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History of Quebec Canals: A Review of the Literature¹

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Introduction

Very few academic studies exist on the history of canals in Quebec. Preferring other areas of study, Quebec historians have concentrated little attention on the history of transportation and communication. In the past decade, however, the historical and archaeological research services of the Environment Canada - Parks regional office in Quebec City and of Parks headquarters in Hull have explored this area and produced a number of studies.

The purpose of this report is to familiarize readers with those studies and their authors, and to prepare a summary review of that research. First listed are the studies focussing on the Coteau-du-Lac Canal, which is the ancestor of all canals in Canada. The Richelieu River is then examined through studies on the Chambly Canal and the Saint-Ours lock. This historiographic excursion will then take the reader along the canals of the Ottawa River, and studies devoted to the Lachine Canal will complete the tour.

1. Coteau-du-Lac Canal: The First Canal with Locks in North America

Built shortly after the American Revolution, in 1779-1780, the Coteau-du-Lac Canal served as a link in the British military defence system. The fact that it was the first lock-type canal in North America gives it national historic significance.

Since the late 1960s, many history and archaeology studies have focussed on this site, now part of the national historic parks system. The purpose of this report is not to review all of that research, but rather to discuss several of the more recent studies. In 1977 one of the first studies summarizing the history of the fort and canal at Coteau-du-Lac appeared under the title "The Fort at Coteau-du-Lac: Four Reports."² It contains four different studies, the first of which, written by George Ingram, relates the history of the military post and gives the reasons for to the construction of the fort and canal; the second study, written by George Ingram and William Folan, discusses the remains of the fort and provides information about some 30 buildings that existed on the site; the third study, by A.E. Wilson, is highly



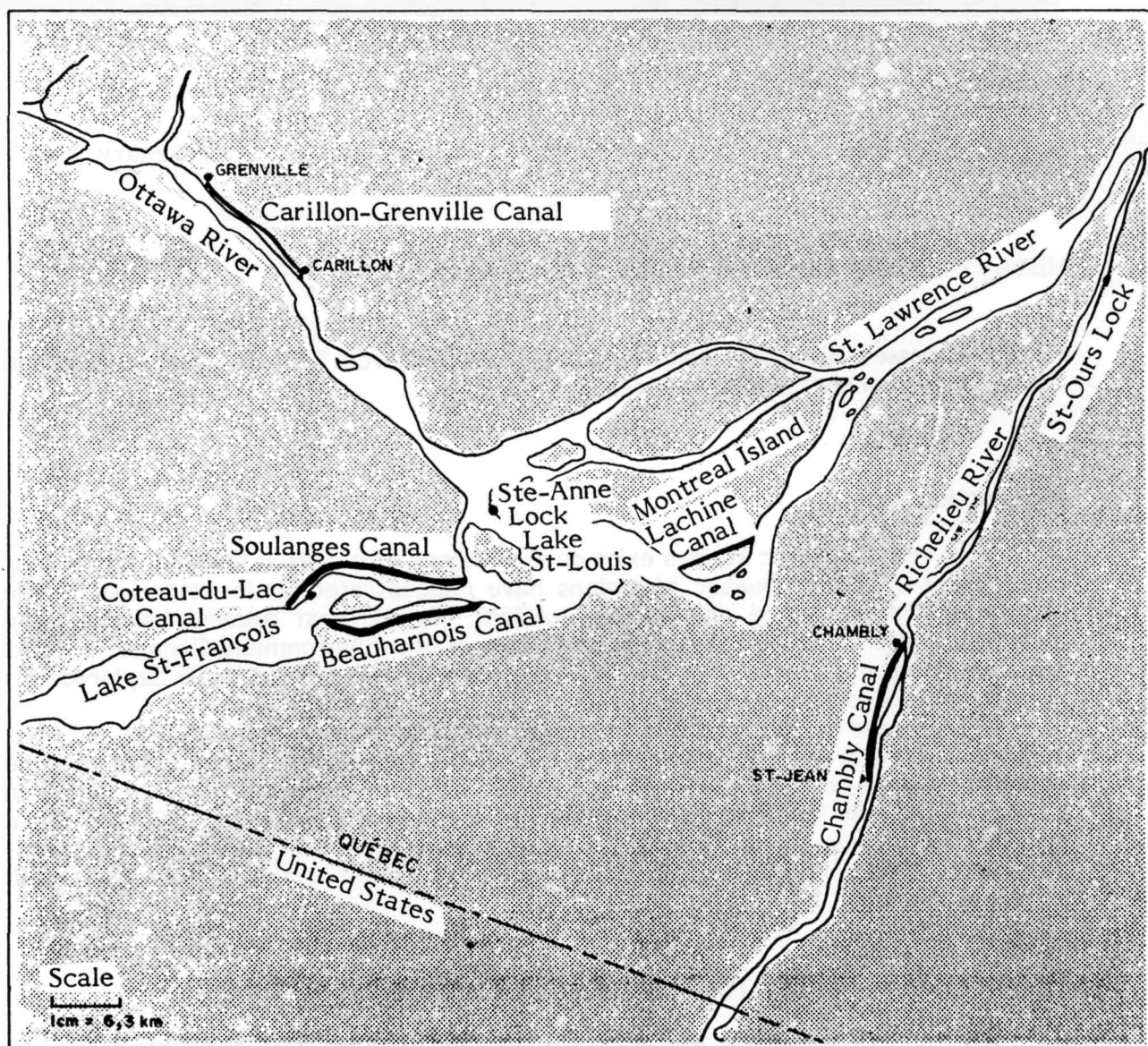
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technical in that the author sought to locate the remains of buildings not mentioned on historic maps by means of a survey of electrical resistance measurements; the fourth study, also by George Ingram, deals specifically with the octagonal blockhouse.

These four studies contain the basic information necessary to understand the history of the Coteau-du-Lac Canal. Far from constituting a global, comprehensive history, with a statement of problems and research hypotheses, these studies undoubtedly take a scientific approach, but one that is positivistic to the point that considerable motivation is required to read them from beginning to end. The work is accurate, however, and has made possible development of the site, yet a great many questions remained. In 1981 Normand Lafrenière was assigned to write a brief summary to clarify the role of the Coteau-du-Lac Canal in relation to St. Lawrence canals as a whole. The results of his study are now available in Canal Building on the St. Lawrence River, Two Centuries of Work, 1779-1959.³ The first chapter places the Coteau-du-Lac Canal in its political and economic context and, in fact, discusses the first canal system, from 1779 to 1783, as well as its modifications from 1804 to 1817. The author then describes the second canal system, whose completion in 1848 dealt a severe blow to the Ottawa canal system that, since 1833, had provided a militarily secure means of communication between Montreal and Kingston via the Rideau Canal system. The third chapter of his study examines the evolution of canals on the St. Lawrence from 1871 to 1959. The third canal system, with canals of 4.27 metres in depth, was installed in 1905.

The increasing volume of traffic led the Canadian and American governments to initiate talks on the possibility of again widening the canals. In 1959 these actions finally led to the opening of the St. Lawrence Seaway as we now know it, the fourth canal system on the St. Lawrence. The seaway locks may be accessed by ships up to 222.5 metres long by 28 metres in breadth and drawing 7.9 metres of water.

The summary prepared by Lafrenière is brief but very useful. Eliminating details and written deliberately for a wide audience, it provides any interested reader with the essentials about the history of St. Lawrence River canals. Photographs and maps accompany the text, and a select bibliography refers readers to more specific source literature.

Another, similar study was prepared by Normand Lafrenière in 1981. "Coteau-du-Lac, un canal fortifié"⁴ deals specifically with the military and commercial importance of the Coteau-du-Lac Canal. His study shows the relationship between period conditions and the structural evolution of the canal.

Strategic considerations led the British military to invest in the improvement of navigation upstream from Montreal. American attacks in 1755 had uncovered a significant chink in the province of Quebec's defence system: the absence of an adequate line of communication between fortified posts on the Great Lakes and establishments at the heart of the colony. In short, British logistics needed reinforcement. Warehouses and the canal were built primarily to improve the communication system upstream from Montreal. Opened in 1781, this canal comprised three locks measuring approximately 12.19 metres in length by 1.83 metres in width and 0.76 metres in depth.

Lafrenière discusses the dual use (military and commercial) of the Coteau-du-Lac Canal. Several figures illustrate the relative importance of traffic. In general, however, the study does not truly focus on the scope and nature of traffic on the canal.

A small amount of work was done on the canal between 1800 and 1804, but the war of 1812 brought about a radical change in the canal. To consolidate their supply system, the British military decided to fortify the canal and a number of defence works were built between 1813 and 1815 (octagonal blockhouse, guardhouse, cannon

platforms, powder magazine, etc.). The locks were widened to accommodate Durham boats. The upstream entrance was 3.81 metres wide and the downstream entrance 4.27 metres wide. The canal depth was increased to 1.07 metres. These works came a bit late to meet military needs, but were nevertheless useful for commercial navigation. The author provides only a brief sketch of commercial use. A more thorough examination of this subject would have been interesting, particularly since the author mentions that this intensive use led to significant deterioration of the canal in the 1830s. Such use of the Coteau-du-Lac Canal continued until 1845, when the Beauharnois Canal was opened. In 1856 the Coteau-du-Lac Canal was transferred from British control to the Canadian colonial government.

Lafrenière examines the following period only briefly, mentioning use of the canal's hydraulic energy by a Mr. Beaudet, who owned a sawmill until around 1880. In 1890 the canal was transferred to the Department of Railways and Canals. In 1920 the canal was abandoned and the Historic Sites and Monuments Board of Canada decided to erect a plaque on the site to commemorate its history.

The final chapter of his study briefly summarizes the results of archaeological excavations conducted in 1965. For obvious reasons, the subject is not examined in any great detail, and readers interested in these archaeological excavations should refer to the many reports produced by the archaeologists and material culture experts involved. These studies are listed in "Bilan des études spécifiques à Coteau-du-Lac."⁵

Like the summary report on canalization of the St. Lawrence, Lafrenière's study of the fortified canal ends with a select bibliography. Ultimately, this text constitutes a sort of resumé of the history of the Coteau-du-Lac Canal.

Furthering his research on the Coteau-du-Lac Canal, Normand Lafrenière in 1982 produced a study on European canal technology from its origins to the start of the 19th century.⁶ The fundamental problem was to determine whether the Coteau-du-Lac Canal had any special characteristics in relation to the technology of the era.

This study reviews the evolution of canal technology. Going back to antiquity, the author describes the first forms of river navigation improvement works. One chapter is devoted to the development of walled locks and their widespread use in Europe starting in the 15th century. An extremely interesting section of the study examines the various phases of canal construction in the 18th century. Neophytes might be put off by this highly technical chapter, even though each term is clearly explained and many illustrations drawn from ancient treatises on hydraulic engineering make it possible to understand this technology. Finally, Lafrenière concludes that the Coteau-du-Lac Canal, in the light of what is known about its structures, was technologically consistent with the canals built around the same time in Europe. This is important because the small size of the canal might lead one to wonder whether it had been built to the technological standards of the day.

Built by the military and incorporating as much science and engineering as any other canal, the Coteau-du-Lac Canal truly holds an ancestral position in the history of Canada's canals.

The next stage of historical research surrounding this canal was to develop a file on the military supply system. Based on the Haldimand papers and many other primary sources, the aim of that study was to explain the military supply system and review in detail the nature, composition, and management of these supplies.⁷

2. The Chambly Canal: Men and Structures

The Chambly Canal is the only operational component in Quebec's system of

heritage canals that retains, in its present form, its original route and historic structures dating back to the 19th and early 20th centuries. Officially opened to navigation in 1843, this 18.96-kilometre-long canal has nine locks that carry boats over a difference in level of 24.47 metres between Saint-Jean and Chambly.

The primary objective of historical studies conducted by Parks over the last ten years was to document renovation and restoration works on the canal. Secondly, these studies made it possible to document the history of the canal and, in particular, the social and economic aspects of that history.

"The Chambly Canal: A Structural History of the Locks,"⁸ by Sandra J. Gillis, is a clear example of this particular type of study conducted primarily for use in preserving and restoring the canal locks. The study begins with a history of the canal's construction and details the various phases of reconstruction during the 19th century. Separate chapters are then devoted to each of the nine locks. Basing her research on abundant primary sources, the author has neglected no structural details. These lengthy enumerations about cement, stone, and walls may seem somewhat tedious to some readers. It seems difficult to become impassioned about paraphrases of construction specifications. From an academic standpoint, the primary criticism that might be levelled against this type of study is that such a detailed and concrete approach to history seems far removed from "History." Nevertheless, if one acknowledges that the history of a civilization must also include various aspects of its material culture, one begins to understand that beyond its arid and technical side, the Gillis study is very useful in that it provides some understanding of the bare bones of our history and makes it possible to appreciate this canal today as an integral part of our industrial heritage.

Today the Chambly Canal allows pleasure boaters to experience the discreet and slow charm of a trip through time and space. History and the present combine at this point, and while the Gillis study will undoubtedly never make the historical best-seller list, it contributes humbly but surely to our knowledge of the physical civilization of Quebec. Canal-history buffs, of whom there are many, primarily in Great Britain and the United States, will appreciate the many photographs that accompany the text.

Following Gillis, historian P.-André Sévigny examined the economic history of the Chambly Canal. Trade and Navigation on the Chambly Canal⁹ constitutes the first part of a commercial history of the Richelieu River. Immediately in the introduction the author states the basic issues addressed in his study:

How was it that this waterway, with its historical military role, came to acquire in the 19th century a resolutely commercial function? What were its commercial antecedents? What objectives did the promoters of the Chambly Canal set for it? To what extent did it facilitate trade? What were the various events – favourable or otherwise – that marked the canal's commercial history?¹⁰

Sévigny's study is brief, comprising two parts, four tables, and some 20 illustrations.

The first chapter traces the use of the Richelieu River prior to canalization from 1603 to 1843. The author discusses the commercial destiny of the Richelieu under the French and English regimes, and during the period preceding canalization (1815-43). The transformation of the Richelieu is charted over the years: initially a colonization and settlement route, the river subsequently was used to float log rafts from Lake Champlain to Quebec City. The promising beginnings of trade under British rule were interrupted, unfortunately, in 1775 when the American colonies launched a war of independence against England. Following American independence,

the transit trade between Vermont and Lower Canada resumed. Oak, pine, potash, and barrel staves constituted the major part of American exports to Canada and Great Britain. In the other direction, Canada sent furs, fish, and salt to Vermont. This transit trade was coupled with local trade of no less importance.

Between 1815 and 1843 the Richelieu entered an era of commercial competition and canalization. Sévigny describes the economic situation leading up to construction of the Chambly Canal.

The second part of Sévigny's study concerns the commercial use of the Chambly Canal from 1843 to 1960. The first section relates the many hazards of the commercial situation. Designed between 1820 and 1830 to handle horse-drawn sailing barges, the Chambly Canal throughout the 19th century suffered the devastating consequences of its obsolete dimensions, and in addition had to face growing competition from railways. Various projects were proposed to enlarge the canal. But it was not until 1928 that the Richelieu was dredged between Sorel and Saint-Ours; a new lock was then built at Saint-Ours in 1930. Despite the addition of these works, the Chambly Canal continued to bottleneck this major navigation route.

These explanations provide a clear grasp of the commercial destiny of the Chambly Canal. The author centres his study on the four types of boats that characterize the history of trade on the canal: wooden rafts, sailboats, barges, steamboats. While this is a chronological approach, it does not make possible analysis of every facet of the canal's commercial history. The study comprises several numeric tables illustrating the number and tonnage of boats using the Chambly Canal. In the conclusion the author offers some interesting thoughts about the responsibility of government carelessness. All in all, this study contributes to the economic history of the Richelieu. This history is far from complete, however, and the field remains clear for specialized studies in business history.

P.-André Sévigny's second study on the Chambly Canal focusses on a new subject as yet unexplored by traditional historiography. Entitled The Work Force of the Richelieu River Canals, 843-1950,¹¹ this study provides readers with more substance than his history of commercial use. The purpose of his study is to trace the history of the working and living conditions of canal employees on the Richelieu in the 19th and 20th centuries. This study is of interest because it focusses not only on manual laborers, but also on employees in charge of the administration of canals both locally and regionally. Sévigny's manpower study is in six chapters.

Chapter one situates the study in relation to the body of historical literature on Quebec and Canadian workers. Sévigny selects his field straight away, choosing to delve into the daily lives of the lowly and nameless.¹² This history goes beyond the urban environment; in addition to the city-dwelling proletariat, another class of workers existed, living in rural and country settings. The manpower engaged in the daily operation and maintenance of canals on the Richelieu is original in another sense: employed by the state, these workers were also "public servants." Were their working and living conditions affected by this? Sévigny notes quite correctly that there are serious gaps in the historiography of the Canadian civil service. Attracting mainly Anglophone researchers¹³ and centred more on the legal evolution of the public service than on the fate of workers, this historiographic current has been concerned more with employees of the "interior service" — i.e., those of departments in Ottawa — than employees of the "external service" — i.e., all those working outside the national capital. Thus defined, Sévigny's area of study occupies a specific place within the as yet all too few studies concerning the working world. This fact should be emphasized.

The five other chapters of the study take a chronological approach to the history of these workers, thereby underlining the evolution of the administrative

structure and of the working conditions of canal employees.

The second chapter covers the years 1843 to 1852, a period of inexperience and experimentation during which management was nothing more than administrative improvisation. From 1852 to 1867, the will to organize grew stronger. The third chapter deals with this preconfederation period, which the author describes as unsettling and paradoxical, but also critical and decisive.¹⁴ Overutilized since its opening and poorly supervised, the canal was in very bad condition by 1848. Repair work was not undertaken until 1855. From an administrative standpoint, however, real upheaval was brewing. The position of superintending engineer of canals was created to resolve the communication and management problems that could not be handled by the secretary of Public Works in Ottawa. In the role of intermediary between workers and authorities in Ottawa, the superintending engineer, according to the author, served as a screening agent: interested in the fate of employees, he supported their claims and actions. An image of benevolent paternalism thus emerged that is sometimes alluded to in the historiography. The diversity of working conditions is probably another fact that must be taken into account before launching into excessively general histories of the working world. In this sense, the light shed by Sévigny's history of workers is very interesting.

The author points out a new component in the condition of workers on Richelieu canals. Following administrative decentralization, lockmaster and gatekeeper positions became permanent, with guaranteed annual salaries. This was fairly rare in the 19th century. Conversely, assistant lockmasters and other day labourers, under the direct supervision of the local superintendent, could be dismissed without prior notice.

Sévigny's study details the working conditions of employees (duration of work day, salaries, benefits, etc.). These indications make it possible to establish the relation between working conditions in urban and rural environments. The fourth chapter covers the three decades after Confederation (1867-96), an era of expansion and economic crisis. Handicapped and in poor condition, the Chambly Canal had difficulty coming out of the stagnant years that began around 1873. For workers, this era marked the beginning of a sad time of economic crisis.

According to Sévigny, a morbid climate of hatred, jealousy, denunciation, and intimidation caused undoubtedly by the anguish, anger, frustration, and envy of unemployed or barely used day labourers, rapidly took hold, particularly around the Chambly Canal.¹⁵ Unemployment, loss of job security, wage freezes, petty measures — in short, canal employees were subject to all the restrictive measures usually applied in times of crisis.

The fifth chapter begins with a new-found prosperity around 1896 and ends in 1920. Three phases mark this period: from 1896 to 1903 the working world slowly pulled its way out of the recession; from 1904 to 1914 the situation improved; then the Great War put an end to this period, and the canal suffered the repercussions of war measures. Throughout this period, political patronage — not a new phenomenon by any means — took on new impetus and had a devastating effect on the public service. The member of Parliament became an important player in games of political protection. About anarchy, excessive patronage, and power plays, Sévigny does not mince words. In fact, he cites all of the arguments against political appointments, with supporting sources. The final chapter concerns the years from 1920 to 1950, an era of stagnation and decline. The crash of 1929 had a strong effect on the Chambly Canal. The slide in business from 1930 to 1934 was followed by slightly better times from 1935 to 1939, but from 1939 to 1945 the Richelieu canals were again tied up by restrictions due to war. All of these events weighed heavily on the organization of work. Payrolls reflect the ups and downs of the status of canal employees. Sévigny

also gathered information about daily lives from oral interviews of former Chambly Canal employees conducted a few years previously.¹⁶ Although not gathered scientifically, these various pieces of testimony confirm, in their diversity and convergence, some of the specific aspects of the conditions enjoyed by canal workers: the attraction of permanent employment, the prestige of the canal, high salaries, political patronage, and its corollary, obedience.

Tinged with modesty, the author's conclusion mentions a vital point. The author notes that, in one century, the world of canal work has progressed from an organizational abyss and the deepest ineptitude to a typical bureaucratic level.¹⁷ The conclusion is brief, but clearly summarizes the essential new contributions of the study. The author notes that, more than merely old stones, the canals along the Richelieu are a testimony to the labour of humans: their builders and users, of course, but also (and perhaps primarily) those who served them during more than a century. Their lives, Sévigny notes, should be publicized, and their deeds deserve to be perpetuated.¹⁸

This history is neither exhaustive nor final, as the author clearly notes. However, it has lifted the veil from the hitherto unexplored world of the rural and government worker between 1850 and 1950 in Quebec. This history of Chambly Canal workers will certainly be counted among the first milestones in the history of the humble and obscure people who built Quebec with daily courage.¹⁹

The Saint-Ours Lock and Dam

P.-André Sévigny also conducted a study on the local and regional impact of the Saint-Ours lock. Entitled "Navigation et canalisation dans le Bas-Richelieu au milieu du 19^e siècle: l'écluse et le barrage de Saint-Ours,"²⁰ this study complements his history of the Chambly Canal.

The first three chapters examine the history of works on Avard Island, where the Saint-Ours lock is located. The next five chapters concern navigation and trade along the Lower Richelieu in the mid-19th century. The study is worthy of some note. The chapter on socio-economic conditions in the Lower Richelieu around 1850 describes the geographic framework of the region and shows the evolution of settlement. After a century of colonization, the population of the Richelieu Valley remained small: approximately 3,500 persons circa 1765. What Sévigny calls the "boom" in colonization occurred from 1765 to 1815. This term may seem somewhat excessive, but the Richelieu Valley population from Sorel to Chambly increased almost fivefold to some 18,000 people in the space of 50 years. The author relies heavily on previous studies and, in particular, on the works of geographer Ludger Beauregard.²¹ The emigration of a number of families to the United States in the second half of the 19th century is discussed rather summarily.

The picture of the economy and society of the Lower Richelieu provides Sévigny with an opportunity to again examine the principal elements of historiographic debate about the agricultural crisis in Lower Canada around 1830. The author cites opposing theses but refuses to settle the debate;²² thus, after giving us a taste, so to speak, he leaves us still hungry. It should be remembered that this is but an overview of the region's economy and that it is not the author's intention to delve into this issue exhaustively. In preparing a social portrait of the Lower Richelieu, Sévigny draws abundantly on a study by Allan Greer²³ and concludes that the rapid growth of towns and the diversification of social structure were initially the result of agricultural trade.²⁴

Focussing more on Saint-Ours, Sévigny then summarizes the history of the town of Seigneurie de Saint-Ours. The imprecise nature of sources regarding trades and

occupations led the author to prepare a fairly brief social analysis. Concerning breeding and average livestock per farmer,²⁵ the rather simple calculation method used by Sévigny raises more questions than it provides answers. A more precise and more detailed analysis would perhaps have revealed the various levels of wealth of farmers.

In the next chapter, Sévigny examines trade in the Lower Richelieu prior to 1849 before the construction of the Saint-Ours lock. Traffic on the Richelieu was essentially related to trade in wood and grain, and was carried on almost exclusively with the United States. This chapter, which includes descriptions of several important merchants such as Samuel Jacob and the Cartier family, makes it possible to understand the mechanisms of trade in the Lower Richelieu. Concerning navigation, Sévigny describes the various types of boats used and their uses: sloops, schooners, barges, bateaux, Durham boats, and steamboats.

The seventh chapter concerns navigation during the Saint-Ours lock era; i.e., in the mid-19th century. The Saint-Ours lock made it possible for large ships to reach the Chambly Canal; such was its primary purpose. Sévigny questions the statements of G. Tulchinsky²⁶ about the alarming drop in traffic between 1850 and 1854. The shades of meaning contributed by Sévigny provide a better understanding of the real growth in traffic at that time. As to businessmen, the example of Louis-Adélaïde Sénécal (1829-87) is instructive. The owner of several steamboats around 1850, he increased his fleet and set up a large traffic of wood and grain with the United States. In addition to his 11 steamboats, Sénécal had 89 barges maintaining a constant link between Montreal, Sorel and Whitehall, New York. Active on the banking, industrial and commercial scenes, he relied on trade with the United States, which was a sure and profitable operation.

In addition to international trade, the Richelieu was used for regional and local trade. Many market steamers transported a variety of freight and passengers. Thanks to an unpublished source, the boat-registration book at the Saint-Ours lock, the study gives us a detailed outline of the frequency and nature of boat freight in 1853 and from 1859 to 1868. Information about this brief period sheds considerable light on the specifics of this local transport. It is interesting to note, however, that the Saint-Ours lock and dam were used more for national transit trade than local navigation.

The problem of competition between these two types of navigation should be examined more closely. It would be interesting to prepare a complete picture of the financial interests at stake and to examine close up the profitability of each type of trade. This goes beyond the framework of Sévigny's research, but it is to be hoped that other historians will take on the task.

The final chapter concerns vessel operators and boatbuilding. In the 19th century the town of Saint-Ours was a transshipment point, and Sévigny draws an interesting parallel between Saint-Ours and the town of Souillac on the shores of the Dordogne in France.²⁷ The study shows that sailors who worked the Lower Richelieu resided in Saint-Ours and Sorel. Sévigny briefly examines the merchants of the era and their associations with farmers, then again focusses on the relative wealth of many socio-professional groups in 1860. Mariners ranked next to last, just above labourers, day labourers, and hired hands. Sévigny uses average property value as an indicator. In statistical terms, one might question the value of this indicator. Sévigny blames the decline in the number of mariners residing in Saint-Ours on the increasing use of steam over sail, and on the emergence of new breeding grounds for mariners and boatbuilders outside of Saint-Ours. This explanation seems incomplete, and the framework of the study would likely have to be broadened to cover the entire Lower Richelieu in order to gain a real understanding of every aspect of the mariner's

trade on the Richelieu.

In the section on shipbuilding, Sévigny emphasizes the relative importance of this activity in Saint-Ours in the early 19th century. He concludes that the Saint-Ours lock and dam were not behind the feverishness of trade and navigation in the 1850s. This is surprising. Since the usual purpose of a lock is to improve traffic, one might expect to find a direct cause-and-effect relationship between the opening of the Saint-Ours lock and the growth in river traffic. It should be noted, in passing, that Figure 50, which reviews shipbuilding between Montreal and Trois-Rivières in 1873 (page 315) does not clearly show the relative scope of shipbuilding in each city or town. A more sophisticated graphic treatment would have added a good deal to this chart. This is only a detail, of course, and one might add on the other hand that the work's illustrations are numerous and well chosen.

In the general conclusion, Sévigny again notes the importance of the Saint-Ours lock and dam for international trade much more than for local and regional trade. Although "regionalists" fought to make the Lower Richelieu accessible to market steamers serving local towns, this was done at the expense of sailing ships and the decline in sail traffic led to a decline in shipbuilding. Competition from railways was also an important factor in changing the local economy. Ultimately, aside from the information it contains on socio-economic conditions along the Lower Richelieu in the mid-19th century, the study outlines several paths of research toward more detailed analysis of the varying interests of commercial capitalism.

3. History of Ottawa River Canals

The Carillon Canal and the Saint-Anne lock are two more components of the Quebec heritage canals system that Parks is responsible for protecting and developing.

A study by Normand Lafrenière, entitled "Le canal de Carillon et le réseau de canalisation de la rivière des Outaouais,"²⁸ presents another facet of the history of Quebec canals. While the Vaudreuil and Saint-Anne locks originally were built to meet exclusively commercial needs, the other components of this system — the Carillon, Chute-à-Blondeau, and Grenville canals — were initially designed for the transportation of troops and military equipment between Montreal and Kingston in the event of a conflict with the Americans on the St. Lawrence. Even though commercial use subsequently became the prime function of these canals, a series of factors limited the commercial importance of this system. The main questions addressed in the five chapters of the Lafrenière study are:

How far back does the use of this waterway go? What was the background to its canalization? What purposes was the canal system intended to serve? What were its main components? How and why were these altered over the years? To what extent was the system used for commercial purposes?²⁹

In the first chapter, the author reviews the literature on the subject and finally concludes that few historians before him have dealt extensively with the history of canalization on the Ottawa. To fill the gaps in the historiography, Lafrenière therefore plunged into extensive primary and secondary sources (the Documents de la Session de la Province du Canada from 1850 to 1920; Canal Statistics from 1921 to 1970; the Annual reports of Public Works for 1840 to 1878, Railways and Canals for 1879 to 1936, and Transport for 1937 to 1970; the archives series RG11, RG43, WO55 in MG13, RG8 and "C"; and the British Parliamentary Papers are the essential sources discussed). This careful and relatively complete review lends appreciable scope and

quality to Lafrenière's work.

The study begins with the precanalization period of the Ottawa River. The author gives a general geographic description of the river and locates its primitive canals and portages. He then examines the first commercial activity on this river, the fur trade. In the early 19th century, logging activity led to a growth in commercial navigation on the Ottawa River. The tumultuous waters of the Ottawa were plied by bateaux, then Durham boats, and finally steamers. Prior to canalization, however, steam navigation remained on a modest scale.

The third chapter, which examines the period from 1816 to 1843, concerns the golden age of canal building on the Ottawa. Despite commercial interests favouring enhancement of the St. Lawrence, the military authorities gave priority to the security of the colony, and the imperial government resolved to build a system of canals between Montreal and Kingston via Ottawa.

It is important to note here the special role played by the military in the history of Quebec canals. This influence did not always favour commercial interests, which argued in favour of navigation on a larger scale. Because of the narrowness of the Grenville canal locks, only vessels 6.10 metres in breadth could enter the Ottawa canal system.

Lafrenière describes all of the vicissitudes and debates preceding and surrounding the construction of the Carillon, Grenville, and Chute-à-Blondeau canals, and of the Vaudreuil and Sainte-Anne locks. The author notes with reason the administrative complexity of this system, the components of which were under the control of various agencies. Concerning environmental impacts, Lafrenière concludes that impacts were of little significance in terms of settlement and job creation. The disparity in the scale of navigation had relatively negative effects on commerce. Built for military purposes, these canals in fact were never used in the role for which they were designed. From 1843 to 1848 or thereabouts, improvement of the St. Lawrence through a series of canals brought home the commercial failure of the canals on the Ottawa, and the fact that these canals were not cost-effective lay behind their transfer from the imperial government to the Canadian government in 1856.

The fourth chapter deals with structural modifications to these canals between 1867 and 1963. Finally, the fifth chapter focusses more closely on the various phases of the commercial use of Ottawa River canals. The use of statistical sources from the era creates many problems, and historians should be wary of the pitfalls of such sources. The study of transported goods reveals three different periods: 1834-48, 1849-1919, and 1920-63. Readers interested in commercial history will find interesting pages on wheat, flour, wood and various forest products, textiles, potash, and a variety of agricultural produce that made up the cargo of vessels until about 1920, at which time an irreversible decline began, and wood was replaced by sand and gravel.

The study on commercial use closes with a section on canal users. The various shipping companies, including the powerful Ottawa and Rideau Forwarding Company, put up with the scale of navigation and adapted the size of their fleet to that of the canals. As was the case with other canals, the advent of rail traffic precipitated a decline in commercial use and, at present, this river is plied primarily by pleasure craft.

The study concludes by summarizing the essential points of each chapter. Three appendices, three tables, and 31 illustrations accompany the text.

All in all, like the other canal studies, the Lafrenière study makes a new contribution to our knowledge of this heritage.

4. The Lachine Canal: Trade, Industrialization, and Urbanization

From the start, Parks research on the historic importance of the Lachine Canal placed emphasis on these three themes: trade, industrialization, and urbanization.³⁰ Opened in 1825, the Lachine Canal was used primarily for commercial shipping until the middle of the 19th century, when the hydraulic potential of the canal encouraged many businessmen to establish their plants and factories along its edges. "Water Power on the Lachine Canal, 1846-1900,"³¹ by Larry McNally, first describes the status of Montreal in the early 19th century and its economic growth over the years. Three chapters focus on the firms established around basin no. 2, the Saint-Gabriel locks, and the Côte Saint-Paul locks. Four other chapters are devoted to the principal activities that characterized industrial development of the canal area: flour milling, nail manufacturing, as well as woodworking, and toolmaking. The final chapter examines the issue of leases relating to water power and explains the constitution of monopolies by several men: William Parkyn, De Witt, Young, Ostell, Gould, Hersey, Frothingham, etc. In closing, the author addresses the question of the influence that this abundance of water power had on the industrial development of the canal corridor. The question is a thorny one because it is in fact possible that the changeover to other forms of energy was delayed by certain industrialists who hesitated to equip their plants with steam engines. Further research is required to assess the impact of this technological orientation.

The McNally study is not very explicit about the technology of hydraulic power. This is one avenue of research that should be explored in order to truly understand the process by which industries were established and operated along the Lachine Canal corridor.

"The Lachine Canal, 1840-1900: Preliminary Report,"³² by John Willis, focusses on the themes developed by McNally, but the research hypotheses and perception of the problems are much more thorough. The study is in four chapters. The first two chapters describe the highlights of the economic and political situation surrounding the construction of the Lachine Canal and weaving the urban and industrial fabric of this part of Montreal. The author depicts the history of the city as the product of the subtle interaction between regional and imperial forces; according to the author, these interrelations account for the Québécois and Victorian aspects of Montreal. In chapters three and four, John Willis presents his approach to the history of industrialization and urban development along the Lachine Canal. He emphasizes the importance of the social consequences of the interaction of both phenomena. Willis proposes to later study the aspects and effects of the industrial revolution in this urban area.

In order to define a research strategy and describe the problems involved, the vast available sources had to be explored. A summary of this exploration and its archival potential are appended to Willis's study. Research in 1983-84 focussed on the theme of industrialization³³ and Willis has already compiled a fairly extensive file on industries and industrialists in the Lachine Canal corridor.

The Willis report is infinitely richer and more controversial than this brief summary might suggest. The author's statements are well supplemented by maps, photographs, and schematic diagrams. The style is vigorous, precise, and direct. While the tendency is to be skeptical about statements that are in fact only unverified hypotheses, one must salute the depth of the questions raised. The studies should be completed around 1985 and one hopes they will attain the objectives set out in the preliminary study: to provide information and expertise for the development of the canal, define the significance of water power to urban and industrial growth in the vicinity of the Lachine Canal, describe and analyze the history of the major

industries around the canal and, finally, examine closely the make-up of the Montreal urban environment in terms of the masses, i.e., the vast number of people who suffered body and soul the effects of industrial capitalism. The challenge is considerable; once completed, the current study should contribute to the advancement of urban history, business history, and labour history.

In addition to research on industrialization, a brief study of the commercial aspects of the canal was conducted by Isabelle Contant. Her report, entitled "Évolution du trafic du canal de Lachine de 1825 à 1873,"³⁴ is in three major parts. Part one makes a critical description of the sources used and analyzes two periods in detail: 1825 to 1848 and 1848 to 1873. The second part of the report comprises a series of 20 statistical tables reconstituted from the sources. Some processing has been incorporated into these tables to help make the mass of data more readily understandable. Part three of the study illustrates, with numerous graphs, the evolution of trade on the canal.

Because no historical studies dealing specifically with the commercial history of the Lachine Canal existed, the author had to begin by trying to build a statistical data base containing sufficiently homogeneous and continuous series to establish the evolution of trade over a long period. It was therefore important to have reliable data that might contribute, in the long run, to a commercial history of the Lachine Canal.

Isabelle Contant examines the sources and their problems extensively. Two series of sources constitute the base of the study: 1) specifically on the Lachine Canal, homogeneous sources exist for the period 1825-44, 1844-48, and 1858-67; and 2) on the canals of the St. Lawrence, including the Lachine Canal, we have a second series of sources for the years 1850-67 and 1873. The elements compiled from these sources are:

- origin and destination of trade
- number of passengers (adults, children)
- number of vessels, type, and tonnage
- amount of tolls collected
- other sources of income from storage, the leasing of water lots, wharfage services, etc.
- tonnage and volume of various transported goods (forest products, agricultural produce, animals, manufactured goods, miscellaneous merchandise).

Isabelle Contant is wary, however, about the use of these sources. Her criticism is absolutely valid and explains the difficulty of reconstituting more or less homogeneous series for eight categories of products and three trade indicators.

The description of the analysis method is relatively clear. By converting raw goods into indexes and percentages, the author developed some 15 graphs summarizing the essentials of trade movement from 1825 to 1873. In describing the commercial use of the Lachine Canal from 1825 to 1848, the author first situates the canal in relation to transportation systems of the day in Canada and the United States, where the Erie Canal provided serious competition. The economic context summarized by the author shows the scope of Canadian economic dependence on the preferential system of the British empire. In 1840, wood and wheat made up more than 80% of tonnage circulating on the Lachine Canal. Ship movements, tolls, and passengers are on a constantly ascending curve, which clearly indicates the importance of the role of the Lachine Canal.

From 1850 to 1873, analysis is more difficult because data on the Lachine Canal are included in those on St. Lawrence canals except for the years 1858 to 1867. Despite the limits of the sources available, Isabelle Contant analyzes six groups of products (forest products, crops, animal products, manufactured goods, other farm

products, miscellaneous goods).

The second part of the study comprises a series of statistical tables reconstituted from many sources. These 20 tables are the fruit of highly useful compilation work and constitute a statistical data base that could be used again. Part three of the study translates the data into graphic form. A simple remark should be made at this point concerning the usefulness of presenting data in graphic form. Even though the method used in this study is fairly rudimentary, it allows the reader to understand at a glance the progression of and variations in trade. Nevertheless, one would prefer to see more sophisticated graphics. Unfortunately, very few historians are familiar with methods for the graphic processing of data. Statistical methods and the joys of computer science are still reserved for a small minority. As the use of microcomputers and their software becomes more widespread, it will be much easier to prepare accurate, simple and understandable graphs rapidly.

This study of several aspects of trade on the Lachine Canal, from its origins to 1873, leads to general reflection. The historian is always dependent on the sources he or she manages to find and on the ability to exploit them. Once sifted through objective criticism and organized sequentially, sources, even with all their faults, can be used to answer specific questions. The greatest merit of this study is undoubtedly its reconstitution, from sparse sources, of very specific statistical tables. This was a monumental task. As such, Isabelle Contant's study is a useful contribution to the commercial history of the Lachine Canal, which should be extended to 1959 and examine more closely all of the implications of trade on the canal.

To conclude the review of Parks' historic studies about the Lachine Canal, the existence of structural files on the various lock and jetty zones liable to be developed should not be overlooked.³⁵ These seven files each contain a brief description of the evolution of the zone in question, a series of map extracts and plans from various eras, extracts from work specifications, and several photographs.

Conclusion

The history of Quebec canals is not yet complete. General studies and in-depth analyses of the Beauharnois and Soulanges canals have yet to be carried out.³⁶ It is hoped that this shortcoming will one day be corrected, thus making it possible to write a comprehensive history of canal works in Quebec. This review covers only research conducted by Environment Canada — Parks, which was its initial stated objective. Although these studies are not widely known, they are worthy of attention from the scientific community precisely because they are just about the only studies dealing exclusively with the history of canals in Quebec; moreover, since they were produced by historians working for the federal government, they may be classified under the general heading of "Public History." In the United States and France, public history has broadened the job market for historians by providing them with opportunities to conduct research off the beaten track, for communities and companies, and not only for the small university community. In this perspective, history gives preference to practical approaches that may be used in decision making.³⁷ In the case of Parks historical research is used in the development and protection of our national heritage. Research studies therefore have a practical purpose, which sometimes explains the tangible difference in their approach in comparison with academic research. All in all, it is this diversity that broadens the horizons of "History."

The publication of some of these research studies will make possible a wider dissemination of knowledge. The first steps have already been taken with the publication of works on the Richelieu, Ottawa, and St. Lawrence canals.³⁸ In the

meantime, it is to be hoped that Parks researchers will publicize their work more during scientific congresses, insofar as their areas of study, of course, are of interest to other historians. The history of transportation and technology, as much as the history of politics or social history, makes it possible to understand and appreciate the vast historical wealth of a society whose multiple facets continue to sustain the works and days of historians.

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