October 6, 1910.

1910, and the work of sinking will start at once. This caisson is 180 feet by 56 feet square and over 60 feet high, requiring approximately 3,000,000 feet of timber, 90% of which is 12''x 12'' southern pine. Nearly 70 tons of bolts were required in its construction.

At the lower depths to which the caisson will be sunk the men are working under a pressure of about four atmos-



View Showing Launchway at Low Tide.

pheres. At this depth man can only work for about two one-hour shifts in the twenty-four hours, for which they receive a full day's pay. Work will go on night and day and a force of some 2,000 men required.

Between 40,000 and 50,000 barrels of cement will be required in the construction of the north pier alone, and about ^{125,000} barrels for the entire work.

The caissons for the south pier will be constructed this winter.

It is interesting to compare a few of the principal features of this bridge with those of the Firth of Forth bridge, at present the largest existing bridge in the world.

	Ouebec bridge r	onth pricese
Total length of cantilevers	2,930 ft.	5,349.5 ft.
Length of longest channel spa	1,758 ft.	1,710 ft.
	(2 rail'y tracks	in the about
Roadways on bridge	2 st. ry. track	p rv. tracks
The chicago of the being	2 highways 2 sidewalks	2 I.y
Load per lineal foot bridge is	de-	
^{own} weight	its	4,480 lbs.
Total weight of bridge	72,000 tons	57,000 tons
Weight per lineal foot for cantile only	ver 40,150 fbs.	21,360 lbs.
Greatest depth of piers below hi water	gh 03 ft.	87 ft.
		1 1.1.1.

The weight per lineal foot of steel in the Quebec bridge is 2.30 times as great as that of the Forth bridge.

The load for which the Quebec bridge is designed is ^{2.98} times as great as that for which the Forth bridge was designed.

The Forth bridge has 4.77 lbs. of carbon steel for every pound of live load it is designed to carry.

The Quebec bridge has 3.69 lbs. of nickel steel for every pound of live load it is designed to carry.

The prescribed test load for the Quebec bridge is 4¹/₃ times heavier than that used for the Forth bridge.

Models of all the important members, both compression and tension, have been made and will be tested to destruction in order to learn as nearly as possible what the elastic limit and ultimate strength of such members are under approx-



Showing Horizontal Jacks in Place at Upper Side to Give Initial Movement to the Gaisson When Ready to Launch.

imately actual conditions. Some of these tests have already been made.

Test pieces of the compression chord of the old Quebec bridge broke at 26,850 lbs. per square inch.

Test pieces of similar chords for the new bridge broke at 56,800 lbs. per square inch.

DENSITY OF POPULATION.

The following table gives the population, area, and average density of population of some of the chief European, American' and Canadian cities :--

Name.	Area, Acres,	Population Number.	Density of Population,
	11100, 11100		No. per Acre.
London		7,200,000	16.3
New York	206,420	4,300,000	20.7
Paris	115,712	3,900,000	33.7
Berlin	76,288	3,200,000	. 42.1
Chicago	120,576	2,100,000	1.7.4
Philadelphia	81,152	1,500,000	18.5
Boston	27,072	1,300,000	43.3
Montreal	27,520	476,000	17.3
Toronto	16,750	345,000	20.6

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