman compressed air drills were used in rock excavation in the canal section and in the wheel pit and tailrace tunnels. From the latter, excavation was removed by the use of hoisting engines and 5-ton stiff-leg derricks.

The construction of the tail-race tunnels required a heavy timber cofferdam to be constructed in the river.

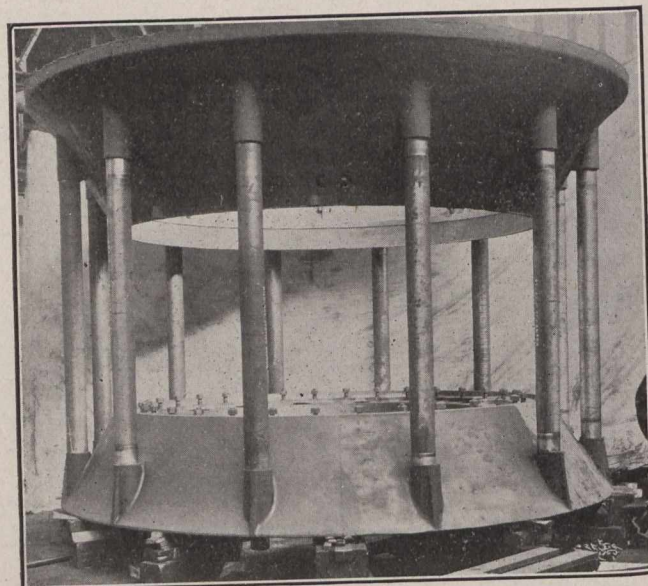


Fig. 7.—Turbine Rings and Supporting Columns. Shop View.

Excavation was then proceeded with from the river base at the same time that the penstock and wheel pit excavation was in progress.

As illustrated in Fig. 5, the forms for the scroll chambers (and the same applies to the forms for the draft tubes and tunnels) were lowered into position from the ledge of rock above.

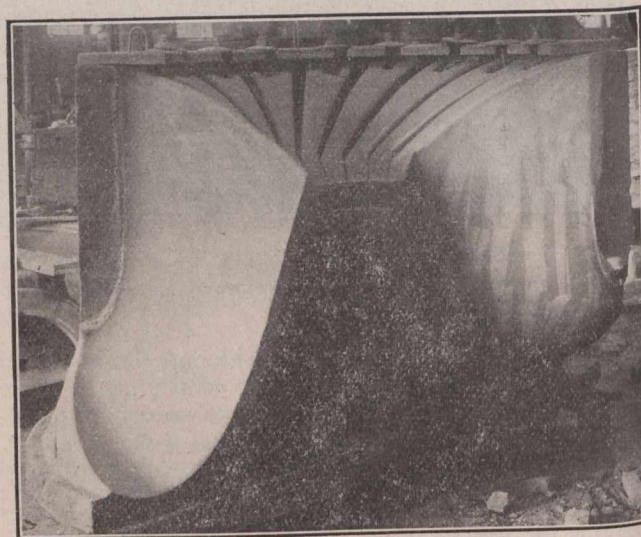


Fig. 8.—Setting Core of Cast Iron Runners for Turbine. Shop View.

The Power House.—The station contains two main turbine units and exciter turbine built by Canadian Allis-Chalmers, Limited. The main turbines are of the low-pressure vertical type set into the concrete spiral casing, described above, the local conditions of the power plant site being most suitable for such a layout. They were