

stream slope being riprapped. It is provided with a puddle core, in the centre of which is placed a cut-off of double-lapped sheet piling, driven to refusal by a steam

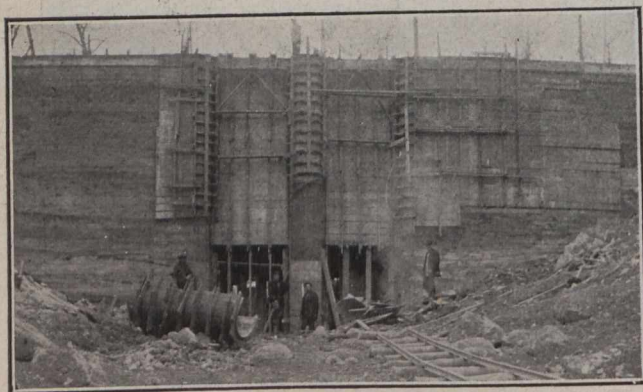
delivering to a 10,000-gallon tank situated on a hill near the site of the dam.



Flume Line Excavation, Providing Fill for Dam.

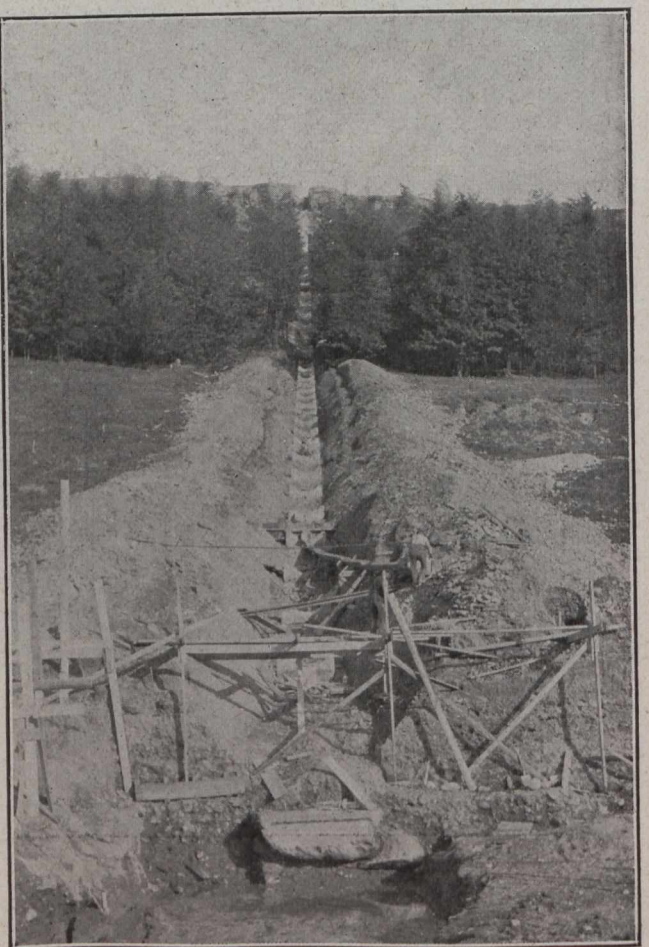
hammer suspended from a tripod. An auxiliary puddle cut-off is situated a short distance in from the upstream toe. Drainage is provided by means of a line of 8-inch tile running along the line between the inner and outer third of the downstream side. A series of 4-inch lateral drains are taken off at 45-ft. centres, discharging into the rock fill at the downstream toe.

The site of the dam was first cleared of underbrush and trees, and the sub-soil removed by means of slip scrapers. The cut-off trench for the puddle core was then excavated to an average depth of 5 ft. and width of 8 ft.



Headworks Under Construction.

The sheet piling was driven and the auxiliary cut-off and drainage tiles completed. Excavated material for the construction of the dam was brought to the site from the canal and from the flume line. This excavation was accomplished with a 45-ton Marion shovel, and brought to the site by 4-cubic yard dump cars and two dinky engines. Before placing, the material was sized and deposited in 6-inch layers by means of slip scrapers. It was then rolled and watered. The water supply was procured from the river about 4,000 ft. distant, a 3-inch duplex pump



Line of Concrete Saddles for Steel Penstock.

A travelling derrick operating an Owens clam-shell bucket loaded the puddle clay into dump wagons, which placed the material in the core wall, where it was thoroughly hand-tamped by means of wooden tampers.

Over 47,600 cubic yards of material were used in the construction of the dam. It has the distinction of being the largest earth dam in Ontario.

Leading to it is a canal about 5,068 ft. in length with a bottom width of 6 ft. and $1\frac{1}{2}:1$ and $2:1$ slopes on the sides. Its construction involved the excavation of some 70,000 cubic yards of earth and rock.

Leading from the dam will ultimately be two wood-stave pipe lines, only one of which is being installed at the present time, and the entrance to which is a reinforced concrete gate house. Its design provides for two water inlets and the necessary racks, gates, etc. A 66-inch motor-operated butterfly valve for regulating the supply to the pipe lines, is located in each inlet. The pipe lines are 3,350 ft. in length and of 46-inch internal diameter. They lead to a surge tank 100 ft. high and $12\frac{1}{2}$ ft. in diameter. At the surge tank the wood-

stave pipe, riser to the tank, and the steel penstock meet in a large concrete head block.