

vessels without elevating; while other lines of railway can follow the wharves on either bank, giving access to dock and storage areas along the extended shore line, and wide fields can be found for yarding cattle just behind the shipping point, wherein they could recuperate after a long railroad journey in readiness for their new experience on the sea.

The canal would run through a high rocky ridge with Douglas Avenue (one of St. John's main thoroughfares), slightly raised and carried across on a fixed bridge high enough for the masts of steamships to pass under—perhaps not the topmasts.

The railway, and other avenues would be carried across on bascule or drawbridges at or near the lock gates.

The length of the canal from high water to high water will be about fourteen hundred feet, and with its approaches on the basis of a prism eighty feet wide at the bottom, would necessitate about a million yards of excavation, more than three-quarters of which would be in rock.

To make the canal effective, a lock, or preferably twin locks, would be provided. The exact location, and whether the locks should be constructed in the solid rock cutting or built in the open, are matters for special study. A factor in favour of having them outside the canal cutting is the prospect of a low-level railway and general traffic bridge being carried across the head of the harbour at Navy Island, at the outside point of which the gates of the locks could be located. This location would provide level space for machine and repair shops and other works at the outside harbour end, including convenient accommodation for water wheels to use the intermittent power that would thus be rendered easily available.

This power, in connection with hydraulic and electric storage, could be made to work the dock gates, elevators, all sorts of dock machinery and the lighting plant, with perhaps a balance of power to be otherwise disposed of. The quantity of water thus used might be large, but the head would be low and variable. This variability and low head make it probable that no other scheme for utilizing on a large scale the fall of waters at the mouth of the River St. John can be a financial success.

If twin locks are provided they would be, side by side, say 700 or 800 feet long by 80 feet wide at the gateways, and with 32 feet of water on the sills at half tide. The above arrangements would allow of the largest merchant steamships passing in and out for six hours twice in the twenty-four, and smaller vessels for longer periods.

For a short time, when the tide is about two-thirds high, the waters of the harbour and river are at the same level, and the gates might be opened under very strict supervision and vessels be passed in and out without lockage. The gates would necessarily be very