

Two 700 gals. per min. pumps, 113' head, to supply the Cobalt Reduction Co.; one 600 gals. per min. pump, 105' head, to supply the Cobalt Lake Mining Co.; one 400 gals. per min. pump, 172' head, to supply McKinley-Darragh-Savage Co.; and one auxiliary pump of 450 gals. per min. capacity, connected to all three lines. Room was

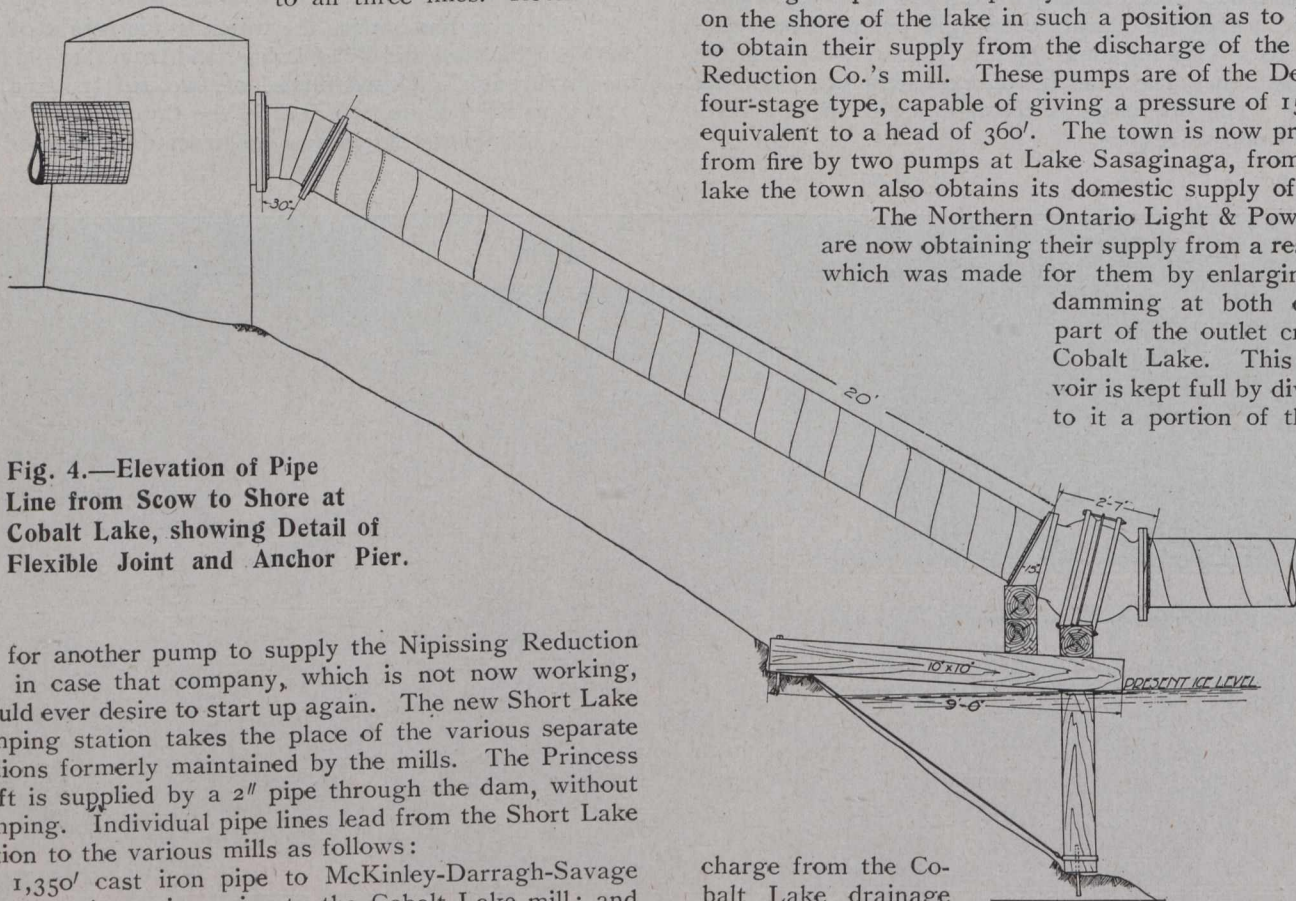


Fig. 4.—Elevation of Pipe Line from Scow to Shore at Cobalt Lake, showing Detail of Flexible Joint and Anchor Pier.

left for another pump to supply the Nipissing Reduction Co. in case that company, which is not now working, should ever desire to start up again. The new Short Lake pumping station takes the place of the various separate stations formerly maintained by the mills. The Princess shaft is supplied by a 2" pipe through the dam, without pumping. Individual pipe lines lead from the Short Lake station to the various mills as follows:

1,350' cast iron pipe to McKinley-Darragh-Savage mill; 2,700' cast iron pipe to the Cobalt Lake mill; and 1,800' cast iron pipe, plus 600' of spiral riveted steel pipe, to the Cobalt Reduction Company; the steel pipe being required on account of dangerous ground.

The steel pipe was supplied by the American Spiral Pipe Co., the cast iron pipe by the National Iron Works, and the wood stave pipe by the Pacific Coast Pipe Co.

Another use to which the water of Cobalt Lake had been placed was to supply the fire pump of the Nipissing Mining Company, and it was therefore required that this pump be moved from Cobalt Lake to Peterson Lake, and

equipped with a Canadian General Electric auto-starter which enables the pumps to be started or stopped from any one of four points on the company's premises.

The town of Cobalt also must be supplied with fire protection to make up for the removal of the source of supply of the portable fire engine. Two centrifugal pumps of 600 gals. per min. capacity will therefore be stationed on the shore of the lake in such a position as to be able to obtain their supply from the discharge of the Cobalt Reduction Co.'s mill. These pumps are of the De Laval four-stage type, capable of giving a pressure of 155 lbs., equivalent to a head of 360'. The town is now protected from fire by two pumps at Lake Sasaginaga, from which lake the town also obtains its domestic supply of water.

The Northern Ontario Light & Power Co. are now obtaining their supply from a reservoir which was made for them by enlarging and damming at both ends a part of the outlet creek of Cobalt Lake. This reservoir is kept full by diverting to it a portion of the dis-

charge from the Cobalt Lake drainage pumps.

In order to drain Cobalt Lake, two centrifugal pumps were mounted on a scow, which was anchored, by two submerged five-ton concrete blocks, near the northern shore and near the deepest part of the lake. These pumps are of the De Laval single-stage type, nominally 3,500 gals. per min. capacity against a head of 100'.

The test on these pumps showed 77% efficiency when delivering 3,640 gals. per min. against a total head of 106.2 ft. The diameter of the discharge opening is 12", the suction opening being of the same size. On account of the grittiness of the slimes and other semi-liquids in the lake, special manganese bronze was used in the manufacture of the impellers, impeller protecting rings and shaft sleeves.

The pumps are driven by two 125 h.p., 2,200 volts, 3-phase, 1,720 r.p.m. Westinghouse motors. The discharge is through two 20" flexible joints, one on the scow and one on a crib at the shore, into a 20" wood stave pipe line, 3,500' long. The flexible joints permit movement through an angle of 20°. They were supplied by the American Spiral Pipe Company.

The entire works described above have been completed and are in operation, and the actual drainage of Cobalt Lake began

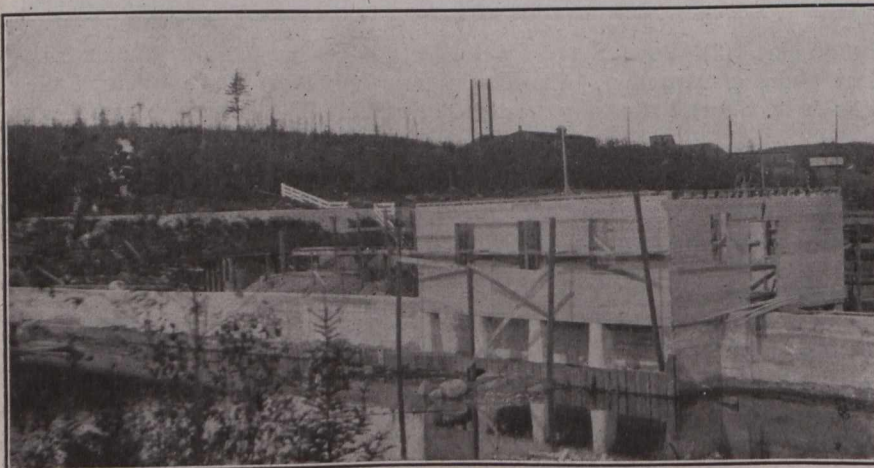


Fig. 5.—Construction of Short Lake Pumping Station.