

The Canadian Engineer

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Plan for Emergency Development at Niagara Falls

Includes Temporary Intakes Along Crest of American Falls, Deepening of American Channel, Weir for Diversion of More Water to American Channel, Intakes Along Crest of Horseshoe Falls on American Side and Littoral Penstocks or Canal on Canadian Side, With Dam Extending from Canadian Shore

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THE objects of this article are to outline a brief summary of: (1) Some reasons necessitating an emergency development of Niagara. (2) Some conditions essential for the conception of any development. (3) One of a number of definite plans for such development.

All the power now permitted to be developed under the international treaty is used, and, though numerous steam plants have been added, the insistent power demand is so far from being satisfied that there is a vital power famine which has attracted international attention.

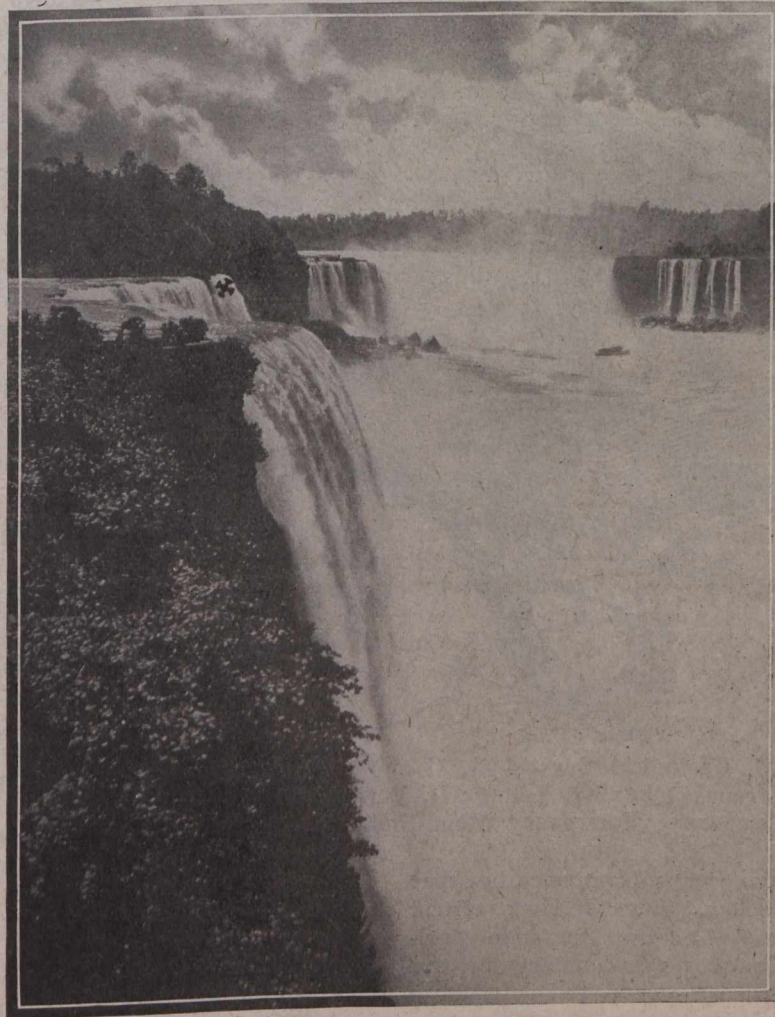
The improvements in the transmission and wide use of electrical power and its products, particularly in transportation, metallurgy and electrochemistry, have rapidly made it of very great value. It is said if the nitrate trade were stopped by Chile or by submarines, or by both, that the Allies would be defeated in sixty days. We hope this is not true; we know it would not be possible if Niagara were harnessed, for, even though the power now be used only to make the fertilizer which Canada needs, it could be quickly and easily adapted to the requirements of explosive nitrate manufacture.

With factories shutting down for days at a time, may not the time come when Canada can obtain no coal from the United States? The utilization of Niagara means not only a saving of coal and of cars, but also the release for urgent needs elsewhere of thousands of miners. At

twice the rate of locomotive efficiency, it would replace the continuous movement every day of thirty trains of two thousand tons each, and would free these and 15,000 miners for urgently needed aid to the Allies.

Sight-seeing and touring might be discouraged. The best viewpoints in Canada are barricaded and the tunnel under the Horseshoe closed for military reasons. At what more opportune time than when both countries are united in one vital, common purpose, could co-operative development be proposed and effected?

The discharge of the Niagara River varies from 314,000 second feet and more (1856) to 158,000 second feet (1902) and less, and recently from 265,000 s.f. to 180,000 s.f. within a day's time. The conservative average discharge, 204,000 s.f., given in the Canadian report, is attainable for subsequent permanent development, and also would improve navigation, by International headworks between the Buffalo Breakwater and Goat Island. The sixty-year discharge profile shows periods of years when the average monthly discharge is never under 200,000



Niagara Falls—Cross Indicates Luna Fall—American Falls in Foreground, Canadian (Horseshoe) Falls in Rear

s.f. In order to take advantage of prevailing high flows, and because of the latitude of subsequent deductions and of the preliminary nature of the discussion, this last round figure will be used.

From the flow of Niagara River at least twenty per cent. must be deducted for diversion losses and aid to