



# CANADIAN CANALS



CANADA'S canal system is one of which the Dominion has every right to be proud. The work of canal construction has been spread over the better part of a century, and is not yet completed. But Canada today possesses one of the most comprehensive and extensively used canal systems in the Empire.

Canal construction is a costly and lengthy undertaking, even under the most favorable circumstances. The first work was done at Montreal, and Canada's first canal, appropriately enough, that which began connection between Montreal and the West—the Lachine Canal. The advantages to be gained by surmounting that great obstacle—the Lachine Rapids—were obvious to everybody, and the construction was urged even before the passing of the Constitutional Act in 1791. Various stumbling-blocks, however, prevented the scheme from being put into effective operation until 1821. The original canal, towards the cost of which the Imperial Government contributed \$50,000 on condition of free passage of military stores, involved a total expenditure of nearly \$450,000, was opened in 1825 with a depth of 4½ feet, and a width at the water-line of 48 feet, with seven locks 100 feet and 200 feet. Various improvements and extensions have been made as the developments of commerce required, and to-day Lachine Canal has a length of eight and a half miles, includes five locks 270 feet by 45 feet, a depth varying between 14 and 18 feet, and an average width of 150 feet.

Safe connection having been obtained between Lake St. Louis and the St. Lawrence below Lachine Rapids, it was inevitable that the scheme should be extended further up, and the next step was the connection of Lake St. Louis with Lake St. Francis, the river course being blocked by the Cascades, the Cedar, and the Coteau rapids. Between 1833 and 1842 the question was debated in and out of Parliament, some favoring a canal on the north shore, and others contending that one on the south would be shorter, independent of any watercourse, and uninfluenced by the Ottawa river. Over a million dollars were expended on the latter route, but on the opening of the Beauharnois canal in 1845 great difficulties immediately became manifest. The upper entrance was imperfect, the channel crooked, too shallow in dry weather, and affected by cross-currents. Then began a series of exceedingly expensive works, including guard dams, regulating weirs, and dikes, resulting in the eventual abandonment of the canal and the construction of the Soulanges cutting to replace it, on the opposite side of the river.

The Soulanges Canal is a magnificent work only recently completed, and covers a distance of sixteen miles, the actual length of the canal proper being fourteen miles. The depth is 15 feet on the sills, and the breadth at the surface 164 feet.

The history of canal development follows the course of the St. Lawrence up from Montreal. Thus it came about that the Cornwall canal, designed to avoid the Longue Sault Rapids, above Lake St. Francis, was among the propositions made at the time the question of improving the freight outlets from the Great Lakes to the sea came up. This canal was begun in 1834, eight years before the Beauharnois, but the Rebellion retarded the work materially, and it was not opened until 1843. It is eleven miles long, and of the same dimensions as the Soulanges.

From the head of the Cornwall canal the river is navigable for five miles, but after that come the Farran's Point Rapids, the Rapide Plat, and the Point aux Iroquois, Point Cardinal, and the Galops rapids. A

series of canals, known as the Williamsburg canals, constructed between 1847 and 1856, enable shipping to pass these points. The united length of the three canals composing the series is about thirteen miles, the Galops canal (7½ miles) being the longest, and the Farran's Point Canal the shortest. The breadth varies between 90 and 80 feet, and the depth is uniform, 14 feet.

After the Galops canal there is open navigation, on the St. Lawrence and on Lake Ontario, for a distance of 226 miles, after which comes the greatest canal work in the Dominion, the Welland canal, connecting Lake Ontario with Lake Erie, and conveying navigation around the Niagara rapids and falls. Vessels desiring to avoid open lake sailing, however, can proceed via Murray canal, which is five and a sixth miles long, 120 feet wide, and 11 feet deep, and which cuts across the Murray Isthmus, connecting the head waters of the Bay of Quinte and Lake Ontario.

The story of the Welland canal construction is one of great difficulties overcome. Again and again, from 1816 onwards, the question of connecting the two lakes was brought up, and routes were surveyed. Eventually, in 1824, a private company was formed, called the Welland Canal Company, which proposed to utilize the waters of the Welland river, tunnel a high ridge for a mile and a half, and connect by two canals, with a railway running from one to the other, and thence by Twelve Mile Creek to Lake Ontario. Then the scheme was changed, and the company began in 1825, but they became very seriously embarrassed financially, despite Government loans, and, hindered by landslides and other accidents. Then the Government took the work in hand, and to-day it has two branches,—the Grand River feeder, 21 miles long, and the Port Maitland branch, a mile and three-quarters in length. Along the course of the canal proper between Port Dalhousie and Allanburg, there are two distinct canals in operation, the old cutting and the new, the former having been accomplished by the company, and the latter by the Government, but from Allanburg to Port Colborne, on Lake Erie, there is only one canal. The total distance of the connection between the lakes is 26 3-4 miles. The depth varies between 10 1-4 and 14 feet.

Apart from the Sault Ste. Marie canal, which is an American undertaking, and which gives communication in Canada, by way of the St. Mary river, between Lakes Huron and Superior, there are three other canal systems,—the Montreal, Ottawa and Kingston, the Richelieu and Lake Champlain, and the Rideau. The first-named includes the three Ottawa river canals, the St. Anne's Lock, Carillon Canal, and the Grenville Canal, giving through navigation from Montreal to Kingston, on Lake Ontario, via Ottawa. St. Anne's Lock, only one furlong in length, surmounts the St. Anne's rapids between Ile Perrot and the Island of Montreal, some 23½ miles from Montreal harbor; the Carillon canal, three-quarters of a mile long, takes navigation around the Carillon rapids, which are twenty-seven miles above St. Anne's Lock, and there is also a dam at Carillon across the Ottawa river which raises the water nine feet and renders it navigable. Then comes the Grenville Canal, which is five and three-quarter miles long, avoids the Long Sault rapids, and gives clear navigation from the foot of those rapids to the city of Ottawa, fifty-six miles away. From Ottawa city the Rideau canal, a series of locks, connects the Ottawa river with the east end of Lake Ontario, at Kingston. The length of these navigable waters is 126 1-4 miles, and the breadth of the canal 80 feet.

The Richelieu and Lake Champlain system, beginning at the confluence of the St.

Lawrence and the Richelieu at Sorel, 46 miles below Montreal, extends along the Richelieu through the St. Ours Lock to Chambly Basin, thence by the Chambly Canal to St. Johns, and up the Richelieu again to Lake Champlain, where there is connection with the Erie canal and navigation through to New York, the total distance being 411 miles.

The Trent 'canal,' so-called, is a series of water-stretches composed of a chain of lakes and rivers, extending from Trenton, at the mouth of the river Trent, on the Bay of Quinte, Lake Ontario, to Lake Huron. Certain sections previously unnavigable, have been rendered fit for navigation, and the scheme is at present in course of completion. It includes canals, locks, bridges, and dams, overcoming numerous rapids, a distance of 165 navigable miles.

The only other canal of note in Canada is the St. Peter's canal, in the Maritime Provinces, which crosses an isthmus half a mile wide, and connects the famous Bras d'Or Lakes with the Atlantic, running from St. Peter's Bay on the northern side of Cape Breton, Nova Scotia. It took nearly sixteen years to construct, is 2,400 feet long, and is much used by shipping.



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Letters from some of our young agents appear on page 14 of this issue, where will also be found full instructions for other boys who want to earn pocket money or Christmas presents; but there is little time to lose, as the December (Christmas) issue, though large, will soon be exhausted, and then they will have to wait for the New Year Number.

We expect, before long, to have thousands of boys all over Canada, selling the CANADIAN PICTORIAL.