

The Canadian Engineer

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CENTRE STREET BRIDGE, CALGARY, ALBERTA*

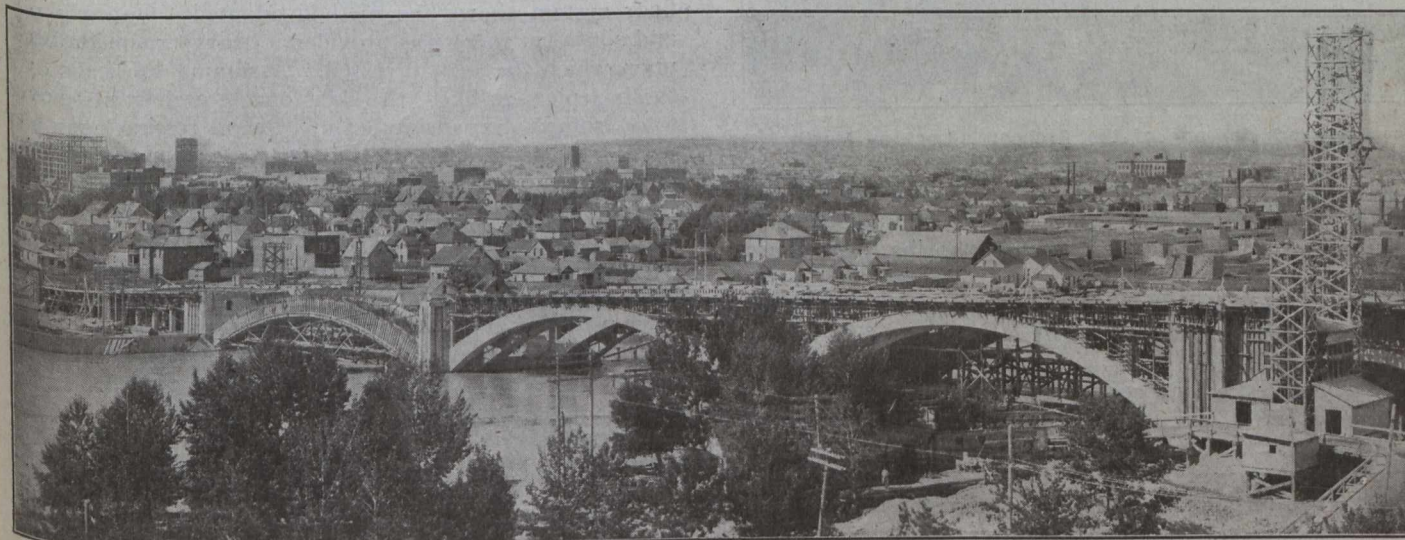
SKUEW BRIDGE WITH GRADE OF NEARLY FOUR PER CENT. AND TRAFFIC ON TWO LEVELS—COST APPROXIMATELY \$400,000—ONE OF THE MOST IMPORTANT REINFORCED CONCRETE BRIDGES IN CANADA.

By **GEORGE W. CRAIG**, City Engineer, and **JOHN F. GREENE**, Bridge Engineer.

THE Centre Street Bridge improvement in Calgary, Alberta, consists of three parts: 1st, the bridge proper and its south approach with a total length of 1,300 ft.; 2nd, a fill and cut extending 2,100 ft. north from the bridge; 3rd, a side hill cut, forming a road which meets Centre Street at the face of the hill,

55,000 second-feet, and is about 500 feet wide at the bridge site.

The problem from the viewpoint of the designer may be stated as follows: Given a height of 29 ft. from the water line to grade at the south bank, 47 ft., or 18 ft. more at the north bank, with a skew of 60°, to obtain a



Centre Street Bridge, Calgary, Alta. Photograph, August 21st, 1916.

extending west for 2,800 ft. (of which 2,300 ft. is in cut). The south end of the bridge lies five blocks from the business centre of the city.

The improvement provides a convenient avenue for traffic between two parts of the city; the one a residential section lying north of the river, and 120 ft. above the business portion which stands on the former flood plain on the south side of the river. The roadway has a maximum grade of 3.85% with a minimum width of 42 ft. on the bridge, and provides for two lines of street car traffic, and contains two sidewalks each 7 ft. wide.

A low-level roadway, 18 ft. wide, slung from the bridge deck, provides for highway traffic to a residential section lying on the flood plain north of the river below the bluff which commands the city, while the sidehill cut provides a means of communication between the low and hill levels north and west of the bridge.

The Bow River, which passes the bridge at an angle of 60° with the centre line, has a flood volume of about

structure which shall provide for all probable traffic requirements on a high and low level during its life, and at the same time present an appearance in keeping with the dignity which should characterize public works of a monumental character, and this for a predetermined amount of money. We were impressed with the importance of lending to the structure the grace of proportion and of suitable ornament. The irregularities of grade and skew contributed much to the complexity of the problem, and it was only after numerous trial elevations based upon radically different conceptions, that we arrived at a final arrangement that seemed satisfactory. We went to the expense of constructing a wooden model of a portion of the bridge to be assured that the treatment would produce the desired effect.

The various parts of the bridge were designed for the following live loads:—

Floor, concentrated loads: Car beams and slab, 50-ton cars on both tracks; road beams and slabs, 20-ton motor trucks.

*Paper read before the Canadian Society of Civil Engineers, Montreal, February 8th, 1917.