

476 ft. The roadway is narrow for a bridge of this length, 16 ft., and it is without sidewalks. The cost was about \$60,000.

Two years later (1915) the palm passed to the great University bridge, Saskatoon. This has three spans of 150 ft. and seven shorter spans, making a total length of con-



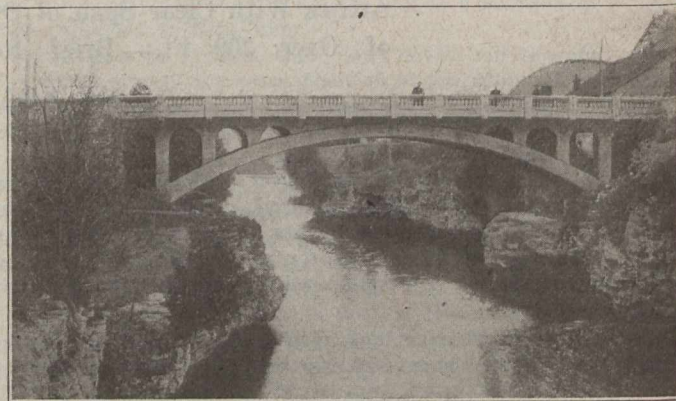
LYNHURST BRIDGE, ST. THOMAS, ONT.
(Earth-Filled Arch)

crete of 1,250 ft. The roadway is of generous dimensions, 45 ft. between curbs, with two sidewalks of 8½ ft. It was designed by the Provincial Board of Highway Commissioners for Saskatchewan; A. P. Linton, bridge engineer. Daniel B. Luten, as consulting engineer, checked the calculations and acted in an advisory capacity. The contract price was about \$400,000, but the total cost, including land damages, was \$520,000. C. J. Yorath was city commissioner for Saskatoon.

The Saskatoon bridge was duplicated as to spans and nearly as to length the next year (1916) by the Centre Street bridge, Calgary, of three main spans of 150 ft. and two shorter shore spans, making a length of approximately 1,000 ft. of concrete. The roadway is 42 ft., with two sidewalks. There is also a narrower lower deck, hung from the arch ribs by structural steel shapes. The bridge was designed by Geo. W. Craig, city engineer, and John F. Greene, bridge engineer, and was built by them by day labor at a cost of \$366,000.

The Saskatoon bridge is at present the longest, and probably the finest, concrete bridge in Canada, with the Calgary bridge a close second. But they will soon be exceeded in

length and span by the Hunter Street bridge, Peterboro', upon which it is expected that work will commence shortly. This will have a main span of 235 ft., with ten shorter spans, making a length from end to end of concrete of 1,365 ft. The roadway is 42 ft., with two sidewalks of 6 ft. R. H. Parsons is city engineer, and Harry Phelan chairman of the committee. (It is interesting to note that Mr. Phelan was also chairman of the Board of Works in 1910 when the Smith Street bridge—in the third list, page 291—was built,—one of the most important Canadian concrete bridges at that time). The Hunter Street bridge was designed by Frank Barber, consulting engineer, in collaboration with Claude Bragdon, architect. The estimated cost is \$300,000.



OPEN SPANDREL ARCH BRIDGE AT FERGUS, ONT.

The last-mentioned three bridges carry or will carry double lines of electric cars.

The Lemieux Island Bridge, the last on the list on this page, is an aqueduct and roadway combined. It has spandrel curtain walls, and thus looks like a filled arch.

Besides the seven open spandrel arches all over 100 ft. in main span, two more are mentioned in the third list, on page 291. The Victoria Bridge, Brantford, built 1910, was one of the first of this type in Canada. The arch span is only 60 ft., but four beam spans bring the length to 246 ft., then the fourth longest. It has a wide roadway with sidewalks and carries electric cars. T. Harry Jones, the engineer, has designed several other very pleasing short span arches.

The other open spandrel arch in the third list, on page 291, is the handsome Crawford Street Bridge, in three spans, built by the city of Toronto. The arches are not,

OPEN SPANDREL ARCH BRIDGES WITH CLEAR SPAN OVER 100 FEET

Name.	Year.	Clear span of main arch.	No. of spans.	Total length of bridge proper.	Roadway between curbs.	Sidewalks.	Cost.	Engineer.
Hunter Street, Peterboro	(in course)	235'	1 main 10 approach	1,365'	42'	2 of 6'	\$300,000 (estimated)	Frank Barber, Engineer, Claude Bragdon, Architect, R. H. Parsons, City Engineer.
Centre St. Bridge, Calgary	1916	150'	3 main 2 approach	approx. 1,000'	42'	2 of .'	366,000	Geo. W. Craig, City Engineer, Jno. F. Green, Bridge Engineer.
University Bridge, Saskatoon	1915	150'	3 main 7 shorter	1,250'	45'	2 of 8½'	520,000	A. P. Linton.
King George Arch, Oakville	1913	135'	1 main 8 approach	476'	16'	none	60,000	Jas. Hutcheon, County Engineer, Frank Barber, Consulting Engineer.
Port Arthur Bridge	1913	130'	1 span	about 180'	16'	2 of 5'	L. M. Jones.
Wadsworth Arch, Weston	1910	118½'	1 span	178'	16'	none	15,000	Barber & Young.
Lemieux Island Bridge, Ottawa (aqueduct and highway)	1916	106'	4 equal spans	765'	20'	59,500	John B. McRae.