THE SASKATOON TRAFFIC BRIDGE

THE new traffic bridge which will supplant the present steel bridge at Saskatoon, is in its early stages of construction, and will probably be ready for use by December of next year. The present bridge was built in 1906-07, but during the past six years the city has grown so rapidly that the structure is quite inadequate to accommodate the large traffic crossing the river. The old bridge is built on concrete piers. It is interesting to note that the petition of 1904, asking for a bridge at Saskatoon, estimated the population at 1,200, while the 1901 census had placed it at 113, a conservative estimation of the present population being 26,000.

Early in 1912 the need of a new and larger bridge was voiced, resulting in a thorough investigation on the part of the Board of Highway Commissioners, and in June of last year the site was selected. It was definitely decided that the bridge should span the river between Twenty-fifth Street on the west and Saskatchewan Street, which bounds the University grounds, on the east. It was agreed that only a very wide bridge would meet the requirements.



Fig. 1.—Accepted Design for Saskatoon Traffic Bridge.

The site chosen offered various difficulties from an engineering standpoint. The elevation of the bank at the University side is some fifty feet higher than on the city side. The river is about 1,100 feet wide during high water at this point. The bridge was to cross from a park on the city side to the University grounds on the other, and the aesthetic treatment demanded great care,

The Board of Highway Commissioners designed bridges of two types for this crossing—a steel superstructure on concrete piers, and a bridge composed of a series of reinforced concrete arches. The estimated cost of the two types varied by only about \$6,000, and the selection became a question of type rather than cost. The steel bridge required a long approach on the city side of the river in order to overcome the grade as it was not considered practicable to build a large steel structure with so large a grade. This approach was at the best an unclaims for property damage from residents of Twentyfith Street.

The reinforced concrete bridge was chosen because of greater permanency and better appearance, and as best suiting the requirements. An agreement was drawn up with the city of Saskatoon by which they agreed to pay one-third of the cost of the structure. Plans were prepared of a bridge consisting of a series of arches with a floor on a grade of 2.88 per cent. The total width of the bridge is to be 65 feet, and two 8-foot sidewalks are to be cantilevered from the roadway. Provision was made for two street car tracks, and two 14-foot roadways.

The total length of the bridge and the retaining walls at its approaches is about 1,490 feet. It consists of one arch of 25 feet span, one arch of 66 feet span, one arch of 92 feet span, one arch of 103 feet span, one arch of 136 feet span, four arches of 150 feet span, and one irregular arch of 94 feet span. The arches of 150 feet are notable as being longer in span than any in Canada.

The design was most carefully worked out and the allowable stresses are most moderate. The bridge is designed for a temperature range of from 50 degrees below zero to 90 degrees above. This variation of temperature is thought to be larger than that used in designing any other concrete bridge.

Tenders were called for the construction of the bridge and closed on July 15. The R. J. Lecky Company, of Regina, was the lowest bidder and its tender was accepted. The price for the estimated quantities was some \$240,000. Cement and reinforcing steel are to be supplied by the Board, and the estimated quantities are 725 tons of reinforcing steel and 114,000 bags of cement. The cost of these must be added to the contract price to obtain the actual cost of the work.

The bridge was designed under the personal direction of Mr. A. J. McPherson, chairman of the Board of Highway Commissioners, by the engineering staff of the bridge branch, of which Mr. A. P. Linton is assistant chief engineer. Mr. Daniel B. Luten, of Indianapolis, who is an authority on concrete bridges, acted in an advisory capacity, and examined and approved the general arrangement and the working plans.

In Western Canada the bridge will only be surpassed in size and importance by the bridge over the North Saskatchewan at Battleford. It will, however, be by far the largest reinforced concrete bridge in this country, and will take high rank among the big bridges of the North American continent. The illustration gives an idea of the accepted design, a more detailed description of which will be published at a later date.

According to the report of Mr. J. McLeish on Economic Minerals and Mining Industries in Canada, these statistics are given for the total production of petroleum in the Province of New Brunswick; in 1911, an aggregate of 2,461 lbs., valued at \$3,019; and in 1912, 2,679 lbs., valued at \$3,799.

Railway building in Western Canada is one of the wonders of the age, over seven miles of new track being laid down for every day in the year. Each year the railway map of Western Canada shows hundreds of miles of extensions laid in all directions. The railway mileage of the Western Provinces in 1900 was 3,680, and is now 13,560 miles, and before long, instead of one, three transcontinental railroads will belt the prairies, with branches and feeders extending in every direction, opening up large areas of new territory for agricultural and commercial development. The railway extension programme laid down for completion this year by the Canadian Pacific, Canadian Northern and Grand Trunk Pacific Railways is the largest yet attempted. Active work is now in progress on the Hudson's Bay Railway, which, in addition to forming a new outlet and more direct ocean communication for the Western Provinces, will open up a large area of new and undeveloped territory to the north. This extensive increase in transportation facilities will, without doubt, increase the acreage cultivated, which will in turn, create an everincreasing demand for manufactured goods.