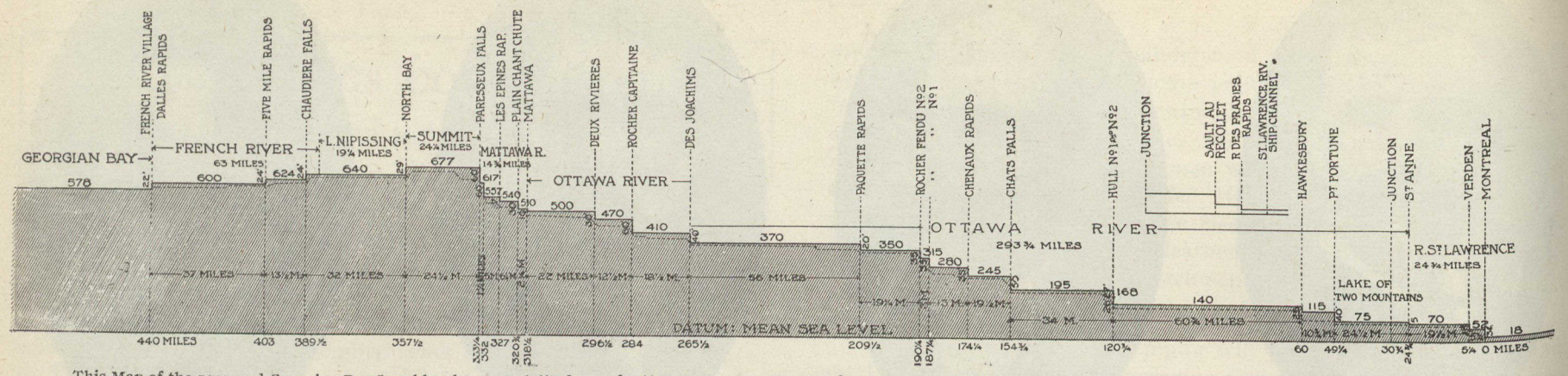

This Map of the proposed Georgian Bay Canal has been specially drawn for THE CANADIAN COURIER from the maps and data given by the Government Engineers. It shows the rise and fall of the land from Georgian Bay to Montreal. It indicates clearly how much lifting is necessary to get a boat up the grade. It also contains all the detail figures of the locks and distances.

THE BATTLE OF THE CANALS

The New Welland vs. The Georgian Bay Canal—Second Article

By NORMAN PATTERSON

LAST week, the history of the Welland Canal and the arguments for and against a new and deeper Welland were presented. The question of the Welland vs. the Georgian Bay remains to be considered. Would a Georgian Bay Canal render a new Welland unnecessary and is a Georgian Bay Canal via Lake Nipissing and the Ottawa feasible?

The idea of a deep waterway from Montreal to Fort William and Port Arthur, wholly in Canadian territory, is not many years old. There has always been more or less traffic over that route since the days of the first fur-traders, but the natural obstacles seemed to prevent any possibility of a steamship route of reasonable dimensions. Nevertheless it came. The St. Lawrence Canals and the Welland were on a longer route and moreover they were hardly built before they were inadequate. A new and a greater waterway was sought for—and the Georgian Bay Canal was projected.

Surely there is no Canadian who would begrudge the expenditure of 150 million dollars on such a project, if it is practicable. The cost of water-haul is only one-ninth the cost of rail-haul, and happy is the country which has an abundance of rivers and canals. The Great Lakes are a wonderful asset to the people of North America. To get an idea of how the traffic on this great inland waterway is growing, it is only necessary to take the figures of the tonnage passing through the Sault Canals:

	1903	1907
Canadian Lock	5,502,000	15,585,000
Poe Lock	27,490,000	40,859,000
Weitzel Lock	1,381,000	1,772,000
	34,373,000	58,216,000

Of course there are many vessels on the Great Lakes which never pass the Sault, but these figures give some idea of the general growth of Lake shipping.

If fifty-six million tons of boats pass the Sault every year, up and down, there should be plenty of tonnage to keep a Georgian Bay Canal busy if it can accommodate the vessels and the route is suitable and economical. It is estimated by the engineers who have made the plans that at the least calculation, ten million tons could be locked through the most difficult part, the summit between Lake Nipissing and the Ottawa, in a season of 210 days. This would mean the passage each year, up or down, of 4,000 boats of 2,500 tons each. With larger boats, the tonnage would be increased.

What a glorious spectacle it would be, if such a thing were possible, to see 2,000 large boats leave Montreal every season, go up the Ottawa River, cross to Lake Nipissing and pass through the French River, Georgian Bay and Lake Superior to Fort William and Port Arthur, and pass down again bearing the golden grain of the Last Great West! It stirs the imagination to think of that vast traffic and the great saving which might be effected.

The Plans.

INFLUENCED by some such reasoning as this, the Canadian Government in 1904 appropriated quarter of a million dollars for the purpose of a detailed survey of the proposed waterway from Georgian Bay to Montreal, a distance of 440 miles. On January 20th, 1909, a report, complete in every particular, was signed by a board of engineers and presented to the Hon. Mr. Pugsley, Minister of Public Works. Those who signed the report were Mr. Eugene D. Lafleur, chief engineer, and Messrs. A. St. Laurent, C. R. Coutlee and S. J. Chapleau. They averred that it was possible to create a 22-foot waterway over this route for one hundred million dollars, and the annual maintenance cost would be a little less than one million. The rise from Montreal Harbour to the Summit is 659 feet, to be overcome with twenty-three locks. The descent from the Summit to Georgian Bay is 98 feet, to be overcome with four locks. There is sufficient water to operate a summit level above Lake Nipissing, but that an expenditure of ten million dollars would bring the summit level down to the Lake Nipissing level. Ordinary lift locks are to be used, 650 feet long, 22 feet deep. There would be 28 miles of canal excavation, 66 miles of canal dredging and 346 miles of river and lake requiring only a little dredging here and there. They estimated that a 12-mile freight boat could go from French River harbour to Montreal in 70 hours, exclusive of the time required in locking.

They provided for dams to store water at various points so as to maintain an even supply throughout the season. These dams would of course be useful as water-powers to develop the necessary electricity or to be sold to manufacturers. The total number of dams, large and small, would be 45, in addition to the dams at the summit.

Where the canal passed under railways and roads, bascule bridges would be required. These rise into the air on one base, instead of swinging on a central pivot. At least twenty-five would be required.

In 1906, over 80 per cent. of the freight which passed through the Sault Canal was carried by vessels which are too large to pass through the St. Lawrence River Canals. This is the chief reason for the building of the new Welland and the Georgian Bay Canals. The day of the small freight carrier has gone. In 1899 only 6 per cent. of the boats were over four hundred feet long; in seven years, this percentage had grown to twenty-four. Some of these great carriers are 600 feet long. For this reason, the locks on the new canals must be 650 feet at least, with a width of at least 65 feet. The Canadian Lock at the Sault is 900 feet long and 60 feet wide.

Such in brief is the plan which these eminent engineers have laid before Parliament. Presuming that they are no more fallible than the average engineer, and remembering that government work costs about one-third more than private undertakings, the cost may safely be placed at $150,000,000. Indeed, there are rude men who say it will cost $250,000,000.

The cost of maintenance will be as follows:

Engineering staff	$ 38,900
Operating staff	197,900
Other staff, lights, bridges, etc.	70,400
Repair crews	186,250
Reservoirs, wages and up-keep	90,000
Materials and machinery	300,000
Annual total	$883,450

They do not make any estimate of the revenue to be obtained from tolls of sales of water-power.

The Difficulties.

DIFFICULTIES face every undertaking, and the Georgian Bay Canal is not an exception. It has met with much opposition both from publicists, ship-owners, and shippers. The objections may be considered in order.

The first charge is that even if it were built it would create no saving which would justify the cost. In the matter of time, it could not compete with the Welland route. The Suez Canal has no locks, yet it takes a vessel 18 hours to navigate its ninety miles, an average of five miles an hour. The Manchester Canal is 36 miles, and consumes seven to eight hours of a vessel's time. From Montreal to Georgian Bay, via the proposed canal is 440 miles. If the average speed is five miles, the time occupied would be 88 hours. To this must he added the time occupied in passing through 27 locks, mostly lift locks. This adds at least 20 hours. Therefore the total time would be 108 hours, or 4½ days. Add 1½ days from French River to Fort William and you have a total of 6 days, as against 5½ days by the Welland.

The engineers of the Georgian Bay Canal reduce this estimate of time consumed by one and a half days, which would make the total time five and a quarter days. The reader must take his choice of opinions. Whichever he may take, the saving in time will be an almost negligible quantity.

One critic goes so far as to say that most boats will lose time. He figures that there will be little return cargo. There will not be enough package freight to fill half the vessels. They cannot carry coal, because even to-day coal is going from Lake Erie and Lake Ontario ports to Montreal. If Cape Breton coal cannot compete in Montreal with United States coal, it cannot be carried up to the West to compete. Therefore many of these wheat vessels will have to return light to Georgian Bay, go down to Lake Erie for coal and then go on up to Fort William.

Whether or not there is much in this contention, there is no doubt that the return cargo is a great problem. Wheat boats going to Montreal via the Welland and returning by that route, pick up package freight at Brockville, Kingston, Toronto, Hamilton, Port Colborne, and other lake ports. If they cannot get enough they may run into a United States port on Lake Erie and take on coal or cement. If they were returning via the proposed Georgian Bay Canal, they would have fewer advantages of that kind. The new route would develop new traffic, no doubt, but that it would develop enough to supply sufficient freight for the boats which are expected to use it, is extremely doubtful.

This is a vital point. A vessel going over the Georgian Bay route could not possibly compete with one going over the Welland route, if the latter got double the return cargo. Package freight pays comparatively high rates, and it materially adds to the income of the lake carriers.

Dangers in Locking.

LARGE boats do not mind the locking at the Sault because there is only one lock. They take their time, approach slowly, and provide against accidents in various ways. Nevertheless if these 500 and 600-foot boats were asked to go over a route 440 miles long with 27 locks, it is a question if any owner would care to take the risk. One lock on a trip, even if somewhat dangerous, is a small matter. Multiply the dangers 27 times going and 27 times returning and the owners would hesitate.

If the owners would hesitate, what about the insurance companies? Would the insurance companies ask a rate which would make the traffic unprofitable? Most insurance companies make a contract which provides that the loss must be over $5,000 (in practice) before they begin to take the risk. In going through 54 locks, on a round trip, two or three collisions or bumps would eat up the owner's profits for the season. The larger and more unwieldy boat is more liable to collisions and bumps than a small vessel. When a large boat goes to tie up to a dock, there is always a danger of a bump. When the *Mauretania*, for example, docks in New York harbour, she requires the services of half a dozen tugs to keep her from smashing her pier to kindling-wood.

Large boats cannot enter a lock when there is a high wind. As the vessel slows down, the wind takes greater effect on her huge bulk and in a narrow passage is sure to bump her against the dock or wing-wall. This seems to be a danger which

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