

Five miles from the Cornwall commence the three canals known as the *Williamsburgh*. The three are $12\frac{3}{4}$ miles in length, 9 feet depth of water and 50 feet broad, with six locks and a rise of $31\frac{1}{2}$ feet. Between the first and second there are $10\frac{1}{2}$ miles of navigation, and between the second and third $4\frac{1}{2}$ miles. Experiments were made during the summer and autumn of 1876 to test the possibility, by means of a "chain vessel," of so deepening the water at the Galops rapids as to obtain a navigable channel of 14 feet deep from Kingston to Dickinson's Landing. It has been found that this can be done, and this work is re-commended by the Chief Engineer of the Public Works instead of widening the Williamsburgh Canals, merely lengthening the locks on these canals. The estimated total cost of the improved St. Lawrence navigation, from Kingston to Montreal, is \$17,960,000, of which \$5,360,000 was under contract at the close of 1876, chiefly on the Lachine canal works.

The *Welland* Canal, between Lakes Ontario and Erie, is 27 miles and 1099 feet, with branches of about 25 miles. The breadth at present varies from 26 to 90 feet, and the depth is $10\frac{1}{2}$. The rise of lockage on the main line is 330 feet and there are 27 locks. A number of repairs were made to keep the canal in thorough order. The new works, being rapidly prosecuted, will establish a navigation throughout with a width of 100 feet at bottom and a depth of water of 15 feet, locks 270 feet long and 45 wide. The greater part of the work on this canal is under contract, and the entrance on Lake Erie at Port Colborne is being deepened and the piers extended so that it will have a safe entrance and a good harbour. The time fixed for completion of the works on this canal was April, 1877, but serious causes of delay occurred, and an extension has had to be granted. The estimated cost, when completed, will be \$12,240,000.

A small canal, half a mile long, connects Burlington Bay with Lake Ontario, and gives access to the Port of Hamilton. It is navigable for vessels drawing ten ft. of water.

THE MONTREAL, OTTAWA AND KINGSTON NAVIGATION

extends from Montreal through the *Lachine* Canal and *Ottawa River* and canals to the city of Ottawa, and thence by the *Rideau* Canal to Kingston, a total distance of $246\frac{1}{2}$ miles. The *St. Annes Lock* of $\frac{1}{4}$ th mile, the *Carillon* Canal, $2\frac{1}{4}$ miles, the *Chute à Blondeau* $\frac{1}{2}$ mile and the *Grenville* $5\frac{3}{4}$ miles, have all been constructed to overcome rapids in the Ottawa River. These canals are 30 feet wide at the bottom and 6 feet of water on the sills, with 12 locks, $87\frac{1}{2}$ feet rise of lockage. Extensive repairs and improvements are being carried on. The year 1876 was marked by the highest water ever known on the Ottawa. It was 15 feet on the lower reaches, and 3 feet 10 inches on the higher, above the highest recorded.

The *Rideau* Canal is $126\frac{1}{2}$ miles long, from 50 to 60 feet broad at bottom, and $4\frac{1}{2}$ feet deep. It has 47 locks and a lockage of

$28\frac{1}{2}$ rise and 104 fall at high water. Only some small repairs were made on this line during the year. The Ottawa Canals allow the passage of vessels of 100 tons, 100 feet long and 28 broad, drawing 5 ft. of water; the Rideau 250 tons, 110 feet long, $31\frac{1}{2}$ broad, drawing $4\frac{1}{2}$ feet water.

On the Upper Ottawa the *Culbute* Canal has been constructed to overcome the Culbute and L'Islet rapids. There are two locks 200 feet long, and 45 wide, with 6 feet water, with a lift of 18 to 20 feet. It was expected this work would be thoroughly completed during the summer of 1877.

THE RICHELIEU AND LAKE CHAMPLAIN NAVIGATION

connects the St. Lawrence 46 miles below Montreal to Lake Champlain. It is 81 miles long to the U. S. boundary. The works are the *St. Ours Lock* and *Dam* $\frac{1}{2}$ mile long, and *Chambly* Canal 12 miles long. These give a navigable depth of 7 feet, allowing vessels 114 ft. long, 23 broad, drawing 6 $\frac{1}{2}$ feet water and having a tonnage of 230 tons, to pass through them, while the Erie Canal gives only 210 tons, and the Champlain 70.

THE ST. PETER'S CANAL

crosses an isthmus half a mile wide, between the Bras D'Or Lakes and St. Peter's Bay, on the south coast of Cape Breton, N. S. It is about 2,400 feet long, 26 feet wide at bottom, with one tidal lock, the depth being 13 feet at lowest water. A contract having been entered into for its enlargement, this canal was closed in June, 1876, to permit the work being carried on.

For several years a scheme had been under consideration for constructing a canal to connect the Bay of Fundy with the Atlantic Ocean at Baie Verte. A commission having been appointed to investigate the desirability of this construction, reported that, considering the difficulties of the undertaking and the extent of railway facilities existing, it is not in the interest of the Dominion to construct this canal.

The total expenditure for canals during the fiscal year was:

Construction.....	\$2,389,544
Repairs.....	176,783
Staff and Maintenance.....	189,956
Total.....	\$2,757,283

The revenue from canal tolls was \$372,264 and from hydraulic rents \$57,444. Total, \$429,708.

WORKS ON NAVIGABLE RIVERS.

The rivers under the control of the Dominion Government are the St. Lawrence, Ottawa, St. Croix, Restigouche and St. John, N. B.; Tidnish and Missiguash, N. S.; Fraser, B. C., and Red, Manitoba.

On the *St. Lawrence*, the work of deepening the channel between Quebec and Montreal was satisfactorily proceeded