

## STATEMENTS AND SPEECHES

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### THE ST. LAWRENCE SEAWAY

Address by the Hon. George C. Marler, Minister of Transport, to the Canadian Club of Montreal Monday, January 28, 1957.

... Though much has been written about the St. Lawrence Seaway in newspapers and periodicals, somehow or other a good many people have found it difficult to concentrate enough of their attention upon the written material to obtain a clear understanding of all that is involved in the works which are at present being carried out in the St. Lawrence River. I hope that what I am about to tell you will give you a better idea than you now have of the whole project.

Though it would be interesting both to trace the development over the last 150 years of navigation facilities on the St. Lawrence-Great Lakes route and to review the negotiations between Canada and the United States that began in 1905 and culminated in 1954 in an agreement between the two countries to proceed with St. Lawrence Seaway, it would be better, I think, if I were to begin by placing the Seaway in its setting as a vital part of the St. Lawrence-Great Lakes waterway. This ought to make it easier for you to appreciate the purposes and effects of the project.

This waterway, which has been accurately described as the world's greatest inland navigation system, extends from the Atlantic Ocean to the western end of Lake Superior and over its course of more than 2,000 miles rises some 600 feet above sea level by what it is convenient to describe as five separate steps.

The first step - that from the Atlantic to the Port of Montreal - accounts for the first 20 feet of the 600 feet I have just mentioned. We Montrealers have come to take this

part of the waterway pretty much for granted and are apt to forget the extensive work we have done upon it and the substantial expenditures that have been involved. Below Quebec, the limiting depth of dredged channel is 30 feet at low tide, which, with the average tidal range of 15 feet, affords ample depth for any vessel using the St. Lawrence route. Between Quebec and Montreal there were originally sections of the river which had a limiting depth of 10½ feet at low water, but as early as 1844 we commenced dredging operations to provide greater depth, and over the years, and at a cost of over \$300,000,000, we have developed the St. Lawrence ship channel which now has a minimum depth of 35 feet at low water. Even though we have made these substantial and costly improvements, we are continuing to do further dredging in order to widen the channel and improve it at a number of places in anticipation of the heavier volume of traffic which the seaway promises.

The part of the river between the Port of Montreal and Lake Ontario, which accounts for a rise of 223 feet, is the second step. This part of the waterway is navigable by means of the St. Lawrence canal system, composed of 6 separate canals, with a total of 22 locks, most of which are 270 feet long and 45 feet wide, with a limiting depth of 14 feet. In 1955 total traffic in these canals carried in 6,909 vessels amounted to nearly 11,000,000 tons. I shall come back to this part of the waterway presently.

The third and most spectacular step - 326 feet in height - is the Niagara Falls section, between Lake Ontario and Lake Erie, which is navigated by means of the Welland Ship Canal. Work on it was begun in 1913, interrupted in the autumn of 1916 by World War I and finally completed in 1932 at a cost of \$132,000,000. Seven of the present locks are 859 feet long, and the eighth, or guard lock, 1,380 feet; they are 80 feet in width and have 30 feet of water over the sills. The present available depth of the canal itself is 25 feet, although about 17 miles have been dredged to 27 feet. In order to bring the entire canal to a 27-foot depth and as a part of the Seaway programme, further dredging is to be undertaken by the St. Lawrence Seaway Authority at a cost of approximately \$24,000,000. Traffic over this canal amounted for 1955 to nearly 21,000,000 tons, carried in 9,333 vessels.

The fourth step is the Detroit-Lake St. Clair passage which leads from the western end of Lake Erie to Lake Huron. Over this 89-mile stretch there is only a gradual rise of 8 feet and, consequently, there are no canals or locks. The

channels, however, have been dredged and traditionally this work has been done by the United States Government, which has progressively deepened the channels to give a depth of water of 25 feet for downbound vessels and 21 feet for those upbound.

The final step, between Lake Huron and Lake Superior, is the St. Mary's Falls section, where there is a rise of some 22 feet. The channels in the St. Mary's River itself are of the same depth as those in the Detroit-Lake St. Clair passage, and like it, have also been dredged and maintained by the United States Government. To permit ships to by-pass the falls, locks have been built at Sault Ste. Marie - four on the United States side of the river and the fifth on the Canadian side. The MacArthur Lock, the largest and deepest of all of them, is on the American side and has a depth of 35 feet over the sills. This is the busiest part of the waterway and in 1955 nearly 115,000,000 tons of traffic was moved through these locks, nearly 90 per cent of it being down bound.

From this summary description, you will note that though deep-draught navigation may be carried on over the extremities of the waterway - that is, between the Atlantic Ocean and the Port of Montreal on the one hand, and between Lake Superior and the head of the St. Lawrence River on the other - in the intervening section the limiting depth of 14 feet of the St. Lawrence canal system prevents the movement of deep-draught vessels from one end of the waterway to the other. The deepening of this intervening section and the provision of facilities for deep-draught vessels are the purpose of the navigation works now in course of construction.

In this same stretch of the river, there is, as I indicated a moment ago, a difference in level of 223 feet, and it is possible to develop at three separate sites about 5,400,000 H.P. of electric energy. The first of these sites, as we move down the river from Prescott, is near Cornwall in the International Rapids section, as it is being developed concurrently with the building of new facilities for navigation, the present undertaking is sometimes referred to as the St. Lawrence Seaway and Power Project.

This development is being undertaken by the Power Authority of the State of New York and the Hydro-Electric Commission of Ontario, and these two bodies are to divide equally the 2,200,000 H.P. which are to be developed. Their plans provide for the building, below the Long Sault Rapids, which many

of you may know, of a dam from the U.S. mainland to the head of Barnhart Island and of a powerhouse straddling the International Boundary and extending across the river from the foot of Barnhart Island to the Canadian mainland, a little to the west of Cornwall. The estimated cost of the power project, which is to be finished late in 1958, will be approximately \$600,000,000.

When the dams are closed, the level of the water at Barnhart Island will be raised about 80 feet. This will flood a very substantial area of settled country and create a pool or lake some 30 miles in length. This, of course, makes it necessary to provide now for the re-establishment on high ground of a number of communities and the re-location both of railways and highways; and this is progressing rapidly.

At the westerly end of the pool or lake, the Iroquois Dam is being built for the purpose of regulating and controlling the flow of water from Lake Ontario and maintaining it at a suitable level.

To enable shipping to circumnavigate these dams at Barnhart Island and at Iroquois, canals and locks are in the process of being built. The United States government, through its Saint Lawrence Seaway Development Corporation, is building two locks on the United States side of the river - the Grass River Lock and the Eisenhower Lock - while Canada, through our St. Lawrence Seaway Authority, is building a single lock at Iroquois Island on the Canadian side of the international boundary.

To enable shipping to enter and leave the Grass River Lock, it will be necessary to excavate a channel to the south of Cornwall Island. This will involve the removal of substantial quantities of material and, accordingly, in order not to disturb the distribution of the flow of the river around Cornwall Island, dredging will also have to be done in the river to the north of the island so as to make up, or "compensate" for the excavations in the south channel. These excavations, may I add, are also important in the development of power at Barnhart Island.

In essence, this compensatory work involves the enlargement of the cross-section of the north channel to an extent approximately equal to the enlargement of the south channel. You will appreciate, therefore, that this work can be carried out in a number of ways. Because of its importance, the matter was the subject of high level discussions between Canada and the

United States. The United States proposed that the compensatory work should take the form of a deep excavation in the north channel near the western end of the island; Canada considered this entirely unsatisfactory because the work, though it would have provided channel compensation to the necessary extent, would have had no other utility, either actual or prospective. We believed that the compensatory work should have some more useful purpose and suggested that it be in the form of a 27-foot channel which would connect Cornwall with the main channel of The Seaway and would be usable at some later date if Canada decided to build on the Canadian side of the river locks which would duplicate the two locks now being built in the United States side of the river. The discussions which lasted several months culminated in the exchange of notes published last December which made clear the Canadian determination to proceed with compensatory works in the form of a 27-foot channel into Cornwall. The excavation of this channel will involve a larger outlay on our part, but the additional cost of \$4,500,000 is fully justified by the immediate and prospective usefulness of this channel.

When we move further down the river through Lake St. Francis, in which the channels are in process of being deepened we come into the Soulanges section. In this part of the river Quebec Hydro is already producing 1,600,000 H.P. at Cedars Rapids on the north side of the river and at Beauharnois on the south side; and it is possible to develop a total of 2,200,000 H.P. Up to the present the Beauharnois Power Canal has served only to produce power, but it is to be an integral part of the waterway between Lake St. Francis and Lake St. Louis. At the eastern end of this canal, the Seaway Authority is building two locks which will together provide a lift of about 82 feet. The work is well advanced and makes provision for a tunnel to carry four lanes of highway traffic under the locks.

This brings us into Lake St. Louis and the Lachine section, which extends eastward to the Port of Montreal. As I mentioned a little earlier, there is a drop of nearly 50 feet between the outlet of Lake St. Louis and the harbour and it is possible to develop about 1,200,000 H.P. This development could have been undertaken concurrently with the building of the Seaway, but as the Province of Quebec did not appear of be anxious to proceed with the development when the Seaway was started in 1954, the works now being carried out in the Lachine section are primarily intended for navigation. They will not, however, prejudice the development of power when the province decides to undertake it.

The navigation facilities in this part of the waterway include a 10-mile canal from Lake St. Louis to deep water in the Port of Montreal. This canal will be built overland from the Lake at a point above Caughnawaga eastward to Cote Ste. Catherine, and thence in Laprairie Basin itself, following its south shore. In its course, turning basins are to be constructed to allow ships, both deep sea and Lake carriers, to manoeuvre freely in and out of the canal. There are to be two locks, on which work is well advanced - one at Cote Ste. Catherine, a little below the Lachine Rapids, and the other at St. Lambert, a little above Victoria Bridge.

The entrance to the Seaway - or the exit, depending on which way you are travelling - will be a short distance to the east of the Jacques Cartier Bridge and will provide direct and convenient access both to the heart of Montreal Harbour and to the St. Lawrence ship channel itself. In fact, the location of the eastern end of the Seaway was chosen so as to facilitate the movement into the harbour of traffic coming down the seaway.

The works to be carried out in the Lachine section are expected to cost about \$125,000,000, according to the latest estimate. This is attributable not only to the extent of the navigation facilities which I described in a summary way a moment ago, but also to the works that must be carried out as a consequence of building these navigation facilities. I refer, of course, to the subsidiary expenditures that have to be made to provide for the water supply and the sewage systems of the municipalities on the south shore of the river between Lake St. Louis and the eastern extremity of the Seaway, and to the extensive works which have yet to be carried out so that the Seaway will not disrupt the movement of the railway and the highway traffic which now crosses the river by means of the railway bridge at Caughnawaga, the Honore Mercier Bridge, the Victoria Bridge and Harbour, or Jacques Cartier Bridge. The problems which arose in this connection have been exceedingly complex and the provision of facilities to prevent the disruption of this traffic by the Seaway will involve the expenditure of very substantial sums.

This concludes my description of the various works which are now in course of being carried out by the Seaway Authority. I should perhaps go on to tell you that the new locks are to be of the same standard dimensions as those of the Welland Ship Canal, with 30 feet of water over the sills; and that all the new channels, that is to say, as far up the waterway as Lake Erie, are to be dredged to a depth of 27 feet. In due

course, though not as a part of the Seaway project itself, the channels in the upper stretches of the waterway are to be deepened under an extensive programme of river improvements to be undertaken by the United States Government.

Just a word now as to the cost. The capital budget of the Seaway Authority, which I recently tabled in Parliament, provides for expenditures of nearly \$285,000,000 for the works it is to carry out, while the works in the International Rapids section being undertaken by the United States are likely to cost about \$125,000,000, making, in round figures, a total of, say, \$400,000,000. If we add to this the cost of the power development in the International Rapids section, the grand total for the seaway and power project will, in round figures, be close to \$1,000,000,000.

Time does not permit me to discuss very fully the effects which the Seaway is likely to have upon the pattern of transportation on the North American continent. The subject is much too vast and far too complex to be covered in a few simple phrases, but a few comments may be made.

The first point, which is of obvious importance, is that in place of the 22 locks of the present St. Lawrence canal system, the Seaway will have only 7. This, of course, will reduce materially the time which is now occupied in passing through the locks, and savings in time will reduce costs of operation for shipping.

The deepening of the waterway between Montreal and Prescott will enable the deep-draught vessels now operating in the Great Lakes to move bulk cargoes from one end of the waterway to the other. This is of particular importance because of the efficiency of the lakers, and of the desirability of using them for the carriage of grain from the Lakehead to the Lower St. Lawrence ports. At present, because of the limiting depth of the St. Lawrence canals, only the so-called "canallers" can operate over the whole length of the waterway. The canallers, however, can carry only 2,000 to 3,000 tons of cargo, or 70,000 to 80,000 bushels of grain, and need a crew of 22 to 25 for their operation. The lakers, on the other hand, are capable of carrying 20,000 to 25,000 tons of cargo, or 700,000 to 800,000 bushels of grain; but need a crew of only 32 to 35. The laker is obviously a much more efficient carrier, and its use in place of the smaller vessels should reduce the cost of carrying grain from the Lakehead to ports on the St. Lawrence from which it will be carried overseas. The use of the larger vessel for the whole distance - instead of just to some intermediate point, as at present - will also have the advantage of eliminating the costs of trans-shipment at the intermediate point.

When the Seaway is opened, we are going to see these lakers in the Lower St. Lawrence, and, therefore, we must be prepared not only to accommodate them in our harbour but also provide the grain-handling facilities needed to permit them to be unloaded rapidly and to reduce to a minimum their turn-around time. In this connection, I am happy to say that the National Harbours Board, which reports to Parliament through me as Minister of Transport, has embarked upon an extensive programme of improvements to the Port of Montreal to provide berthing accommodation for the lakers and to modernize our grain-handling facilities here. The Board is likewise undertaking expenditures for the same purposes at the Port of Quebec which at present cannot accommodate lakers.

The deepening of the waterway between Montreal and Prescott will also enable larger ocean-going vessels to operate into the Great Lakes. As early as 1933 European shipping interests had started with small vessels to develop traffic between ports in the Great Lakes and ports in western Europe. This was interrupted by the war, but was re-established in 1946 and has since increased substantially. In 1956 direct overseas traffic, upbound and downbound through the St. Lawrence canals, rose to 800,000 tons, compared to 690,000 tons in 1955. There were 14 lines engaged in this trade, operating 101 vessels, which made a total of 309 trips. When the Seaway is opened, we shall, I think, witness a further development of this traffic, but it seems to me that because of the very large population in those parts of the United States living in proximity to the Great Lakes, the bulk of the overseas traffic will be destined to or originate from United States ports on the Great Lakes, rather than Canadian ports.

So far as Montreal is concerned, I cannot help thinking that the Seaway will stimulate industrial development in our metropolitan area and particularly in those parts having direct access to the Seaway itself.

The prospect of this development, coupled with the building of the Seaway, has naturally focussed attention upon communications across the river. In this connection, I should tell you that the National Harbours Board has not only provided a fourth lane across the Jacques Cartier Bridge, but will provide entirely new approaches to the bridge on the south shore. It will consider adding a fifth traffic lane when conditions warrant doing so, but not before better approaches to the bridge are provided on the Montreal side.



Another Federal agency, the Canadian National Railways, has doubled its facilities for highway traffic by making the downstream bracket of the Victoria Bridge available for motor vehicles.

The Federal Government also has entrusted to the National Harbours Board the task of building a new highway bridge across the river at Nun's Island, and it is expected that tenders will be called in the spring, if all of the formalities can be cleared by that time.

These new facilities will probably cost nearly \$40,000,000 but they will materially improve highway communications between Montreal and the south shore. Had we done more we might justly have been accused of invading a field of responsibility that is exclusively provincial.

May I conclude by telling you that despite the magnitude of the project and all of the difficulties that it naturally entails, the work is keeping close to schedule and that we confidently expect that the Seaway will be ready when navigation opens in 1959.

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