Volume 22 Toronto, June 13, 1912

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The Canadian Engineer

An Engineering Weekly

THE REVERSIBLE FALLS, ST. JOHN RIVER, ST. JOHN, N.B.

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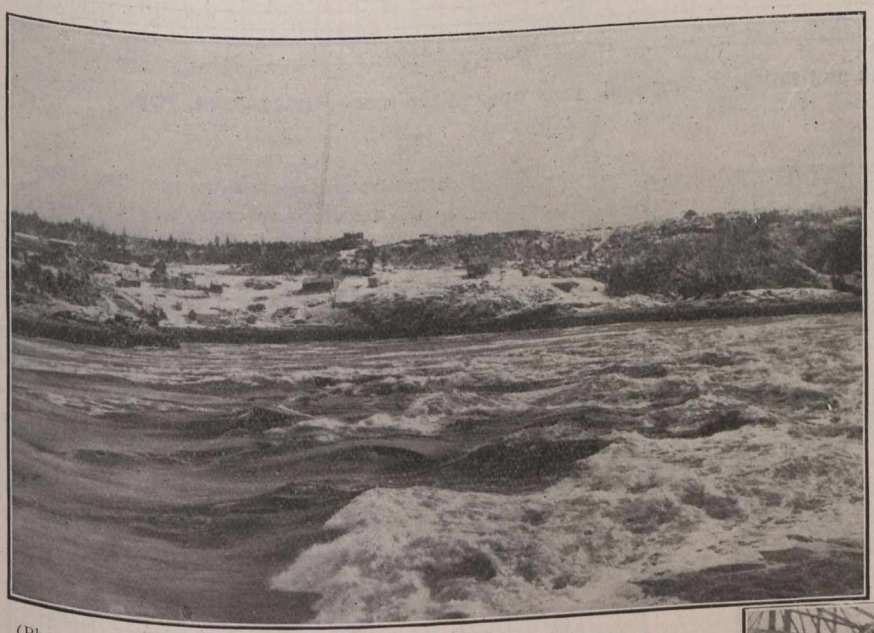
In the report *WATER POWERS OF CANADA*, recently published by the Commission of Conservation, there are mentioned a number of matters related to the conservation of our inland waters. Some of these matters are of special interest and would bear more extended discussion and investigation.

In the portion of this report which deals with the water powers of New Brunswick, Mr. Arthur V. White has drawn attention to the Reversible Falls at St. John, N.B. Having learned that additional data respecting these falls, or rapids, were available, we requested a memorandum of the physical facts so that they may be on record. The memorandum is as follows.—*EDITOR.*

The St. John River at its mouth in the city of St. John has a restricted area and an unusual rock formation in its bed. These features, coupled with the high tides, result in unique phenomena possessing latent water power possibilities.



(Photo by Arthur V. White).

Fig. 1.—The Reversing Falls, St. John, N.B.,

Showing condition of the water surface when tide is running out or in.

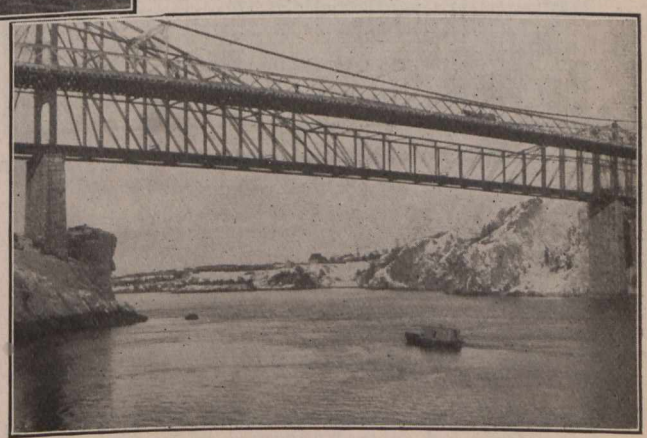
The bed of the river, at a place above the C.P.R. and Suspension bridges, known as the Pitch, has a ledge of rock from shore to shore. At the lower stages of the tide in the harbor, the river rushes over this ledge and creates turbulent and unnavigable rapids. During the higher stages of the tide the water level in the basin is so raised as, in part, to overcome the discharge of the St. John River. The incoming tidal waters are then in turn churned, opposed as they are by the ledge of rock just referred to. This cycle of changes takes place twice in the twenty-four hours. The condition of the river during the approaching high and low tide is represented in Figure 1. The river is navigable for large ships at the period of slack water. Figure 2 shows the calm condition of the water surface at slack water.

Thousands of horse power might be obtained if these rushing waters could only be harnessed. Such a project, however, appears impracticable. Schemes have been suggested for utilizing power from these Reversible Falls, and hopes expressed that some plan may yet be devised to take advantage of the power.

There are here presented three diagrams giving some physical data incident to the problem. Fig. 5 is a cross sectional view of the river at the bridges, and Fig. 4 a similar view at the ledges. The soundings in each figure are in feet below low water.

Figure 3 shows the typical regimen of the neap and spring tides at St. John harbor. With regard to elevations —taking the elevation of the bench mark at the customs house as 100.00—low water in St. John harbor is 44.40 and high water 71.40. Low water at Indiantown is 59.53, and high water 60.83.

No attempt should be made to alter the natural conditions which exist in such objects of nature as the Reversible Falls without the most mature consideration. Behind such phenomena there are often wise natural provisions which cannot safely be tampered with. Indeed, in the present instance of the Reversible Falls, it has been concluded by some persons,



(Photo by Arthur V. White).

Fig. 2.—Slack water at the Reversing Falls, St. John, N.B.

The river is only navigable for a short period at the time of slack water.