the Department of Railways and Canals, Orillia will soon find herself equipped with a most modern power plant, having a capacity of 5,000 horse-power or 2,000 horse-power more than is being used at present, while the Dominion government will save a considerable sum of money. The arrangement is therefore mutually satisfactory to both parties.

The hydraulic conditions at Swift Rapids for power development purposes are very much more favorable than

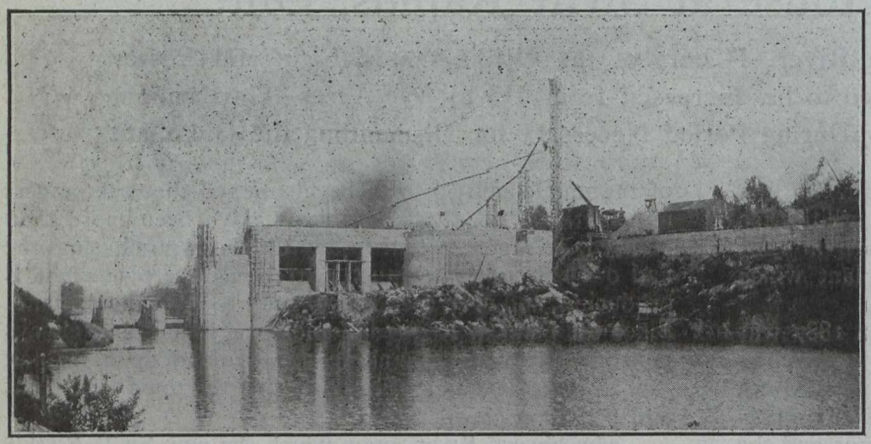

Fig. 2.—View Taken Looking Downstream, Showing Wheel-pit House, Entrance to Canal and Dam Partly Built

at Ragged Rapids. The electrical conditions on the river where the new dam and power house are located are ideal, and those responsible for the design and construction of the plant have taken full advantage of these conditions, as will be seen from Figs. 1 and 2, which give an excellent idea of the layout. The river at this point is approximately 110 feet wide and the geological formation lends itself admirably to the design.

The contractors for section 2 of the Trent Valley Canal, which includes the construction of the power house and dam, are the Inland Construction Company of Toronto. The distance from the present plant at Ragged Rapids to the new one at Swift Rapids is approximately two miles. When the dam is completed and the valves closed, the water in the river between the two plants will back up and form what will really be an inland lake. Clearing has already been done along the banks of the river up to the point where it is expected the water will back. In order to prevent the water from flooding some ravine land lying to the west of the river it has been necessary to put in two wing dams, one 420 feet long and another 200 feet long.

The central mixing plant of the Inland Construction Company is located on the north side of the river and concrete is placed by means of a distributing tower, shown in Fig. 1, which is 155 feet high, the concrete from which is carried to various parts of the job in Ransome conveyers.

There are three sluice valves, each 72 inches diameter and are operated by winches, as shown in Fig. 5. These are arranged for electrical operation although the electrical apparatus is not being installed at the present time.

The sluice pipes are 40 feet long, 10 feet in diameter at the wide end looking down-stream, and 6 feet diameter at the valve end. They are built of 5/8-inch steel plate. The sluice pipes, valves and operating machinery were made by Wm. Hamilton Co., Limited, Peterborough, Ontario.

In launching the sluice pipes, each of which weigh 17 tons, the method employed was as follows: Double bulkheads were placed at each end; three trees of fairly large size were slipped into the water, the root end of the trees being placed on the edge of the dock; the sluices were then simply pushed over the side of the dock, the trees helping to break the fall. After launching, they were one-third submerged and were then towed to position below the dam. Stop-logs were then placed at each end of the sluice chamber and the chamber pumped out, as shown in Fig. 4, and kept pumped out while connection was made with the sluice valves. At the time notes for this article were being secured two of the sluice pipes had already been placed in position. The river was passing through these two sluices and the water level in the river above the dam was only two feet above normal, so that when the three pipes are in position there will be no trouble controlling the river. The dam is approximately 110 feet wide and will have, when completed, five spillways, each 20 feet wide. The concrete work of the dam, wheel house, etc., is of excellent character, very strong and well finished.

The power house, which is behind the wheel-pit house, is built of buff brick with green glazed brick trimming. The interior floor of the power house will be laid with 6-inch red tile and black mortar pointing. When the dam is completed, and the valves closed, it is figured that the depth of the water immediately in front of the wheel-pit house will be so deep as to practically eliminate any possible trouble from ice. The water level in the river when flooded back will be about three feet above the apron, shown in Fig. 3. The head at the new power house will be 47 feet, or 12 feet more than at the present Ragged Rapids plant.

The flow at this time of the year is about 1,200 second-feet and it is estimated that when the dam is completed and the power house ready for operation it will take about a week to back the water up to the new level.

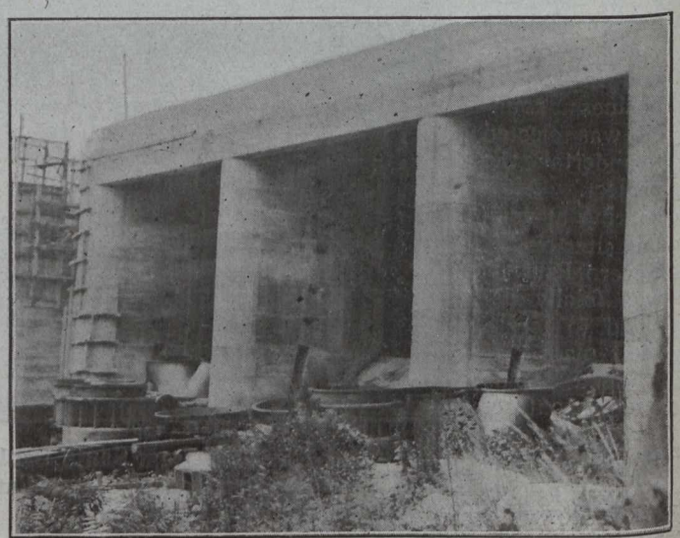

Fig. 3.—Upstream Side of Wheelpit House; Wheel Parts in Foreground Ready to be Assembled

The electrical equipment contract was awarded to the Canadian General Electric Company.

The power house is furnished with a 20-ton crane, built by the Herbert Morris Crane and Hoist Company, of Toronto. It has a span of 27 feet 3 inches and runs the entire length of the power house.