

of the Don section. The Rosedale section also includes a retaining wall 170 ft. in length, extending from the west abutment of the bridge westward. This wall is of counterfort type for 69 ft., the buttresses being spaced 15 ft. centre to centre. The remaining portion of the wall is of cantilever type.

The span is a 3-hinged steel arch with a 64-ft. rise, and is similar in design to the five arches of the Don section. A description of the Rosedale section, with loading diagrams, etc., appeared in *The Canadian Engineer* of December 17th, 1914.

Handrail—1,260 lineal feet.

Expansion joints—In floor, 8; in walls, 13; total, 21.

Grubbing—1 acre.

The cement for the Rosedale section was supplied by the Canada Cement Co. Baines & Peckover furnished all of the reinforcing materials. The sand was supplied by the Lake Shore Sand and Gravel Co., and the crushed stone by Alfred Rogers, Limited. The steel was fabricated by the Dominion Bridge Co., Toronto. The steel castings were made in Cleveland, Ohio.

Smith mixers were used on the Rosedale section, and Beatty hoists, Thew shovels, Adams dump wagons, Greening wire rope, Owen clamshells, Lakewood dump buckets, and Ingersoll-Rand air compressor plant.

The entire viaduct was designed by, and its construction is proceeding under the supervision of, the following officials of Toronto's Department of Works: R. C. Harris, commissioner of works; Geo. G. Powell, deputy city engineer; G. A. McCarthy, assistant engineer of railways; Thos. Taylor, designing and construction engineer; Geo. Oksvik, principal assistant; Chas. E. Stilson, field engineer, Don section; John Ryckman, field engineer, Rosedale and Bloor sections; and Wm. E. Janney, engineer in charge of surveys and measurements. The architectural features of the concrete work were designed by Edmund Burke, consulting architect, Toronto.

T. T. Black is representing Quinlan & Robertson in Toronto, and is their resident engineer on the Don section, while Frank Munro is general superintendent. Hamilton Bridge Works Co. are represented by J. Gordon Jack. W. F. B. Rubidge was resident engineer for the Dominion Bridge Co. until September 1, 1916, when he was succeeded, upon resignation, by A. F. Ramsperger. E. J. Cotes is general superintendent for the Raymond Construction Co.

In a recent monthly report of the Bell Telephone system some interesting figures were presented regarding the extent of the company's operations throughout the world. On July 31 last the company had 19,122,921 miles of wire, enough to girdle the earth 765 times, an increase of 1,177,390 miles over the same date in 1915. The company had 9,549,630 stations, 6,290,826 owned and 3,258,808 connected, an increase of 665,892 over a year ago.

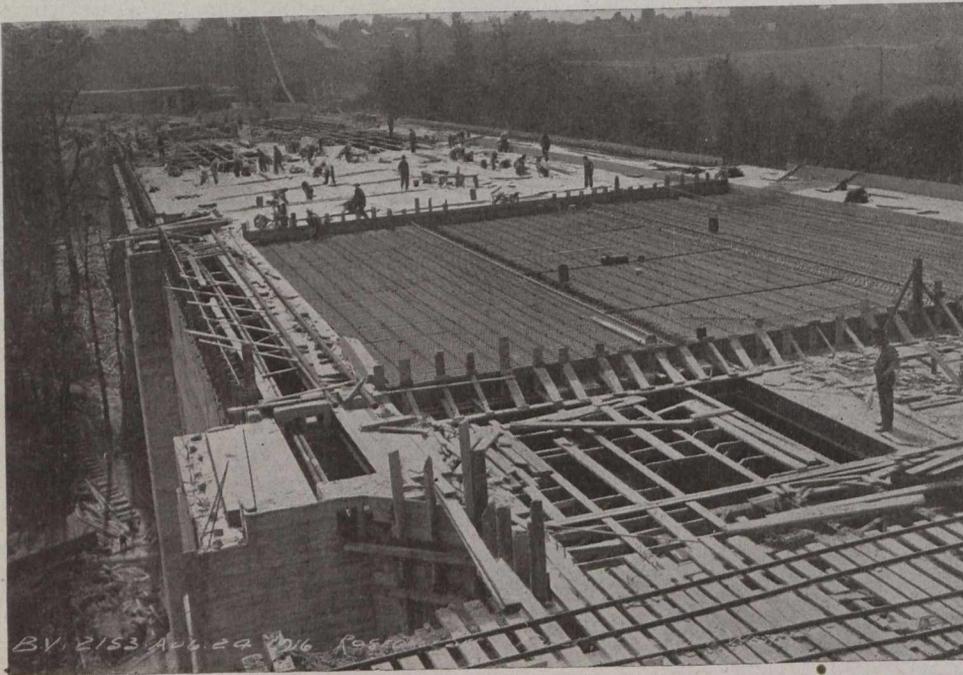


Fig. 9.—Upper Deck, Rosedale Section, Looking West.

Following are the engineers' estimates for the Rosedale section:—

Total of excavation—Earth, 30,842 cu. yds.; rock, 166 cu. yds.; total, 31,008 cu. yds.

Concrete—1:2:4, 2,250 cu. yds.; 1:2½:5, 12,651 cu. yds.; 1:2¾:5½, 1,847 cu. yds.; total, 16,748 cu. yds.

Concrete reinforcing—Steel bars, 364,327 lbs.; expanded metal, 88,728 lbs.; total, 453,055 lbs.

Structural metals—Steel, 2,639,530 lbs.; cast steel, 75,000 lbs.; cast iron, 37,720 lbs.; lead, 5,990 lbs.; total, 2,758,240 lbs.

Granite—455 cu. ft.

Waterproofing—Track, 1,306 sq. yds.; roadway, 2,578 sq. yds.; back of retaining wall, 460 sq. yds.; total, 4,344 sq. yds.

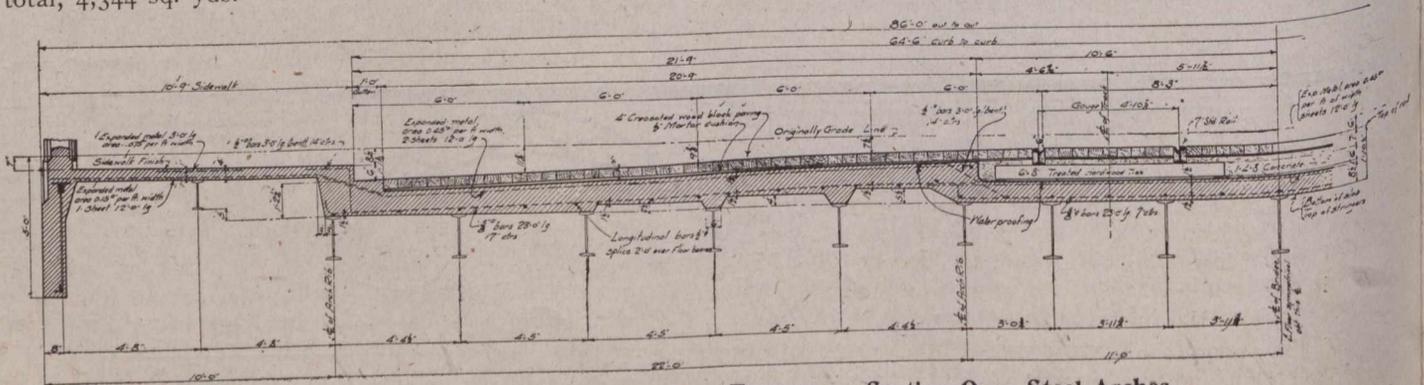


Fig. 10.—Upper Deck Slab, Half Transverse Section Over Steel Arches.