

"8. Had the city purchased power before starting on the enlarged aqueduct power development, it could have saved about \$750,000 annually, as compared with Scheme 2, and, without annual investment or compound interest, the total saving in 40 years would have been \$30,000,000.

"9. If the annual savings be invested so as to yield 5 per cent. and be compounded annually in the ordinary way, the total savings in 40 years, as stated in conclusions 5, 6, 7 and 8 above, will be practically trebled.

"The stupendous folly of the aqueduct power development is at once evident from the above figures.

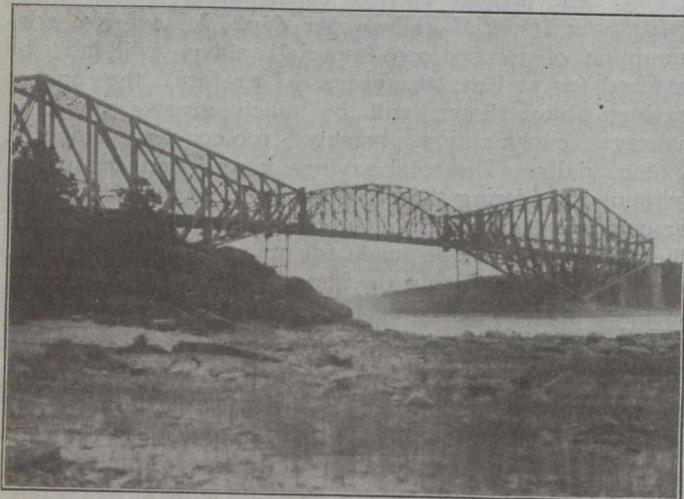
"We are pleased to note that Mr. McRae, in his letter of August 23rd, 1917, makes a recommendation practically agreeing with the solution of the problem as submitted by the ratepaying engineers, and we would once more urge that our solution be adopted without further delay."

### QUEBEC BRIDGE SPAN IN PLACE

As announced in last week's issue of *The Canadian Engineer*, the central span of the Quebec Bridge was raised 24½ ft. on Monday, September 17th, and 34 ft. on Tuesday, the 18th.

The hoisting was continued on Wednesday, the 19th, which was the biggest day's work of the four days required to hoist the span into place, as the span was hoisted 54 ft. on that day. When the span was moored for the night late Wednesday afternoon it had, therefore, been raised a total distance of 112½ ft., and was within 38 ft. of its final position. This remaining distance was finished on Thursday, and the pins which held the span in place between the cantilevers were successfully driven before nightfall.

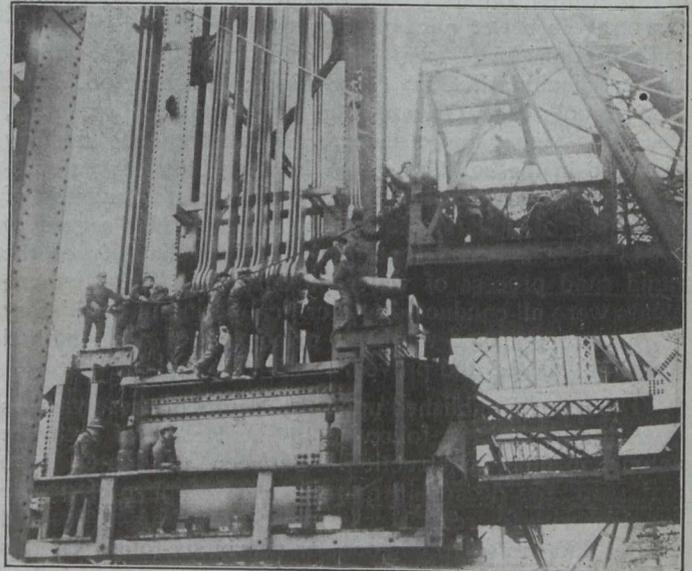
The accompanying illustrations show the span in place and also the operation of placing one of the pins through the eye-bars at the CMO joint. The successful placing of



Quebec Bridge, September 21st, 1917

these pins meant the end of all difficulties in regard to the erection of the bridge, as the remaining work is comparatively easy, consisting merely of the placing of some additional sway bracing, the replacing of a comparatively small number of bolts with rivets, the construction of the friction brakes between the central span and the cantilevers, the completion of the sidewalks and tracks, removal of the mooring trusses and lifting apparatus, the placing of false members between the top of the cantilevers and the top of the central span, painting, etc.

By Wednesday night the central span had been raised to such a height that an ocean-bound vessel was able to pass directly under it safely, the Dominion Coal Co.'s steamer "Lingan," passing upstream. A very steady gait was struck by the crews in charge of the lifting apparatus on Wednesday, and a lift was made about every fourteen minutes. The splendid weather which had been enjoyed from the time of the floating of the span, came to an abrupt end on Wednesday afternoon, when a heavy thunder storm struck Quebec just as the men were completing the afternoon's lifting. The storm was not ac-



Placing One of the Pins at the CMO Joint, the Last Operation of the Hoisting of the Suspended Span

companied by much wind and the span was not in any danger.

The weather on Thursday was the worst encountered since the hoisting began, the wind having increased to thirty miles an hour, swaying the span about 1½ ins. Fifteen lifts of 2 ft. each were accomplished Thursday morning, leaving only four lifts to be done after lunch. The pins at the CMO joint were driven before four o'clock and the ensign of the Canadian Marine Department was then flown from the span, indicating that the river was again open for traffic and that the bridge was officially considered safely in place.

Locomotive cranes, air compressor plants, river steamers, tugs and other craft blew their whistles loudly and long, as soon as it became known that the pins were safely in place. The demonstration was carried down the river to Quebec, where thousands of bells clanged and the streets were transformed by hunting which the people hurried to hang out.

The officials of the bridge company and the members of the board of engineers were surrounded by the bridge workers and loudly cheered. In an interview with the newspapermen after the completion of the work, Col. Monsarrat, the chairman of the board, said that what remained to be done on the bridge to fit it for traffic would not require many weeks and that within a few months the bridge would be entirely completed.

While the span was being hoisted, a number of telephone calls were received by *The Canadian Engineer* from persons enquiring whether operations were being continued at night. No night work was done. Hoisting operations were stopped each day about 4.30 p.m.