causing the wires and strands to draw more closely together under the constantly applied tension of the span.

Ice Protection

Ice conditions in the St. Lawrence River at this point are at times very troublesome and we considered it advisable to construct some kind of guard piers outside the towers to obviate the possibility of damage from this source. During the winter we deposited about 3,000 tons of field stone on the river bed on each side about 75 feet from the upstream and river faces of the towers, carrying the rock up to an elevation about 3 feet above the level of the ice. The ice usually goes out about this level, but last year conditions were exceptional, and before the ice moved it had risen above the tops of our ice-breakers and passed clear over them, piling up around the tower foundations to a height of 25 or 30 feet. Fortunately no damage was done. We are at present completing the guard piers by means of reinforced concrete cribs filled with rock and carried to about the level of the maximum recorded high water.

Sag Calculations

In our calculations for sags, tension, length of cable, etc., under various conditions, we used the parabolic formulae in preference to the hyperbolic formulae for the catenary, on account of the greater simplicity of the former. Comparison was made, however, between the two sets of formulae and we found, as we had expected, that at working tensions the difference was negligible. The formulae for the parabola gave us about 6 inches more sag and about 1 foot less length of cable than the catenary formulae for the same conditions of tension and temperature.

We assumed the maximum load on the cable to be ¾ of an inch of ice all round and 10 lbs. of wind per square foot of projected area, for both the steel and copper lines, at a temperature of 0°F. Under these conditions the calculated tension in the cable is about 106,000 lbs. with a sag of 228 ft. The normal tension at summer temperatures is about 61,000 lbs. with a sag of 185 feet.

Conclusion

There are still a few details to be worked out in connection with the crossing before we can consider the undertaking completed. The questions of providing two circuits on the crossing and of devising some means of absorbing the vibration are still under consideration. The problem of inspection and renewal of the suspension insulators has been only partially solved.

The crossing has been in uninterrupted service now for about nine months. It has not yet weathered a winter with its low temperatures, gales, and sleet storms, so that we still have something to learn about its action under these conditions. The allowable stresses, however, have been kept within reasonable limits and we hardly expect serious trouble from this source. The success that has attended the operation of the crossing since it was put into service gives us reason to expect a satisfactry solution to the remaining problems.

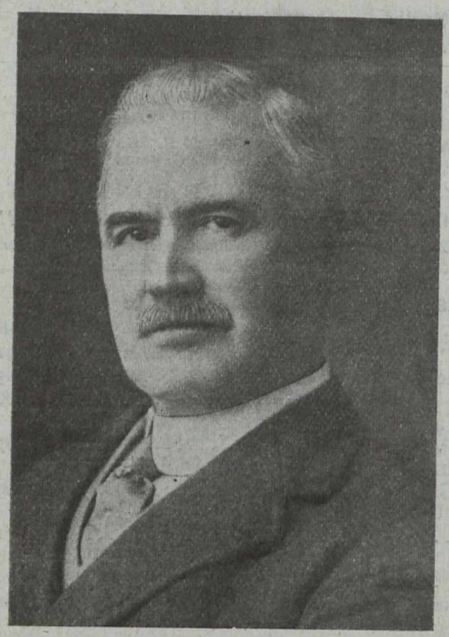
FLOW OF WATER IN WASH WATER TROUGHS

(Continued from page 468)

the area of these iron braces is uncertain. The total area of the trough for this run was 1.88 sq. ft. at the upstream end and 2.26 sq. ft. at the lower end. This seems to indicate that where a trough is designed so that it will carry the expected flows within its section, it will have an overload capacity of possibly 50 per cent. when flooded.

PERSONALS

RICHARD COTSAM WRIGHT, who was recently appointed chief architect of the Public Works Department of Canada, was educated at London, Ont., in the public and collegiate schools and afterwards by private tutors, thus qualifying as an architect and construction engineer. He also was engaged for a time in surveying with a Toronto firm of provincial land surveyors. Mr. Wright was then successively employed by Richard M. Hunt, Bruce Price and Charles C. Haight, all well-known architects of New York City, and subsequently became associated with Clarence Luce in practice in that city. In 1908 Mr. Wright was employed by the Public Works Department as assistant chief engineer. In 1915 he left for Toronto to supervise, from an architectural standpoint, the construction of the new Union Station, but returned to Ottawa last April as acting chief architect of the department. His appointment as chief architect has now been confirmed.



MAJOR GEORGE A. JOHNSON, formerly a consulting engineer in New York City, and until recently officer-in-charge of the Water and Sewer Section of the Maintenance and Repair Division of the Construction Division of the Army, has been promoted to the rank of lieutenant-colonel, and is now ranking officer under Col. C. D. Hartman, officer-in-charge of the Maintenance and Repair Division.

OBITUARIES

W. MUIR EDWARDS, of Edmonton, professor of civil and municipal engineering in the University of Alberta, died in the Pembina temporary isolation hospital, Edmonton, on Nov. 14th, from influenza. Professor Edwards had been taking a prominent part in the relief work, when he contracted the disease. He was a graduate of McGill University and was lecturer there in the faculty of applied science before going to Edmonton.

S. B. BENNETT, who was at one time engineer for the municipality of South Vancouver, B.C., died this month in Virginia. Mr. Bennett started an interesting discussion a couple of months ago on the security of tenure in municipal positions in Canada, by writing letters to certain English publications, criticising the conditions under which Canadian municipal engineers hold their positions. Mr. Bennett was born in England and came to Canada about 1906. When he left South Vancouver, he went to Colorado. It is thought that he was visiting in Virginia when he became fatally ill, although full details have not yet been received by his friends in Vancouver.