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THE HAMILTON WATER POWER AND CANAL SCHEME.

Reference was made in last number to the scheme proposed by William Golding, a well-known engineer of New Orleans, for a canal for water supply and power purposes from Lake Erie to Hamilton.

Mr. Golding gives THE CANADIAN ENGINEER a pretty fair outline of his proposals. In a letter to the city engineer of Hamilton in October, he wrote:

"Having been among the first to direct attention to the great power running to waste in the surplus water falling from Lake Erie to Lake Ontario, I feel much interest in everything relating to the subject, and having devoted much study to the engineering branch, I am anxious to direct your attention to the fact that your city is the proper location for central power works.

"I am well acquainted with Hamilton, having lived there previous to 1850. You are doubtless aware that at the Falls of Niagara, by reason of the Tail race, 27 feet high and 36 feet incline, also incline to inflow, the net fall is reduced to about 100 feet, while at Hamilton the fall will be fully 300 feet net; again at Niagara the power will be developed at the bottom of the pit and will lose considerable in transmission to the top, while at Hamilton the power will be delivered and utilized at the bottom of the fall, thus saving the loss by transmission. With the fall of 300 feet, water engines will give greater efficiency than the Turbine. I observe that some engineers claim that the flow over the falls is practically unlimited, yet you will find upon investigation that it will require a volume 300 feet wide and 15 feet deep to develop 100,000 horse-power at Niagara Falls, and since the loss by transmission, all considered, will be 33½ per cent., it is evident that the supply is not so great as supposed. Therefore, you will see that Hamilton is the proper place for a power centre. I have not a good map of the section in which I have indicated the canal, yet I have been over the ground

from Caledonia bridge to Brantford. My idea is to use the bed of Grand River by deepening and widening the channel as a part of the supply canal. At the brink of the mountain there will be a right angle canal which will feed the power plant."

In correspondence with this journal, Mr. Golding says: "A canal 100 feet wide and 15 feet deep will supply the water for 100,000 horse-power net. The water will flow through the canal with a velocity of three feet per second, the decline being two inches to each mile. The cross section being 1,500 x 3 feet velocity, equals 4,500 cubic feet per second, equals 270,000 per minute x 62½ pounds per cubic feet, the total weight will be 16,875,000 pounds, which falling 300 feet, equals 5,062,500,000 foot pounds, which, divided by 33,000, equals 153,409 horse-power, from which deduct one-third, 102,273 horse-power net.

"Grand River flows about midway between Lake Erie and the bank of the mountain at Hamilton, total distance 28 miles; therefore, by using the bed of Grand River from Lake Erie there remains but 14 miles of canal to cut. It may seem strange to make a river run backward, but this can readily be done by deepening the bed. Grand River could not supply the canal with any regularity; therefore, when the discharge of the river is sufficient, there will be no water taken from the lake, and when the river is low the water will flow in from the lake; in this way there will be a constant and uniform supply, and there will be no interference with the flow of commerce of Grand River.

"The cost of the canal cannot be even approximated without a careful examination of the ground, yet it is fair to assume that it will not exceed the minimum of work of this kind. The revenue of such a canal for commerce would be considerable. The revenue for power service would be ascertained as follows:

"The average cost of steam power in the United States, and, of course, Canada, is sixty dollars per year per horse-power; now if the total 100,000 horse-power could be disposed of at a reasonable price, there would seem to be plenty of margin for profit from the supply of power.

"The entire subject seems to be quite simple. There is no complication about it whatever, there is no experiment in it, everything being in strict line with engineering, and there is no doubt but that power can be supplied from Hamilton for one-half the cost it can be supplied from Niagara Falls, and with one-third of the flow of water.

"Now, why should power be developed at Niagara for service at Hamilton, 40 miles distant? Why should expensive works be put down at Niagara, where only 100 feet can be utilized, instead of at Hamilton, where 300 feet can be utilized?

"The more you investigate the subject, the more clear it is that Hamilton is the natural power centre.

"I, therefore, suggest that you begin by inviting your subscribers to furnish you with estimates of the power that could be utilized in their particular sections, provided that it be supplied at one half the cost of steam; also ascertain the cost of steam power for each