

THE HYDRO-ELECTRIC POWER PLANT OF THE CEDARS RAPIDS MANUFACTURING AND POWER CO. AT CEDARS, P.Q.*

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THE development at Cedars Rapids is one of the most extensive which have been made in recent years in Canada, and the different phases of the work are in the first rank of importance in water power projects. The complete story of the work cannot be covered in a single paper, and it has been decided, therefore, to divide the subject into three sections, each being treated separately by the engineers connected with the development.

In the first of these sections Mr. Henry Holgate dealt with the history and legal phases of the organization, and the early stages of the work.

omitted and stripping down to rock was not deemed necessary.

Ice Protection.—The plan of the location of the forebay and canal shows that the general direction of the water entering the forebay above Isle aux Vaches is at right angles to the direction of the main stream. A small rapid exists just above Isle aux Vaches, and the velocity in the main stream is probably about 7 or 8 ft. per second, whereas the velocity across the section of the forebay into the canal is only about 2 ft. per second at full load. From the north bank and extending more or less at right angles to the current, a series of cribs has been constructed, with the idea of deflecting the water towards the main stream, thereby reducing the probability of floating material entering the canal.

In addition, two spillways have been provided in the south bank of the canal, one at the upper end, and one near the power house. The upper one consists of seven-

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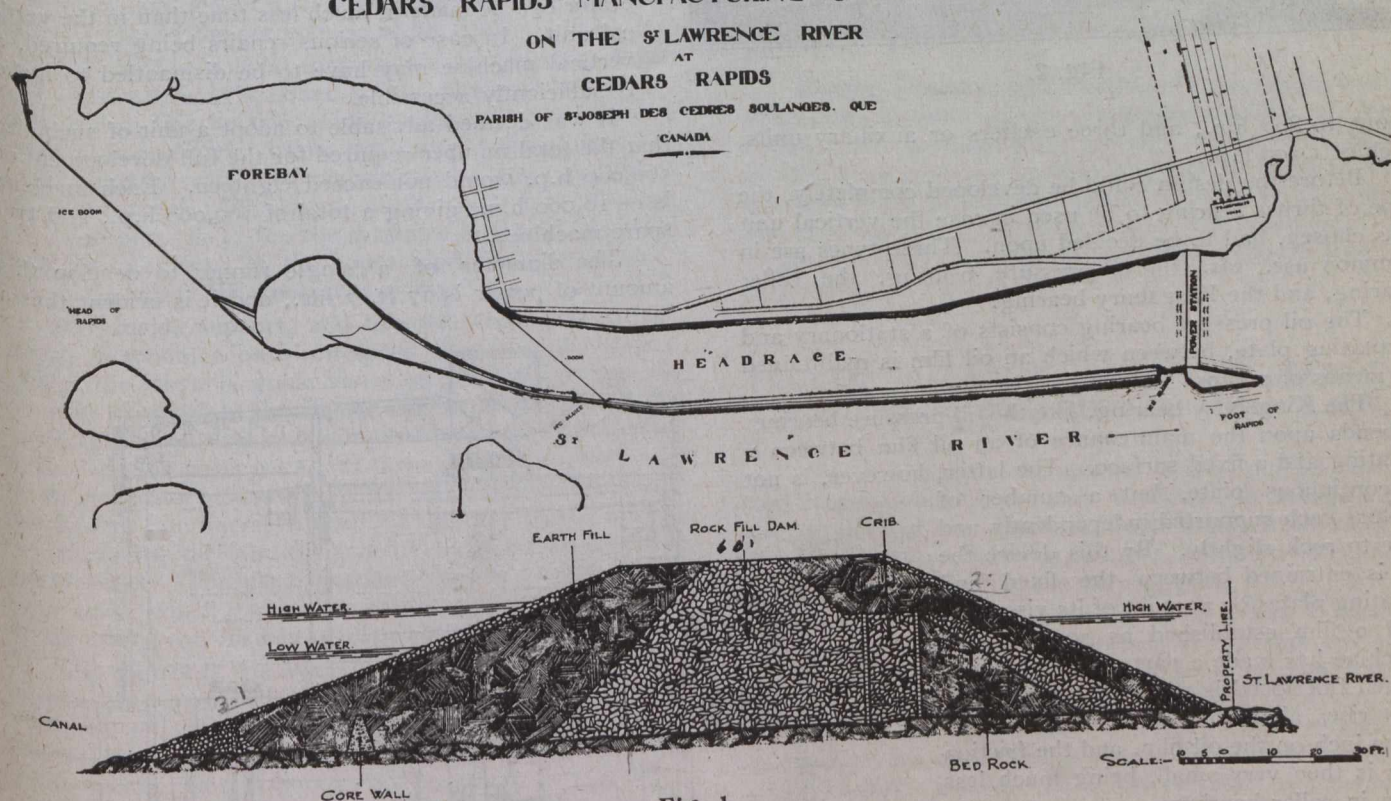


Fig. 1.

The third section will deal with the electrical equipment, installation tests, and the operation of the plant during the year 1915.

Embankment.—A general plan of the area covered by the works and a cross-section of the south bank are shown in Fig. 1. The south bank, extending the whole length of the canal, and separating it from the river, is the main feature of the construction.

The bank consists of rock-fill with clay bank or blanket on the canal side. At the end adjacent to the power house where the head against the bank is large, a concrete core wall extends down to solid rock, but at the upper end where the head is much less, this core wall was

teen openings, each having a clear width of 15 ft. and closed normally by stop logs with the crest of the concrete sill about 10 ft. below lowest water level. The lower spillway is similar but not so large. The idea is that by adjusting the stop logs to give an overflow of about 2 ft., a high surface velocity can be obtained in the neighborhood of the spillway, so that ice guided by properly located booms will escape.

The power house, at present nearly 700 ft. long, will ultimately be about 1,200 ft. long, and in order to avoid the necessity of passing ice or other material clear across the full width of the power house to the spillway, openings have been provided at suitable intervals to facilitate the removal of such material.

In order to fill the gap between the present construction and the north shore line, a rock-fill crib dam resting

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