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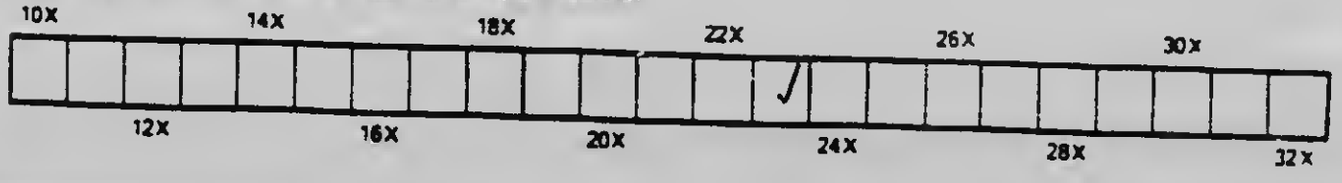

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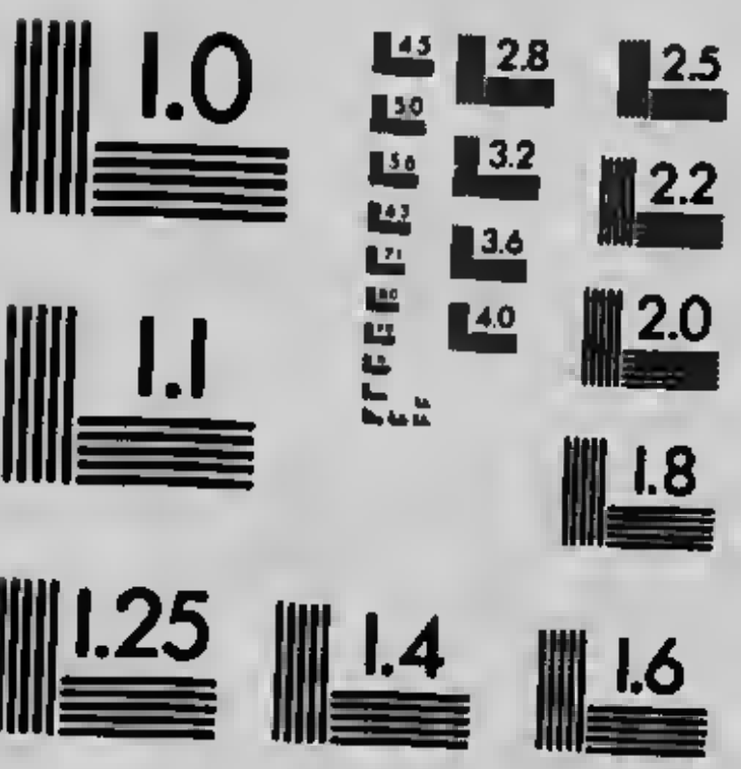

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OF

ERNEST MARCEAU

PRESIDENT

OF

THE CANADIAN SOCIETY OF CIVIL ENGINEERS

JANUARY, 1906

Extrait

PRESIDENT'S ADDRESS.

The Origins of our Canal System

By Ernest Marceau.

It has for years been one of the writer's cherished hopes that at some date or other, he could afford the time necessary to put together, in presentable shape, some notes and general information, gathered in the course of his service in the Department of Railways and Canals of the Dominion, and bearing on the history, the mode of construction and the operation of these canals.

But years have been creeping on, and the work, which is of no small magnitude and importance, is still untouched, the absorbing exigencies of everyday bread earning having left no place for such a *hors d'oeuvre*.

A last hope had, however, been entertained, and this was, that on retiring from the Presidency of the Canadian Society of Civil Engineers, it would be possible to give the book in an abbreviated form, but, owing to the same cause, this hope also had to be abandoned and the paper which is going to be read to you will have to be confined to what was intended to be the opening chapter of the writer's ambitious work. It will only be supplemented with a summary comparison between the present system of Canadian canals and the results obtained by the early efforts of those whose part it was to inaugurate it. This will, it is hoped, be found of some interest as indicating in a measure the marvellous development of our country in the course of the last century.

EARLY CANALS.

There is something fascinating in going back to the origins of works, the magnitude of which escapes the attention of those who see them in their achieved condition and have no time to even think of the mighty efforts which have been required to realize them. For instance, we of the twentieth century use our canals, benefit by them, even boast of them as being unparalleled in the world, but who among us has taken the trouble to enquire into the first show of activity of our ancestors in this line of progress? The literature of our canal system is in a very rudi-

mentary state, especially as regards the early period. There are, however, some reasons for this neglect. For example, the sources of information with regard to that period are unfortunately very meagre, and it is an undertaking of no small difficulty to gather, from the scant and incomplete documents which have come down to us, data and facts upon which a clear and comprehensive statement could be based.

The papers left by the Royal Engineers who, in the last years of the seventeenth century, inaugurated the improvements of our waterways, have either been destroyed or are at present lying in some unknown place where they may, at some future date, be detected.

In the meantime, he who desires to trace the origins of our canal system must be contented with a few reports and letters written by some of the Royal Engineers, or even by men outside of the profession, such letters containing but scanty details of the work. It must be said, however, that through the patient and intelligent labours of one of the Dominion archivists,—I refer to the late Douglass Brymner,—the store of documents bearing on the construction of the first Canadian canals has been considerably increased and, since the publication of his report for the year 1886, considerable light has been thrown on the subject, although many points are still obscure. The documents unearthed by Mr. Brymner refer to the small canals between Lake St. Louis and Lake St. Francis, and also to a lock built at Sault Ste. Marie in the early years of the eighteenth century.

There was, however, a previous attempt made at improving navigation, which, it is believed, has never been properly known to Canadians. It was the good fortune of the writer to peruse some of the old manuscripts in the possession of the gentlemen of the Seminary of St. Sulpice (*) and to find in them an account of the efforts made by former members of their order to overcome the difficulties of navigation between Montreal and Lachine.

A few years only had elapsed since the establishment of the French at Montreal, when the necessity for bettering the means of communication between the rising city and the settlements already existing at Lachine, Ste. Anne, etc., became apparent. The young colony was too poor, however, to think of building a canal with locks to overcome the very considerable fall in the nine miles of river from Pointe-à-Callières to Lachine.

The route followed by canoes at the time waa along the north

(*) The writer desires to tender his most sincere thanks to Rev. P. Rousseau for the opportunity afforded him to consult those precious documents and for his kindness in guiding the search through them. For the last twenty years the reverend gentleman has lived with the old manuscripts and is probably the best informed man in Canada as to the early history of the Island of Montreal.

shore of the St. Lawrence, but it was exceedingly dangerous and many portages intervened between navigable stretches. Even in these so-called navigable stretches, towing had to be resorted to. A number of accidents had already happened in which men and canoes had been lost. In the year 1700, the Superior of the Sulpicians, Mr. Dollier de Casson, undertook to improve the Little River St. Pierre, and to make it navigable for canoes, from its mouth to Lake St. Pierre, a shallow body of water lying about half way between Montreal and Lachine (this lake has long disappeared, owing chiefly to the works done in connection with the Lachine canal), and to open up a cut from the lake to a point on the St. Lawrence above the worst part of the rapids.

A notarial contract was passed, between the contractor, Gédéon de Catalogne and Mr. Dollier de Casson, for the excavation of a canal 24 arpents, or about one mile, in length, twelve feet wide at the surface of the ground and of varying width at the bottom, according to the depth of cutting. The water flowing through the canal was to be at least eighteen inches deep at the period of lowest water in the St. Lawrence.

The work was begun in October, 1700, and in February of the year following the contractor failed, after having performed the greater part of his contract, the whole of the cut being completed at the time, except for a depth of three or four feet on some 2,400 feet in length.

The canal was excavated for about one-third of its length through clay mixed with boulders, the balance being through quarry rock.

A settlement was made with the contractor in the Spring, the amount paid being 12,500 livres, which represents about $15,000 of our present currency.

The work was left in this unfinished condition, notwithstanding the repeated attempts to push it to completion, the Sulpicians' revenues, which were very unimportant at that time, finding better use in other directions.

In 1708, Louis XIV ordered plans and estimates of the work to be submitted to him, the undertaking having been recognized as devolving upon the royal authorities, but, owing to the conditions of affairs in France during the latter part of the reign, the scheme had to be again postponed.

Almost every year after this, the *Canal de la Chine* is mentioned in the correspondence between the superiors of the Montreal house and the head of the Sulpician Order in Paris, as also in letters addressed to the governors of the colony.

In 1717, Mr. Chaussegros de Léry, who had charge of all military and civil engineering works in Montreal, reported that three-fourths

of the work was done. The Crown could not yet at the time give the necessary help to perfect the canal, but instructions were given not to abandon the idea.

Again in 1733, the same engineer made a complete survey of the route and prepared fresh plans and estimates. The old line had evidently been abandoned, as the probable cost of the work is put down at 255,000 livres, or about $300,000. The new scheme contemplated a canal with locks. Unfortunately, no copy of the report of Mr. Chaussegros is on record in the documents referred to.

From that date nothing can be found in the Seminary papers relating to the canal, which would seem to indicate that the work was never completed. It is quite likely, however, that the imperfect channel could be used by canoes during the periods of high water. Be that as it may, traces of it in the shape of a half-filled ditch, are still to be seen in a field near the Canadian Pacific Railway embankment at Rockfield.

The small map accompanying this paper shows approximately the position of the improved waterway at the time of the cession of Canada to Great Britain, in 1763. This waterway is designated by the name of *Canal de la Morandière*, the author of the map having been under the impression that Mr. de la Morandière, one of the Royal Engineers of Ville Marie, had completed the work undertaken in 1700. This opinion, however, is not founded on fact, for, had the canal been completed at any time during the French regime, an event of such importance would, without doubt, have been recorded in the correspondence of some of the Sulpicians, who had been so anxious to have a work inaugurated by them pushed to completion. Nothing else had been done (and for obvious reasons) towards facilitating communications between the eastern and western sections of the country.

With the rapid development of the territory around the Great Lakes which followed British occupation, the necessity of improving the navigation of the St. Lawrence soon made itself felt and, before twenty years had elapsed, the first canals with locks were undertaken.

In the year 1779, under the direction of General Haldimand, commander of His Majesty's forces in Canada, a series of four canals was put under way by the Royal Engineers, the chief engineer of the work being Captain Twise. Their object was to permit canoes or York boats to overcome the various rapids between Lake St. Louis and Lake St. Francis. The canals were located as follows:—The lower one a short distance above Cascades Point, at the rapids designated as *La Faucille*. It was 400 feet in length and had one lock. The second was at the *Trou du*

Moulin near the mill belnnging to the Baron of Longueuil. This was a mere cut, 200 feet long, without locks, and was excavated either in the bed of the river or through a projecting point of rock. The third canal was situated at the Split Rock Rapid. It consisted of one lock built in a side channel formed by a natural opening through the rocky shore. As will be seen by the plan submitted, very little work had to be done to secure the object aimed at. The natural walls of the channel were used to form the sides of the lock, as shown by the shape of the chamber. The last and most important of the series was located at Coteau-du-Lac. Its length was 900 feet and it had three locks. The aggregate length of those canals was about 1,700 feet with five locks. The work was commenced in 1779, and completed in 1783, under the direction of Captain Twiss, as stated above. A fairly complete record of the operations is to be found in extracts of reports from this engineer, published in the "Report on Canadian Archives," for 1886, pp. xxi-xxv. These original reports form a most precious collection, the reading of which the writer found extremely interesting.

These canals had only been in use for a short time when it was found that the locations adopted for the two lower ones were defective, the lock and other structures being injured by floating ice every spring. In 1800, Col. Gother Mann recommended certain changes to be made, viz., to increase the opening of the gates of the locks at Coteau-du-Lac and at Split Rock, from 6 9' 6", to give an additional breath of 2 feet to the canal prism and 4 feet to the lock chambers, and to deepen the whole 1'6 As to the canals at the Trou du Moulin and Faucille Rapids (Cascades Point) he proposed the replacing of them by one canal to avoid both rapids.

"At about nine hundred yards," he says, "above the Cascades, "on the stream leading to the Grand or Ottawa River, and at "nearly the same distance above the Mill Rapid on the Cataraqui "(St. Lawrence) River, a neck of land is formed, which presents "a favorable situation for a permanent canal. The length across "is fifteen hundred feet in a straight line on the course which I "should propose the canal to run . . . At the extremities of the "section line the waters of the Cataraqui or St. Lawrence River "were thirteen feet eight inches higher than those of the Ottawa "River . . . I propose to sink the canal three feet below the "surface of the waters, as they were when the level was taken, "at which period they were uncommonly low. This will be more "than sufficient to float the largest boats and will allow for a still "further decrease of the rivers. The canal should be ten feet wide "and the locks twenty feet wide, and, if they are each 120 feet long,

"will allow six boats to pass at a time. I suppose that three locks "will be required," etc.

This new work took about four years to build and, up to the time of its opening to navigation in 1805, the old canals were used, as shown by a report from John By, Lieut. R.E., dated 24th April, 1805, which is among the pspers in the Archives Department. Another report by Captain Bruyères, R.E., of Jsnuary, 1805, gives a detailed account of the progress of the work of the new canal. On the 7th March following, the same gives a statement of the cost of the work performed and the sum required to complete it as follows:—

	£	s.	d.
Expenditure up to March, 1805..	2521	9	9¼
Original estimnte..	2881	0	0
Sum remaining to accomplish work...	359	10	2¾
Sum proposed to continue work in 1885..	831	13	9
Excess..	472	3	6¼

The total cost of the Cascades new canal was, therefore, about $17,000, but, if it he horne in mind that labour was considerably cheaper at thst time than it is to-day, it msy be said that the expenditure was equivalent to $30,000 of our present currency.

Some vestiges of this canal are still visible. The lower locks were obliterated by the works of the Soulanges canal. The writer examined the whole line of it in August 1890, when the masonry of the locks was still standing, although considerably dilapidated. Remains of the gates even were in position at the time.

The old channel crossed the line of the Soulanges canal immediately below lock No. 2, and no later than last year, its presence there wss felt in the development of a serious leak under the high bank forming the northern side of the present canal at that point, owing to the original cutting in the rock not having been thoroughly filled. The remains of the other canals are also plainly visible. The plans accompanying this paper will give a good idea of the whole system.

A curious fact in relation to these csnals is to be noted here:— For a number of years a local tradition attributed their construction to the French. How this opinion arose and how it became sdopted by people whose fathers must have witnessed the execution of the works, it is not easy to understand. At any rate, it had scquired such a bold on the public mind that it was officially sdmitted as correct in the General Report published by the Depart-

ment of Public Worke in 1867. This opinion was generally accepted until tbe publication of tbe report of tbe Dominion Archiviet for 1886, whicb gave credit to whom credit was due. Tbe part played by the French in the establisbment of the colony is a large one, and it is not neceseary to their glory tbat otbers be despoiled of any credit they deserved in contributing to its development. Irrespective of tbe canals and etructures above described, a considerable amount of work was done by the Royal Engineers at that time, in clearing tbe cbannel along the shore of boulders and other obstructions.

The communication between Lakes St. Louis and St. Francis, nitbougb etill very imperfect, bad tbus been considerably improved, but Lake St. Francis and tbe Lake of Two Mountains were separated by tbe Ste. Anne Rapids, which, altbougb of no great importnnce, effectually blocked navigation.

Tbe current in the channel joining the Ottewa and tbe St. Lawrence between Isle Perrot and the main shore to tbe west of it, was also too stiff for boats to ascend it unaided. For a certain number of years at tbe beginning of the eigbteentb century, the worst part of the rapids, which was situated at tbe point where the Grand Trunk Ry. and Canadian Pacific Ry. lines cross tbe channel, was overcome by means of a windlass placed on a pier a short distance above, and communication between the Ottawa nnd St. Lawrence Rivers wae thus somewhat improved.

In 1816 tbe St. Andrew's Steam Forwarding Company built a wooden lock at the eame point. The site of tbe structure, and of its approaches, is etill quite discernible from trains going over the bridge. Two narrow channels are there to be seen close to each other along tbe main shore. The lock was in the outer one and tbe upper approacb was formed by a wing dam extending to the island, now owned by Senator Bëique.

Tbe Postmaster of Montreal, Mr. H. S. Harwood, who furnished the above details, states that, up to about twenty-five years ago, remains of the walls and gates were still in exisence.

It hae been found impossible to get any information as to the dimensione of tbis lock, but, in all probability, tbey were practically the same ae were adopted for tbe locks on the Lachine, Carillon, Crenville, and Rideau canals, during the second period of Canadian canal construction, viz., about 100' x 32' with some 5 feet of water on the sills.

The owners of tbie Vaudreuil lock, wbo also owned a number of boats plying between Montreal and Carillon, were naturally anxious not to encourage competition and, with that end in view, they made the tolls througb their lock so high as to be almost prohibitive. The windlass mentioned above was, therefore, in use for

a number of years after the lock bad been completed, tbe latter being used almost entirely by tbe owners.

In 1841, however, "Captain R. W. Shepherd, then in command "of the steamer 'St. David,' belonging to a rival company, as the "result of a clever and hazardous experiment, discovered a safe "channel through the rapids at Ste. Anne's, which put an end to "tbe monopoly. (*)

Tbis quotation, which is taken from the book mentioned in tbe foot note, is misleading, in as much as the safe channel referred to was not in the Ste. Anne's Rapids, but on tbe Ile Perrot side of the Vaudreuil channel.

The lock was in consequence made practically free to all vessels n short time later and remained in use until 1843, when the Ste. Anne's lock was open to traffic, thus perfecting the system of public canals between Montreal and Kingston, the Carillon, Grenville, and Rideau canals having been completed about fifteen years before that date.

Another canal, the existence of which bad been entirely forgotten, was built about the same time, and we are still indebted to the late Douglass Brymner for the discovery of papers, in which it is mentioned and summarily described. Tbis is the canal on the Canadian side of Sault Ste. Marie, which was constructed by the original North-West Company after tbe disagreement which bad the result of dividing the concern into two rival companies.

Tbe work was done between 1798 and 1802. The following description of it, is taken from the "Report on Canadian Archives," for 1886, p. xxix.

"Tbe landing is in a bay immediately at the bottom of the fall "on the nearest channel to the land of the north shore. A good "wharf for boats is built at the landing, on which a storehouse, "60 feet long, 30 feet wide, is erected. The wharf is planked, and "pathways made and planked all around it. Close to tbe store "a lock is constructed for boats and canoes, being 38 feet long, 8 "feet 9 inches wide. The lower gate lets down by a windlass; "the upper has two folding gates with a sluice. The water rises 9 "feet in the lock. A leading trough of timber framed and planked "300 feet in length, 8 feet 9 inches wide, 6 feet high, supported and "levelled on beams of cedar through the swamp is constructed to "conduct the water from tbe canal to the lock. A road raised and "planked, 12 feet wide, for cattle extends the whole length of the "trough. Tbe canal begins at the head of it, which is a channel "cleared of rocks and the projecting points excavated to admit the

(*) Steam navigation and its relation to the commerce of Canada and United States, by Jas. Croil, Montreal, p. 318

"passage of canoes and boats. This canal is about 2,580 feet in "length, with a raised bridge or pathway of round logs at the side "of it, 12 feet wide, for oxen to track the boats. About 170 feet from "the upper part of the canal a storehouse is built, 36 feet long, 23 "feet wide. An excellent saw-mill for two saws is constructed and "placed in a line with the lock parallel to it."*

It will be noticed that the fall overcome by this lock was 9 feet, or about half the lift in the present locks, both on the Canadian and American sides, and also that the lower gate was of the lifting pattern, the only example in America, as far as the writer is aware, of a structure of this description on a navigable canal.

The reason the memory of this work had so completely passed away in so short a time is evidently that, it being a private undertaking, no record of its construction was kept in any of the public documents; the case is similar to that of the Vaudreuil lock. Here, however, a plan, or rather a sketch, showing the location of the canal has been preserved and is reproduced herewith. It is, indeed, very imperfect, but the report of Capt. Bruyères quoted above, indicates that the lock was located between the two buildings marked B and C on the plan and in close proximity to the shore of the lake below.

Whether built of stone or timber the report does not state, but, in all probability, it was of timber, as no traces of masonry have been found on the spot. In the year 1886, the channel had been so obliterated that it would have been hard to say, but for the documents referred to, whether it was a natural depression of the ground or an artificial cutting to unite both lakes.

Such is, as completely, it is believed, as it can be summarized, the history of the origins of our present canals, than which there are no larger, better constructed, or better equipped in the world.

Looking back upon the works executed by the pioneer engineers of Canada and comparing the results of their efforts with those obtained during the following century by their successors, one may be inclined to undervalue the merits of the former. It should be borne in mind, however, that the canals built by them were not only large enough to meet the requirements of the country at the time, but also that their dimensions compared favourably with those of many canal systems in the world.

Canada was then a poor and undeveloped land, and the expenditure incurred in this first attempt at improving her inland navigation was considerable for the time. Moreover, in point of engineering the small canals above described were in no way inferior to our present ones.

(*) Dominion Archives, Series C., No 382, p. 215.

Thst In n ittle over a hundred years, we have been ahle to spend about $100,000,000 In perfectlng our canal system, is evidence of the marvellous develop ment of Canadn, but our present prosperlty should not cause us to forget that, ater all, we hnve only been followlng In the footsteps of the men who Inaugurated the improvements.

The present degree of perfection of ot cansls was not attalne. at one bound after the first ones had been completed. Three different periods, markIng a corresponding development of the populatlon and rlches of the country, followed the one ended In 1816.

The hlstory of esch of these perlods would furnlsh ample matter for a volume, if the mllltary, polltlcsl, commercial, and financial aspects of the questlon as well as the engineerlng features were to be cousldered. The intentlou of the writer, much to your satisfactlon and rellef, I nm sure, Is not to embark here In such an undertakIng. There remalns only for hlm to place before your eyes, In a series of tables, a resumé of the works performed by the canal engineers of the country durlng the last century.

These flgures wlll show, In a concrete and strikIng form, the wonderful use a young and enterprisIng people has made of the natural resources wlth whlch Providence has endowed their land.

Our system, as summarlzed In the tabie referrIng to the fourth perlod, although pretty compiete, is not yet perfected and the next twenty years wlll llkely see the realIzation of a project which has, for the better part of a century, baunted the mlnds of polltlcal men and engineers In Cannda.

I refer to the Montreal, Ottawa, and Georgisn Bay canal undertakIng wblch, ns you are aware, Is well under way.

After these immense works shall have been executed, at a probable cost of another $100,000,000, Canada wlll be justlfied In callIng a halt in her canal constructlon.

FIRST PERIOD

1777-1816

ST. LAWRENCE RIVER ROUTE

Canals were built originally 6 ft. wide.

Canals	*Dimensions of locks.*	*Water on sills.*
River St. Pierre, depth 2' 6"		
Les Cascades	120' x 9'	6'
Coteau du Lac	9'	6'
Trou du Moulin or Mill Rapids	9'	6'
Split Rock	0'	6'
Sault Ste. Marie	38' x 0'	1' 6"

OTTAWA RIVER ROUTE

Canals	*Dimensions of locks.*	*Water on sills.*
Vaudreuil, approximatively	100' x 32'	5'

SECOND PERIOD

1816-1840

ST. LAWRENCE RIVER ROUTE

Canals	*Dimensions of locks.*	*Water on sills.*
Lachine	108' x 20'	4' 6"
Welland	110' x 22'	8' 6"

RICHELIEU RIVER ROUTE

Canals	*Dimensions of locks.*	*Water on sills.*
Chambly	118' x 22' 6"	6'

OTTAWA RIVER ROUTE

Canals	*Dimensions of locks.*	*Water on sills.*
Carillon	126' 6" x 32' 6"	6' 6"
Grenville	106' x 19'	6' 6"
Rideau	133' x 33'	5' 6"

THIRD PERIOD

1840-1870

ST. LAWRENCE RIVER ROUTE

Canals	*Dimensions of locks.*	*Water on sills.*
Lachine, Beauharnois, Rapide Plat, Farrans Point, Galops	200' x 45'	9'
Welland	200' x 45'	10' 6"

RICHELIEU RIVER ROUTE

Canals	*Dimensions of locks.*	*Water on sills.*
Chambly	118′ x 22′ 6″	6′
St. Ours	200′ x 45′	7′

OTTAWA RIVER ROUTE

Canals	*Dimensions of locks.*	*Water on sills.*
St. Annes	200′ x 45′	9′
Carillon	200′ x 45′	9′
Grenville	200′ x 45′	9′
Rideau	133′ x 33′	5′ 6″
Culbute	200′ x 45′	6′

FOURTH PERIOD

1870-1905

ST. LAWRENCE RIVER ROUTE

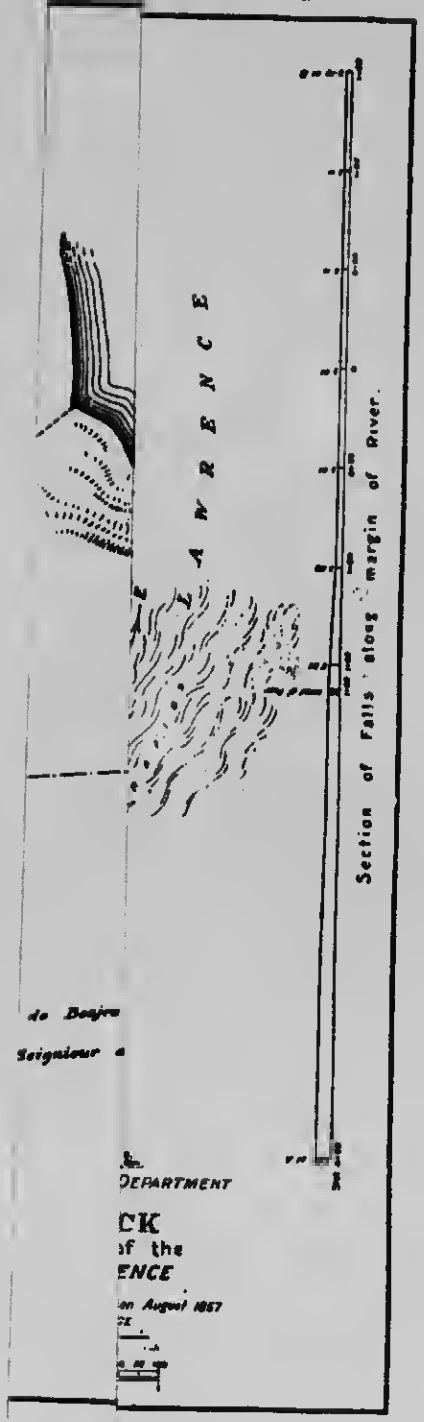
Canals	*Dimensions of locks.*	*Water on sills.*
Lachine, Soulanges, Rapide Plat, Cornwall, Farrans Point, Galops, Welland	270′ x 45′	14′
Sault Ste. Marie	900′ x 60′	20′

RICHELIEU RIVER ROUTE

Canals	*Dimensions of locks.*	*Water on sills.*
Chambly	118′ x 22′ 6″	7′
St. Ours	200′ x 45′	7′

OTTAWA RIVER ROUTE

Canals	*Dimensions of locks.*	*Water on sills.*
St. Annes, Carillon, Grenville	200′ x 45′	9′
Rideau	133′ x 32′	5′ 6″
Culbute (abandoned)	200′ x 45′	6′
River du Llèvre, 1886	160′ x 32′ 7″	8′


LAWRENCE
Section of Falls along margin of River.
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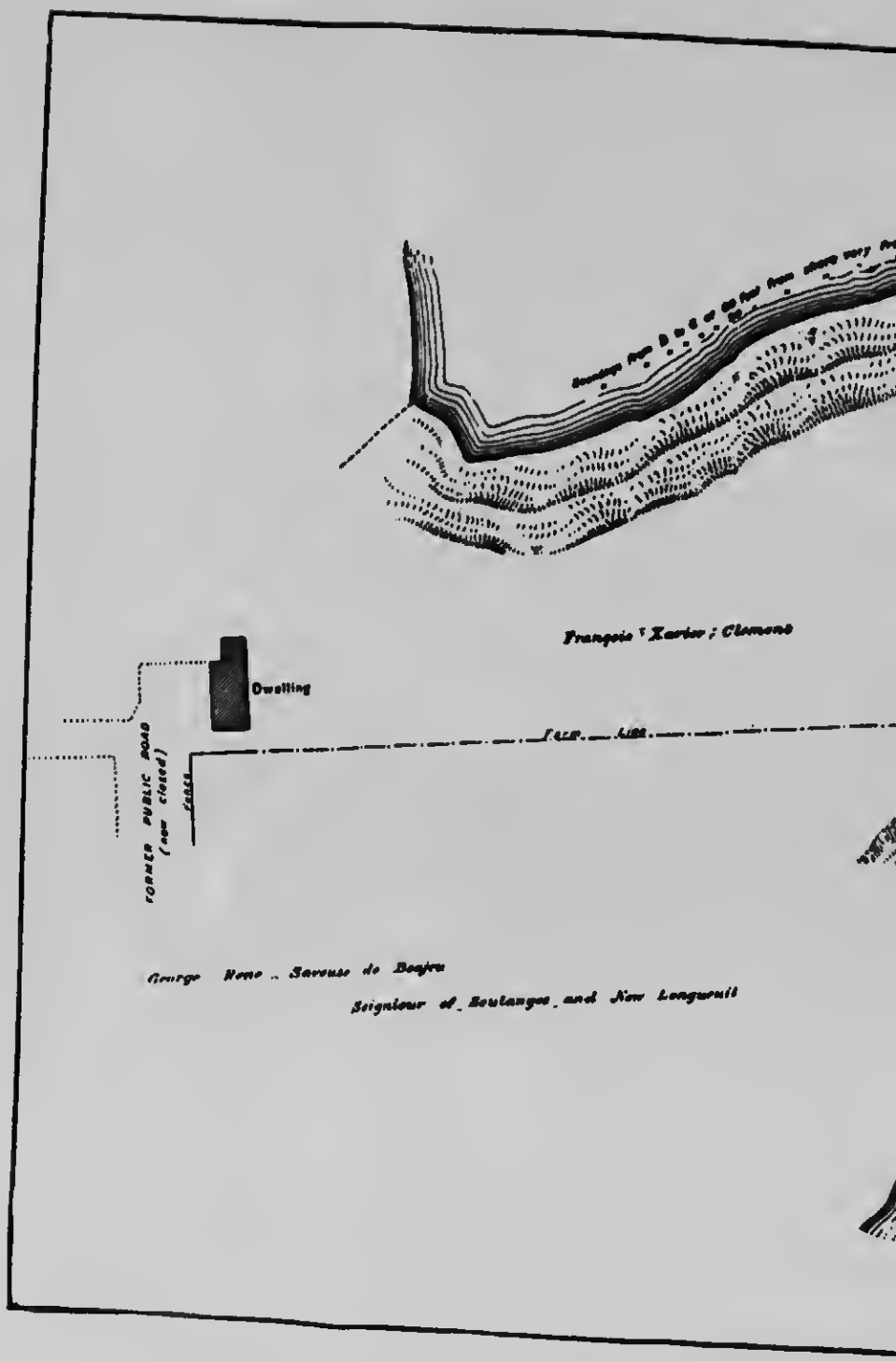
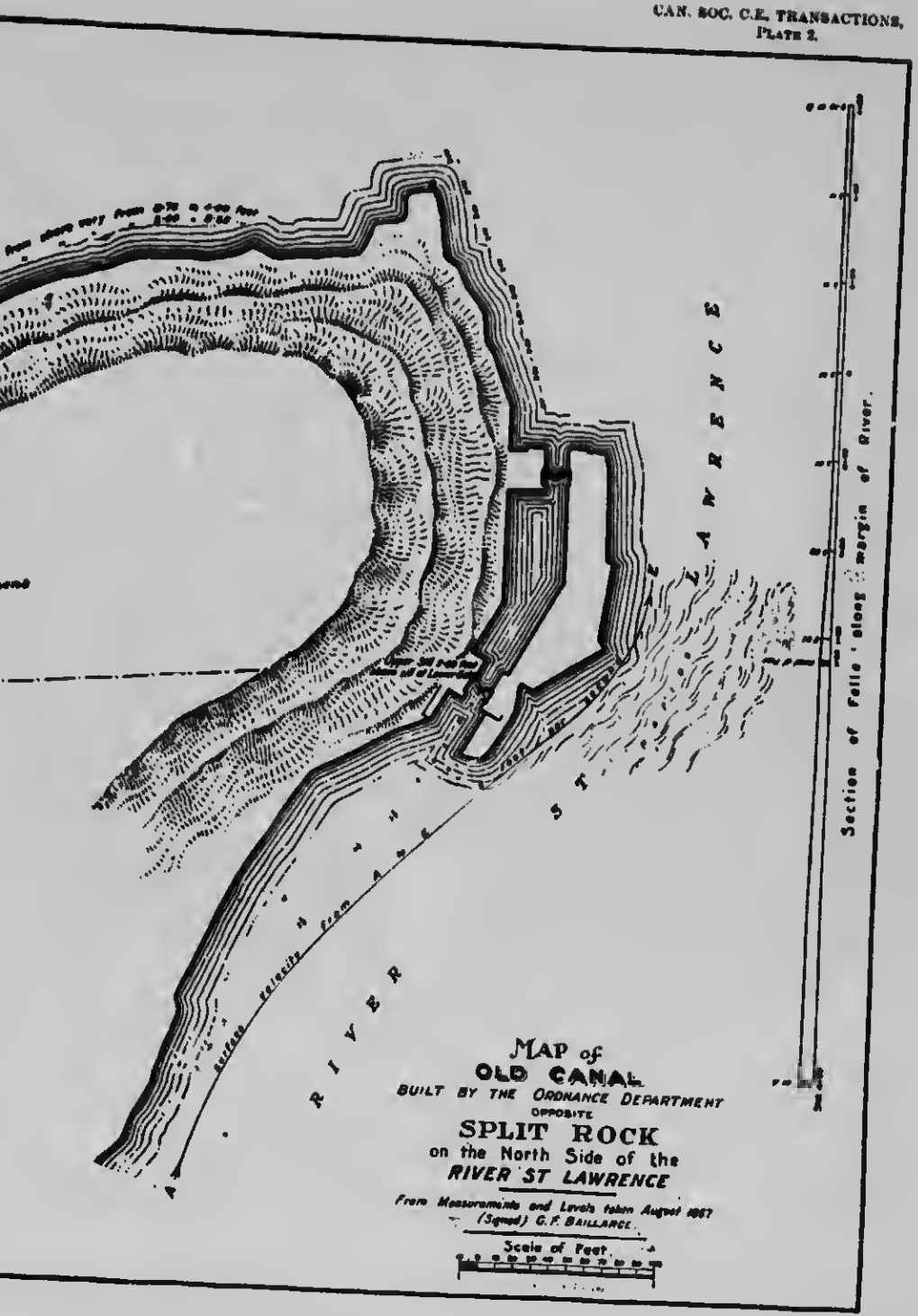
ENCE
on August 1867

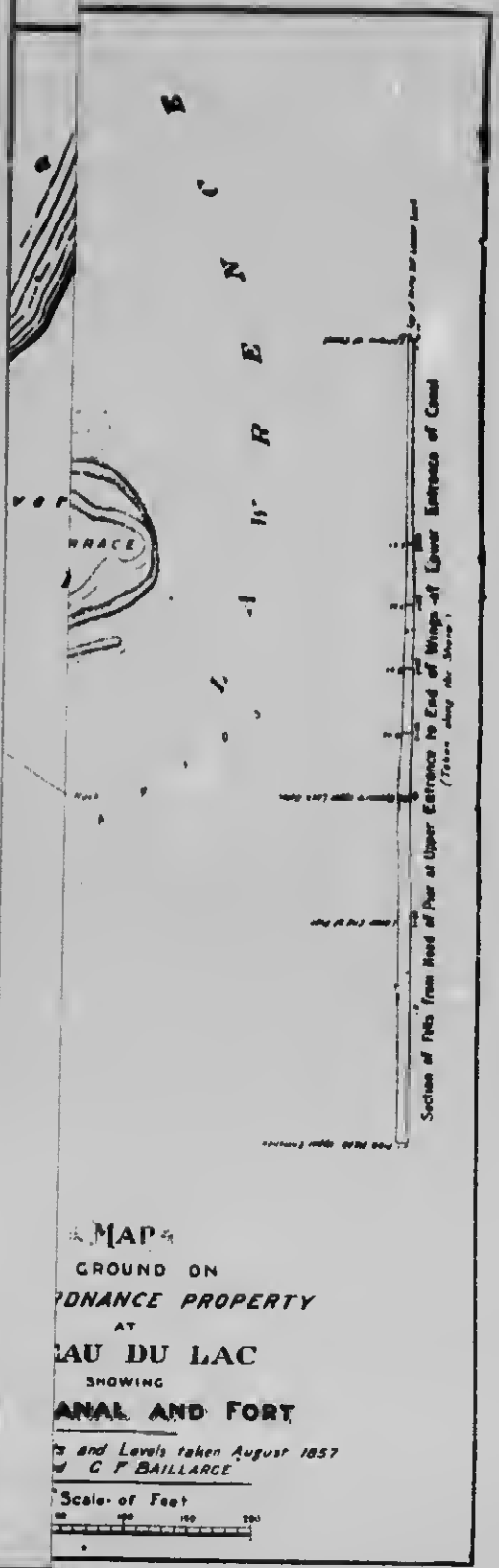

Dwelling
FORMER PUBLIC ROAD
(now closed)
François Xavier ; Clement
George Rene .. Saroise de Beajeu
Seigniour of Boulanger and New Longueuil



MAP of
OLD CANAL
BUILT BY THE ORDNANCE DEPARTMENT
OPPOSITE
SPLIT ROCK
on the North Side of the
RIVER ST LAWRENCE

From Measurements and Levels taken August 1867
(Signed) G. P. BAILLARGE.

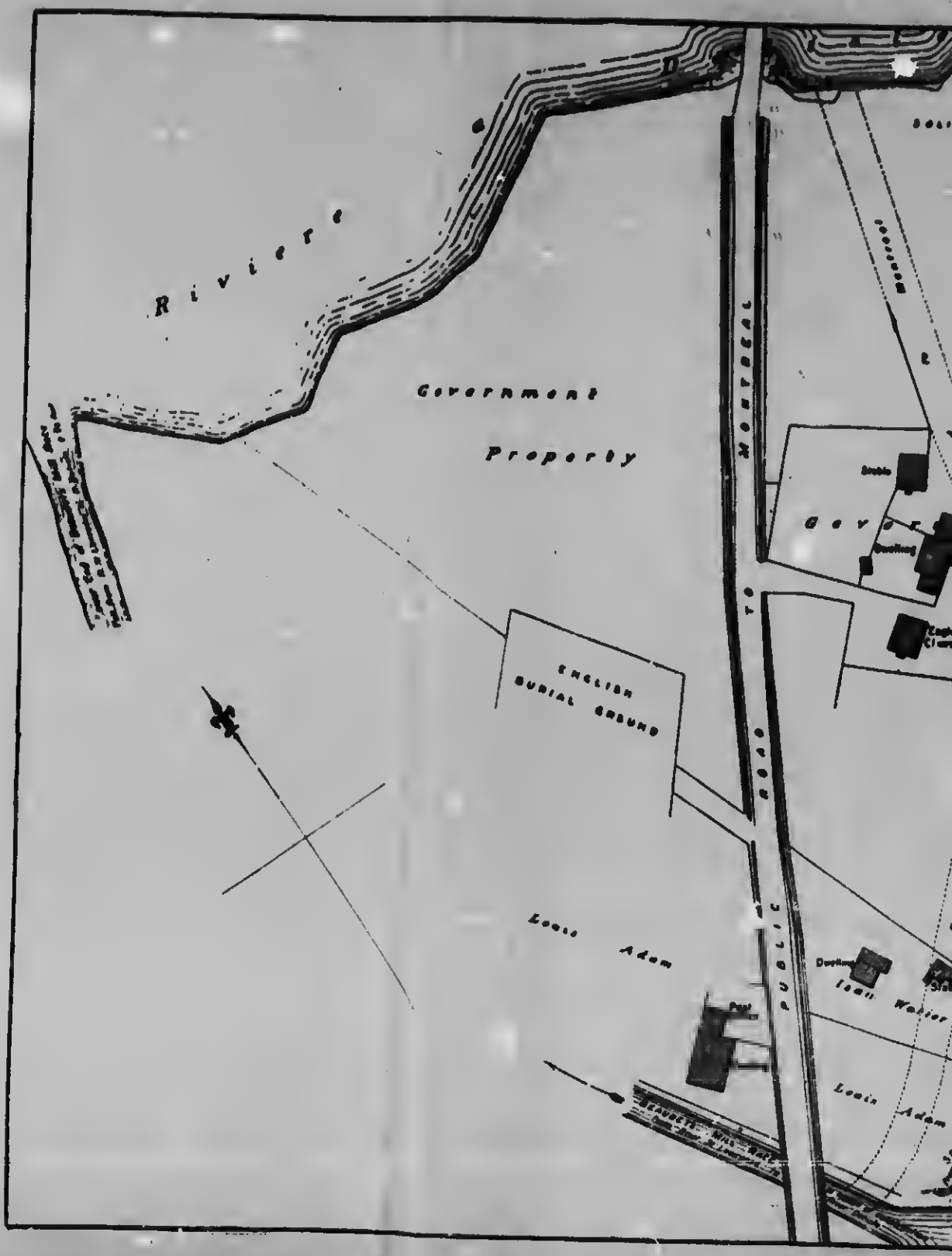
Scale of Feet

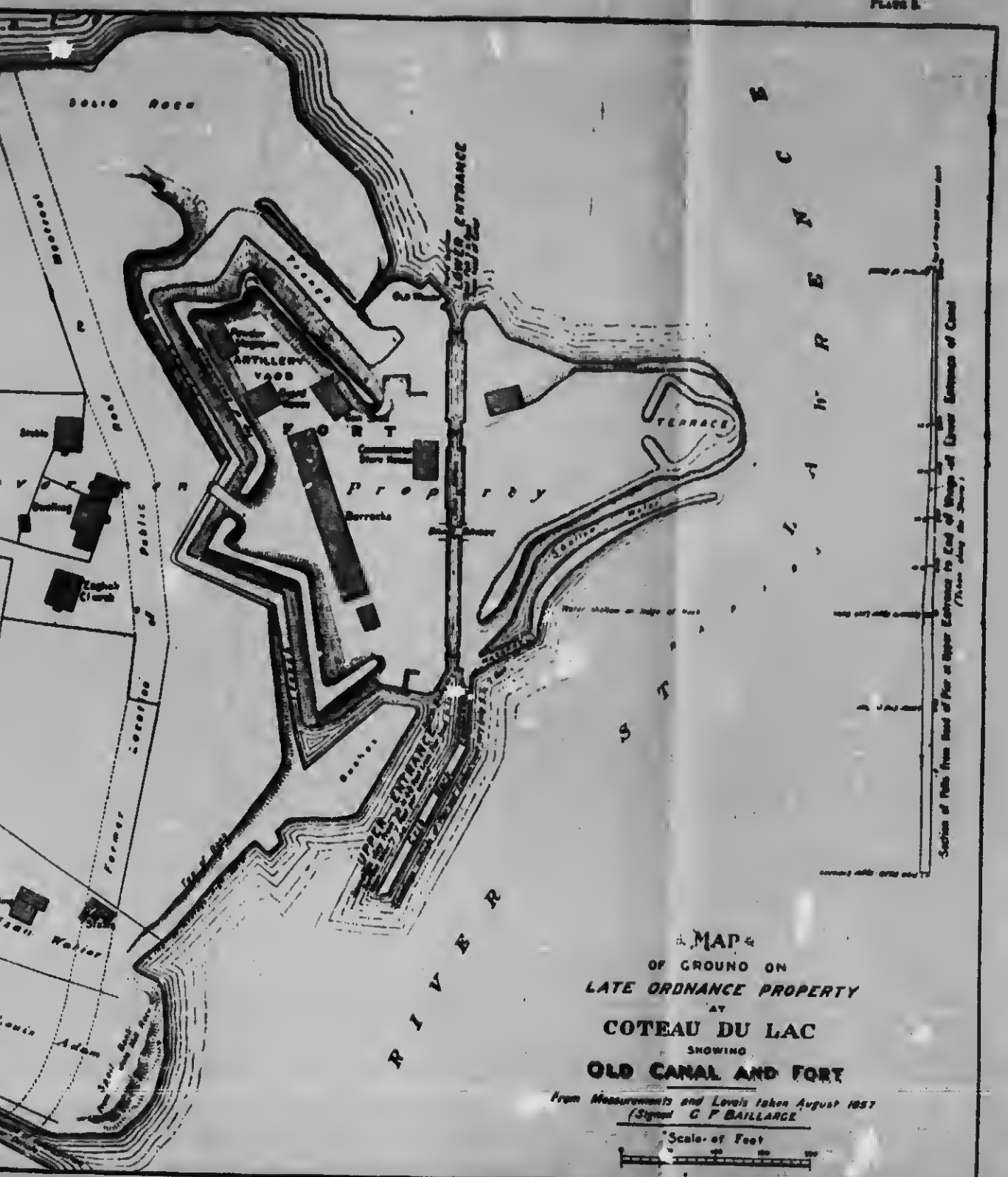


MAP
GROUND ON
ORDNANCE PROPERTY
AT
LAU DU LAC
SHOWING
ANAL AND FORT

ts and Levels taken August 1857
C F BAILLARGE

Scale of Feet

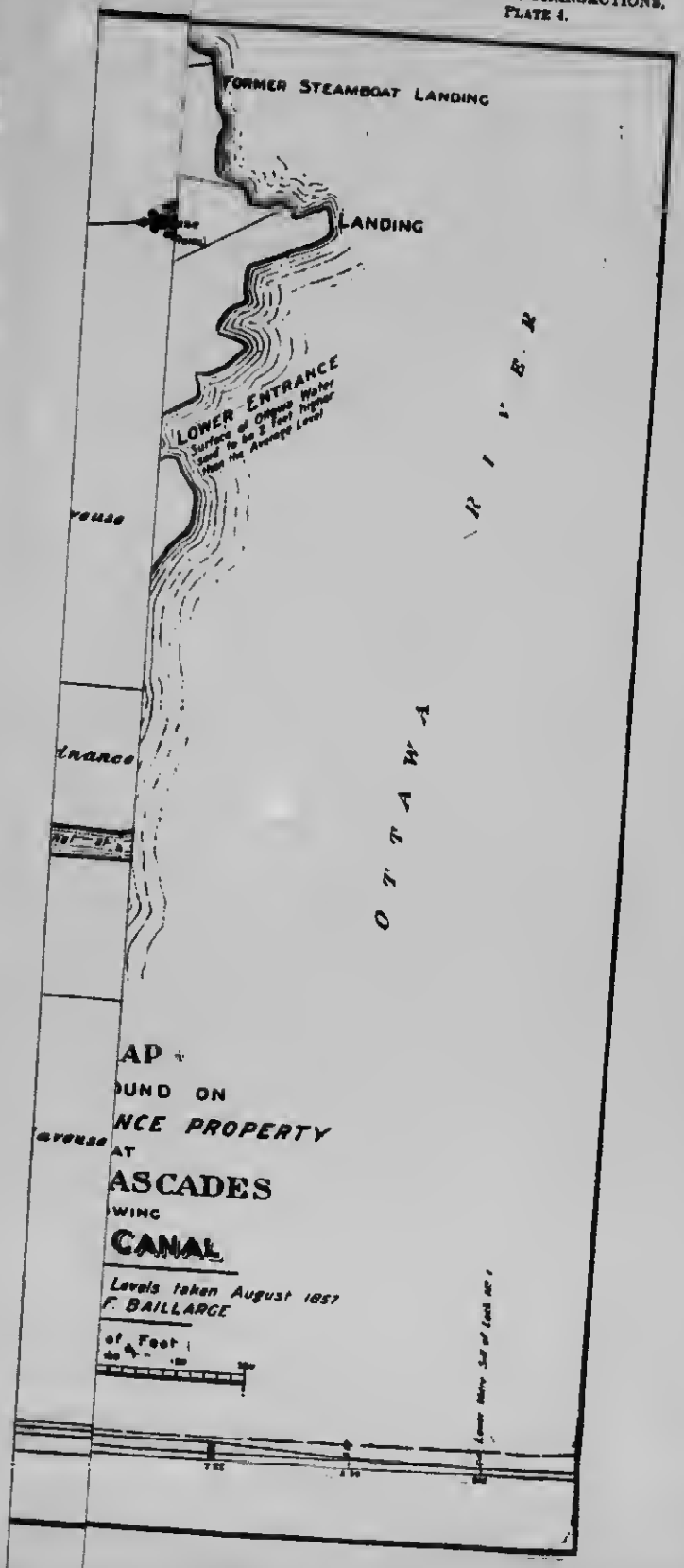

Riviere
Government
Property
ENGLISH
BURIAL GROUND
Louis Adam
Louis Adam

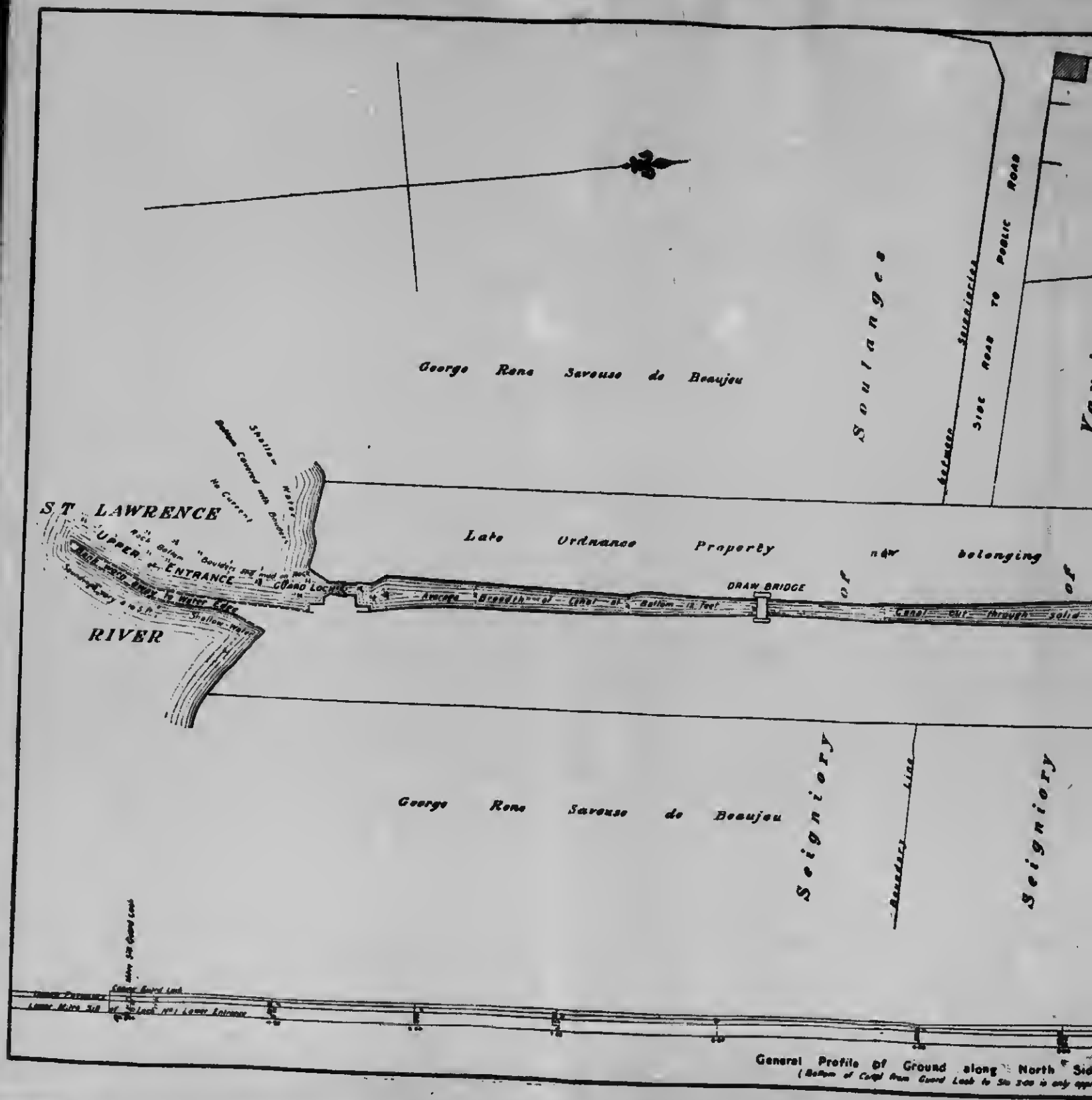


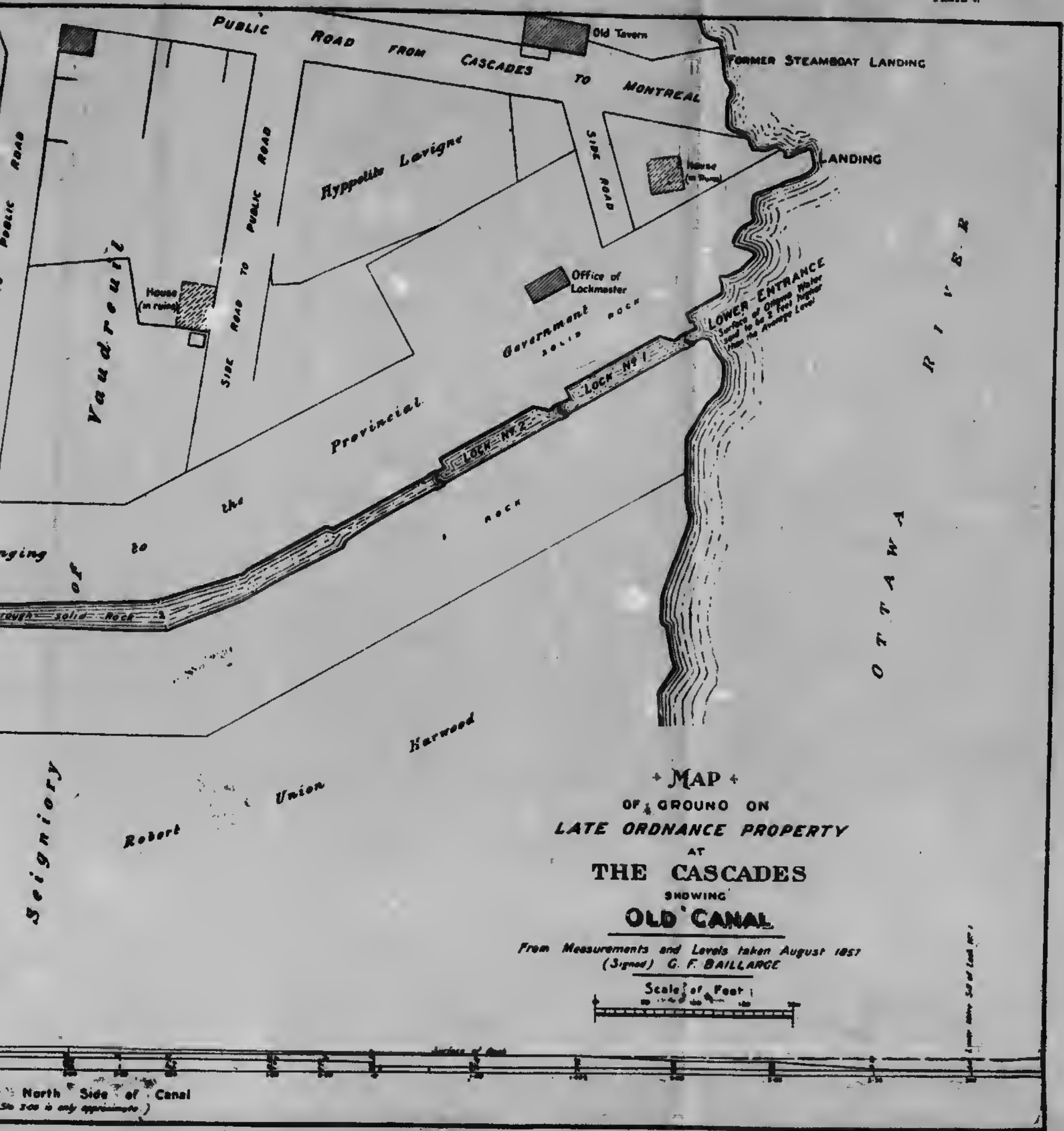
MAP
OF GROUND ON
LATE ORDNANCE PROPERTY
AT
COTEAU DU LAC
SHOWING
OLD CANAL AND FORT

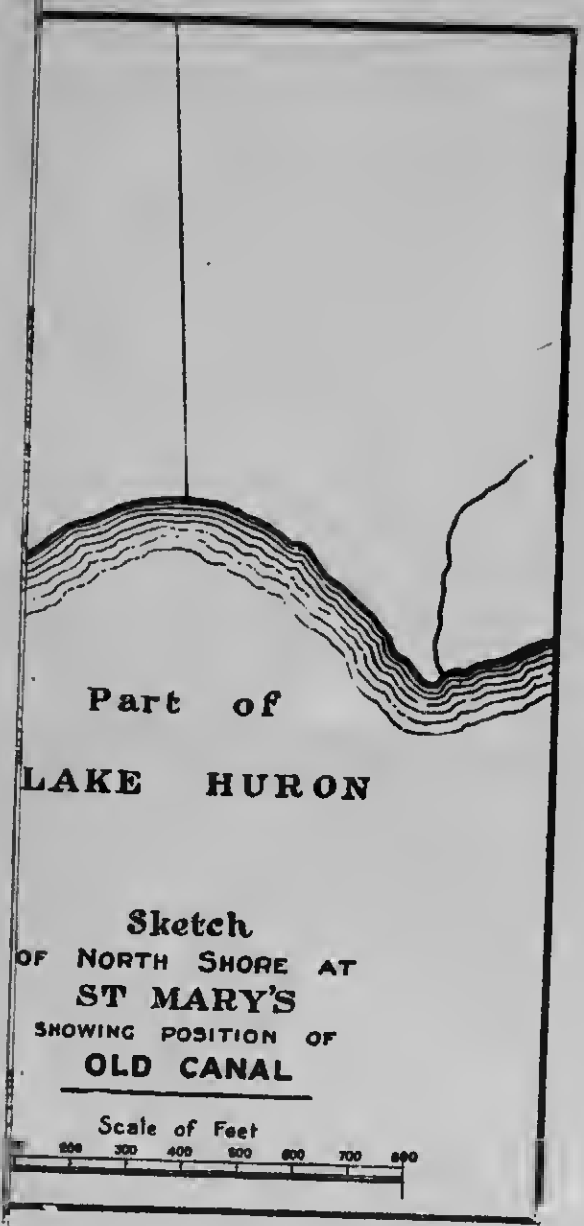
From Measurements and Levels taken August 1857
(Signed) C F BAILLARGE

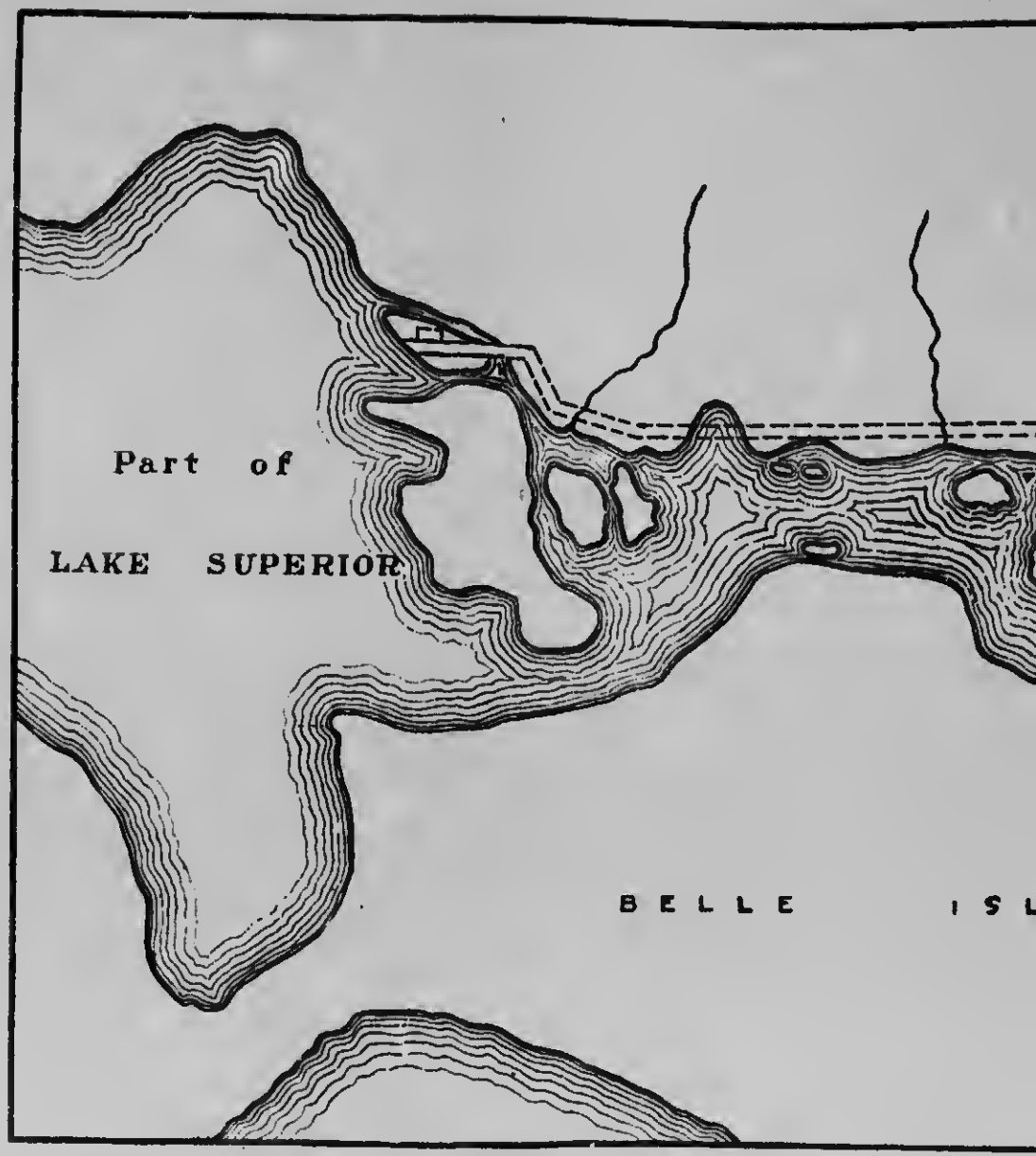
Scale of Feet

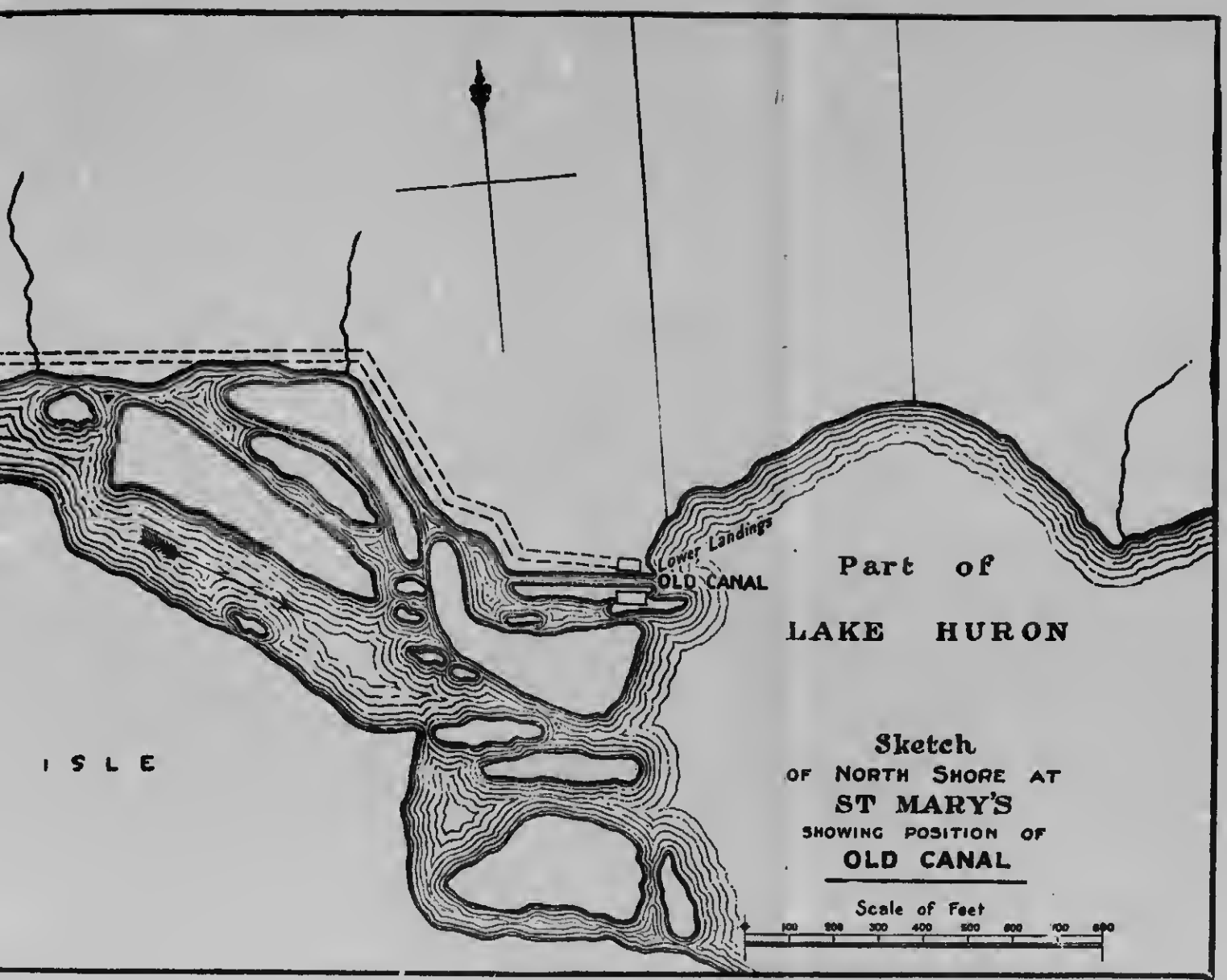

FORMER STEAMBOAT LANDING
LANDING
LOWER ENTRANCE
Surface of Ottawa Water
found to be 2 Feet higher
than the Average Level
OTTAWA RIVER
AP
UND ON
NCE PROPERTY
AT
ASCADES
WING
CANAL
Levels taken August 1857
F. BAILLARGE
Feet


George Rene Savouse de Beaujeu
Soulanges
Late Ordnance Property
ST LAWRENCE
RIVER
UPPER ENTRANCE
GUARD LOCK
DRAW BRIDGE
Seigniory
George Rene Savouse de Beaujeu
Seigniory
General Profile Of Ground along North Side

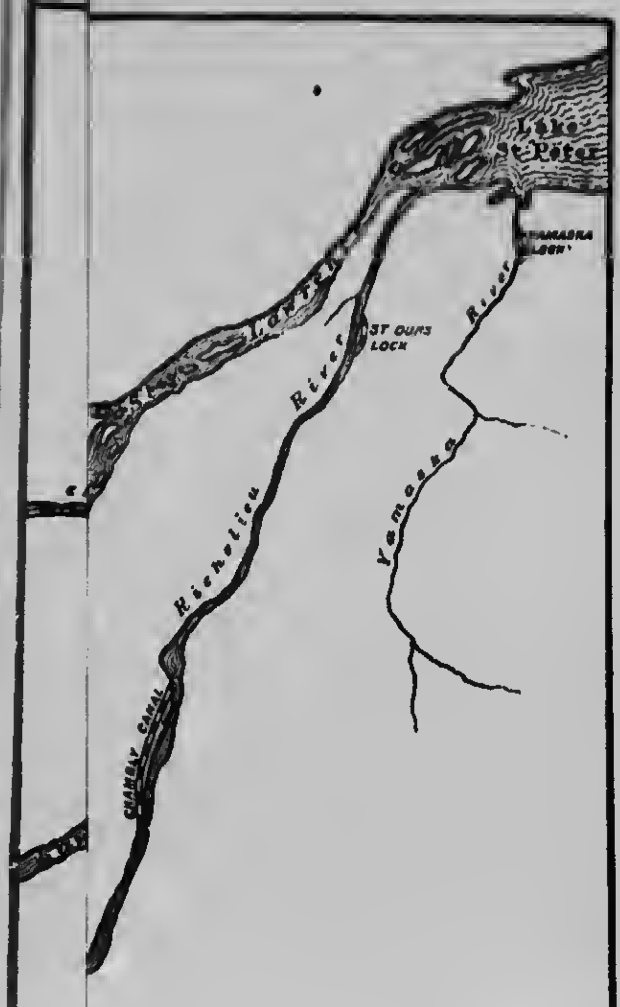

PUBLIC ROAD FROM CASCADES TO MONTREAL
Old Tavern
FORMER STEAMBOAT LANDING
LANDING
PUBLIC ROAD
SIDE ROAD TO PUBLIC ROAD
Hyppolite Lavigne
SIDE ROAD
House (in Ruins)
House (in ruins)
Office of Lockmaster
LOWER ENTRANCE
Surface of Ottawa Water said to be 2 Feet higher than the Average Level
Government
SOLID ROCK
LOCK Nº 1
LOCK Nº 2
Provincial
the
to
nging
of
Vaudreuil
rough solid Rock
ROCK
OTTAWA RIVER
Harwood
Union
Robert
Seigniory
North Side of Canal
Sta 3.00 is only approximate.)
Surface of Rock
MAP
OF GROUND ON
LATE ORDNANCE PROPERTY
AT
THE CASCADES
SHOWING
OLD CANAL
From Measurements and Levels taken August 1857
(Signed) G. F. BAILLARGE
Scale of Feet

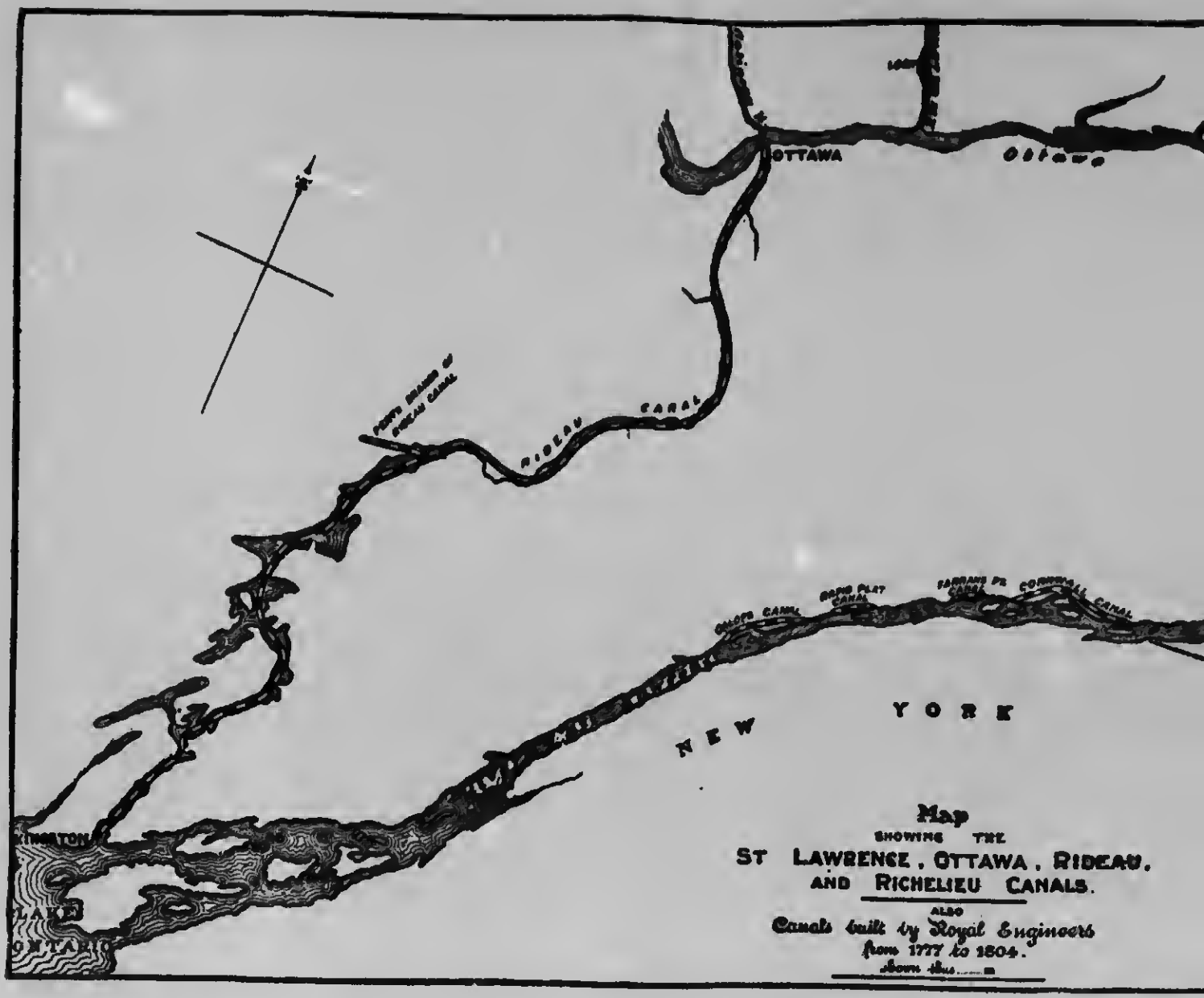

Part of
LAKE HURON
Sketch
OF NORTH SHORE AT
ST MARY'S
SHOWING POSITION OF
OLD CANAL
Scale of Feet
200 300 400 500 600 700 800


Part of
LAKE SUPERIOR
BELLE


Lower Landings
OLD CANAL
Part of
LAKE HURON
I S L E
Sketch
OF NORTH SHORE AT
ST MARY'S
SHOWING POSITION OF
OLD CANAL
Scale of Feet
100 200 300 400 500 600 700 800

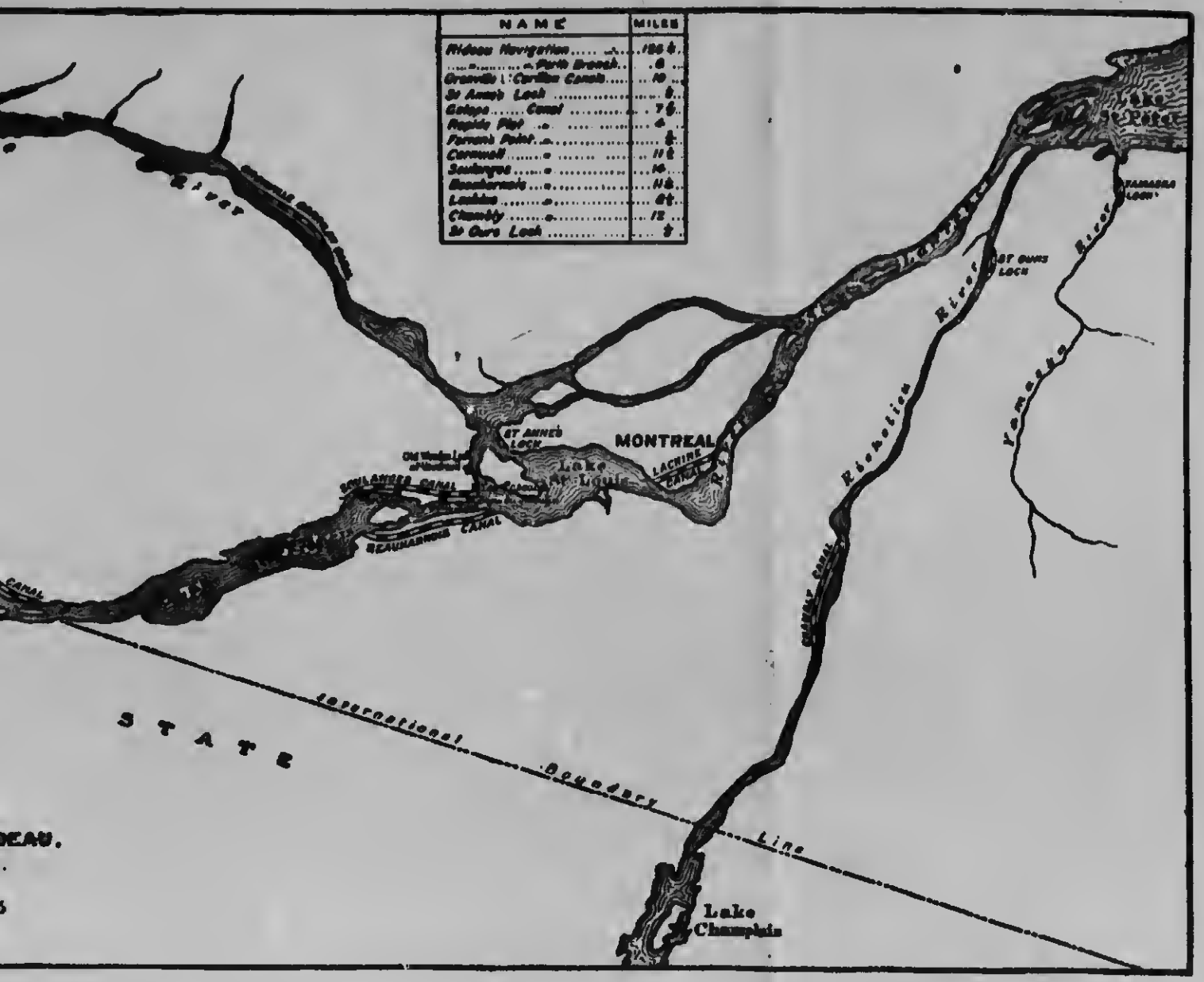
CAN. SOC. C. E. TRANSACTIONS
PLATE 6.





Map
SHOWING THE
ST LAWRENCE, OTTAWA, RIDEAU,
AND RICHELIEU CANALS.

ALSO
Canals built by Royal Engineers
from 1777 to 1804.
shown thus ____


NAME
MILES
Rideau Navigation
Carillon Canal
St Anne's Lock
Coteau Canal
Rapide Plat
Farran's Point
Cornwall
Beauharnois
Lachine
Chambly
St Ours Lock
River
MONTREAL
ST ANNE'S LOCK
Lake St Louis
LACHINE CANAL
BEAUHARNOIS CANAL
ST OURS LOCK
Richelieu River
Yamaska River
Chambly Canal
Lake Champlain
International Boundary Line
STATE