The Canadian Engineer

VOL. I.—No. 11. TORONTO AND MONTREAL, MARCH, 1894. PRICE, 10 CENTS $1.00 PER YEAR.

The Canadian Engineer.

ISSUED MONTHLY IN THE INTERESTS OF THE MECHANICAL, ELECTRICAL, MARINE, LOCOMOTIVE, STATIONARY AND SANITARY ENGINEER; THE MANUFACTURER, THE CONTRACTOR AND THE MERCHANT IN THE METAL TRADES.

SUBSCRIPTION:

Canada and the United States, $1.00 per year; Great Britain, 5s. Advertising rates on application.

Offices. { 62 CHURCH ST., TORONTO.
FRASER BUILDING, MONTREAL

E. B. BIGGAR, PUBLISHER R. R SAMUEL, BUSINESS MANAGER
Fraser Building, Montreal.

Toronto Telephone, 1392. Montreal Telephone, 2589.

OUR CIRCULATION.

OFFICE OF MONETARY TIMES PRINTING CO.

This is to certify that we have printed and mailed TWO THOUSAND copies of THE CANADIAN ENGINEER for the month of February.

MONETARY TIMES PRINTING CO.
OF CANADA (LIMITED).

Per A. W. LAW, Sec.-Treas.

Toronto, March 1, 1894.

HARBOR IMPROVEMENT SCHEMES.

The people of Moncton, N.B., have before them a scheme for the creation of a floating dock in Hall's Creek, which runs through the suburbs of that city. To the mariner the phrase "floating dock" is scarcely intelligible, since all docks, except dry docks, are supposed to contain water enough to float a vessel, but at Moncton the term has a meaning. The visitor to Moncton, if he is led to the wharves of that port when the tide is out, is surprised to see every vessel settled in the earth, while to the right and left stretches a wide trail of red mud, where recently there seemed to be a river. If he waits long enough he will at length hear the sound of rushing waters, and looking down the Petitcodiac's muddy trail he will see the waters sweeping up towards the town—sometimes, at high tides, coming on like a great wave—and in half an hour the ships that were stuck in the mud are floating lightly in a deep, wide river. This is the effect of the enormous tides of the Bay of Fundy—tides which rise and fall 50 to 60 feet, and are equalled in only two or three other places in the world—and the action of the water is locally known as the "bore," though what the word is derived from has not been satisfactorily explained. The ships come up and down the river with the flow and ebb of the tide. Hall's Creek is a branch of the Petitcodiac, and it is proposed by J. L. Harris and other local men to excavate a dock in which the tide waters would be held, or which would be filled by the waters of the creek. The latter would be certainly the only feasible method of filling it, as the deposits of mud from these tidal rivers would be such as would soon fill up any dock. However, the scheme is worth investigating by those interested in the prosperity of Moncton.

Moncton's nearest Nova Scotia neighbor, the enterprising town of Amherst, has also a plan for improving its shipping facilities. Nominally a sea port, few vessels, except small wood boats and hay boats, ever go up there, because the La Planche, a small tidal river by which the town is reached, takes so many curves over the marsh flats that it is hard to navigate by wind alone. In two places in particular the river makes a detour of two to four miles, returning almost to the place whence the curve starts and forming what is described as an "ox-bow." In one case only a few feet of land separates the two banks, and in both cases the excavations would be very small. The cost of cutting off these ox-bows is a very small matter, but a more difficult question is the settlement of the riparian rights possessed by the owners of the marsh land around the river. These lands have been reclaimed from the sea by dykes—which will be described in an early number of THE CANADIAN ENGINEER—and are governed by a special code of regulations. The Provincial Government has jurisdiction over the land question involved, while the Dominion Government has control of questions connected with navigation, of which such a work would be one; so that legislation necessary to carry out the work would have to be adopted concurrently by both parliaments. Though these are difficulties in the way, a number of able men in Amherst believe it can and should be carried out, and efforts are being made to form a local company for the purpose.

BRIDGE SUPERSTRUCTURES.

In a paper to the Association of Civil Engineers, Cornell University, Geo. S. Morrison, the designer of the Memphis Bridge, has dealt with the question of bridge superstructure. American practice in bridges, he said, became established about fifteen years ago. Cast iron has disappeared from bridges, and the practical importance of stiffness, rather than the theoretical advantage of the determinateness of the stress, was recognized. The top chords and the floor connections are now made with riveted joints, and the noisy rattle, common in American bridges twenty years ago, is seldom heard at the present day. Plate girders are used up to 100 feet or more, and may in future be used for longer spans. For longer spans, pin-connected trusses, though very different from the American pin-connected bridges of twenty years ago, are in general practice. The superstructure of such trusses should be as complete as possible in itself. In deck bridges the two trusses may be braced together for the full depth of the truss, but in trough bridges this cannot be done, hence the same result may be got by bracing, making the bracing between opposite verticals as deep as possible, and using a deep, rigid connection between the floor beams and these verticals. This is as necessary near the ends of the span as elsewhere, and though with inclined end trusses this is difficult, still it can be done by using a stiff portal overhead, and making a rigid connection between the inclined posts and the end floor beam. The old plan of omitting this beam and allowing the