Welland Ship Canal

Recapitulatory Notes on Canada's $50,000,000 Waterway Between Lakes Erie and Ontario—Some Data On That Portion of the Undertaking Contracted For and Partly Executed Prior to Suspension of Operations

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ONE of the direct effects of the war on public enterprise in Canada has been the suspension, since the end of 1916, of all active work on the Welland Ship Canal, the date of the resumption of which is at present a matter of pure conjecture. That the project will later be revived is almost certain, considering the fact that over twenty million dollars have already been spent. Until the end of the war is, at any rate, in sight, it would be premature to speculate on just when work will be recommenced. The Welland Canal now in use has, since its construction, been known as the "new" canal, in distinction from the original waterway which is now historically referred to as the "old" canal, commenced in 1824. The work now in course of construction, therefore, constituting the third undertaking of the kind, but with the distinction of being known to the world as the Welland Ship Canal.

The conception of this new undertaking, and a general description of the work involved, having already appeared in "The Canadian Engineer," the object of the present article is to discuss, more especially, that portion of the undertaking which, for over three years, was the scene of so much activity, but which, to-day, is lying dormant and deserted, until time and circumstances warrant its further exploitation.

The route of the Ship Canal, as finally located, follows the course of the present canal from Port Colborne, on Lake Erie, to Allanburg, half way across the Niagara peninsula. From this point an entirely new cutting is to be made, crossing and re-crossing the present canal, until it finally enters Lake Ontario, at the mouth of the Ten-mile Creek, about three miles east of Port Dalhousie, the entrance to the present canal. For construction purposes, the work has been divided into nine contract sections, Section No. 1 being at the Lake Ontario end of the canal, the other sections following consecutively toward Lake Erie. Up to the present time, contracts have been let for, and active work conducted on, Sections 1, 2, 3, 5, together with a portion of Section 4, called 4A, which combination entirely covers the ground under discussion.

Section No. 1

Contractors.—The Dominion Dredging Company, Limited, of Ottawa, Ont.

Approximate Amount of Contract.—$3,500,000.

Work Contracted for.—Construction of harbour for new Lake Ontario entrance to canal, comprising 25-foot dredged channel, 1½ miles long; construction of reinforced concrete entrance piers, retaining walls, etc.; excavation of 1½ miles of canal prism inland; construction of Lock No. 1, with weirs, regulating pond, etc., and the substruction for Bridges Nos. 1 and 2.

Dredging and Excavation.—At the time of the suspension of operations, over 1,000,000 cubic yards of earth excavation had been removed, and 40,000 cubic yards of rock, the material all being disposed of in the harbor embankments. The material to be dredged proved to be of a very hard nature, consisting for the most part of firmly cemented sand and clay, and, for a distance of approximately 1,700 feet, rock was encountered about three feet above the grade line. To cope with the work, the contractors found that large capacity dipper dredges did the best work, and two such dredges, of 5- and 6-yard dipper capacity, respectively, gave a good account of themselves, until the spring of 1915, when they were assisted by the C. S. Boone Dredging Company, sub-contractors for a portion of the dredging, who started another 5-yard dipper dredge, and a drill boat equipped with three steam rock drills, for drilling blast holes in order to loosen the material ahead of the dredges. For dry excavation, the plant included two steam shovels,

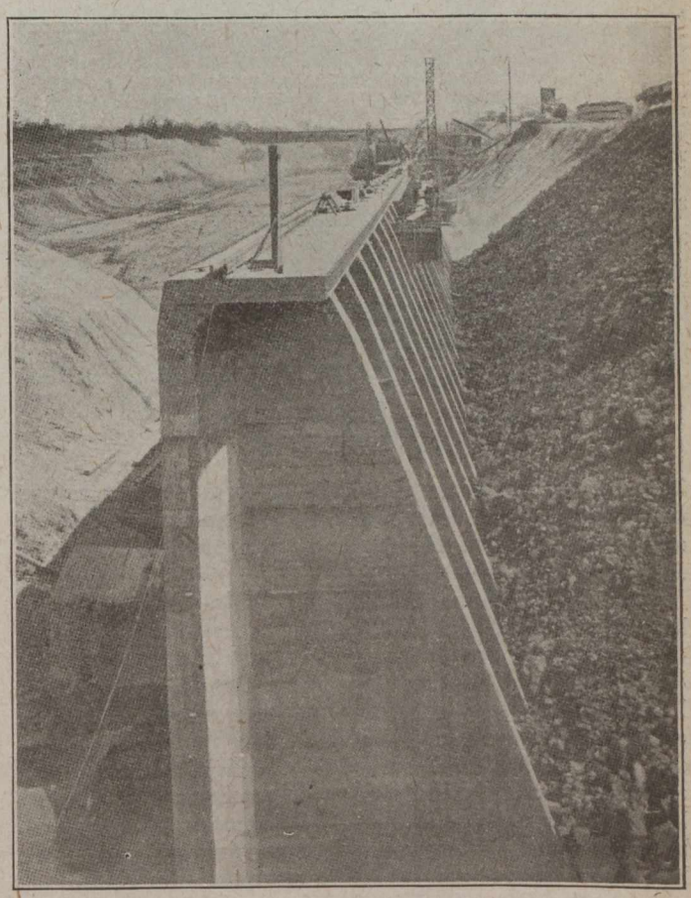

Fig. 1—Reinforced Concrete Wall, Lock No. 1 being Backfilled

one dragline excavator, one 15-ton locomotive crane, locomotives, dump cars, and spreaders.

Reinforced Concrete Cribs.—The reinforced concrete cribs, of which the outer entrance piers and the docking of the east and west side of the inner harbor are formed, were constructed at Port Dalhousie by the J. H. Tromanhauser Co., Ltd., of Toronto, sub-contractors for the Dominion Dredging Co., Ltd., and have already been described in detail,* both as to design and method of

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