

The Development of Canada's Five Leading National Ports

Charles N. Forward

Volume 10, numéro 3, february 1982

URI : <https://id.erudit.org/iderudit/1019078ar>

DOI : <https://doi.org/10.7202/1019078ar>

[Aller au sommaire du numéro](#)

Éditeur(s)

Urban History Review / Revue d'histoire urbaine

ISSN

0703-0428 (imprimé)

1918-5138 (numérique)

[Découvrir la revue](#)

Citer cet article

Forward, C. N. (1982). The Development of Canada's Five Leading National Ports. *Urban History Review / Revue d'histoire urbaine*, 10(3), 25–46.
<https://doi.org/10.7202/1019078ar>

Résumé de l'article

Montréal, Québec, Saint-Jean et Halifax, sur la côte orientale, ainsi que Vancouver sur la côte occidentale, ont été les ports de marchandises diverses les plus importants du Canada pendant la plus grande partie de l'histoire du pays. À différentes époques, il y a eu entre eux des relations aussi bien de complémentarité que de concurrence et l'importance relative de chaque port a varié selon les changements de la technologie du transport et les modifications des courants commerciaux. Avant la Confédération, le port de Québec occupait la première place, mais il la céda rapidement à Montréal quand le vapeur supplanta le bateau à voile et que la voie navigable du Saint-Laurent fut élargie et approfondie. Montréal a dominé le commerce maritime au Canada pendant plusieurs dizaines d'années, jusqu'à ce que l'essor récent de Vancouver finisse par mettre fin à cette prépondérance. Pendant leur longue histoire, les cinq ports ont réussi à survivre à des périodes d'adversité et à garder leur importance et leurs rôles respectifs dans le commerce maritime national, malgré l'apparition de nombreux nouveaux concurrents.

The Development of Canada's Five Leading National Ports*

Charles N. Forward

Résumé/Abstract

Montréal, Québec, Saint-Jean et Halifax, sur la côte orientale, ainsi que Vancouver sur la côte occidentale, ont été les ports de marchandises diverses les plus importants du Canada pendant la plus grande partie de l'histoire du pays. À différentes époques, il y a eu entre eux des relations aussi bien de complémentarité que de concurrence et l'importance relative de chaque port a varié selon les changements de la technologie du transport et les modifications des courants commerciaux. Avant la Confédération, le port de Québec occupait la première place, mais il la céda rapidement à Montréal quand le vapeur supplanta le bateau à voile et que la voie navigable du Saint-Laurent fut élargie et approfondie. Montréal a dominé le commerce maritime au Canada pendant plusieurs dizaines d'années, jusqu'à ce que l'essor récent de Vancouver finisse par mettre fin à cette prépondérance. Pendant leur longue histoire, les cinq ports ont réussi à survivre à des périodes d'adversité et à garder leur importance et leurs rôles respectifs dans le commerce maritime national, malgré l'apparition de nombreux nouveaux concurrents.

The east coast ports of Montreal, Quebec, Saint John and Halifax, together with Vancouver on the west coast, have functioned as Canada's leading general cargo ports throughout much of the nation's history. Both competitive and complementary relationships have existed between them at various times, and the relative importance of each port has fluctuated in response to changes in transport technology and trading patterns. Before Confederation, Quebec was the leading port, but it soon lost this leadership to Montreal, as the steamship displaced the sailing vessel and the St. Lawrence Ship Channel was widened and deepened. Montreal dominated Canada's shipping trade for many decades until the recent rise of Vancouver finally overshadowed it. During their lengthy history all five ports have managed to survive periods of adversity and maintain their importance and respective roles in the nation's shipping trade, despite the appearance of many new competitors.

The five leading national ports are an odd collection of cities in terms of size: Montreal is one of Canada's two large metropolises of nearly three million people; Vancouver at well over one million is the third largest city in the country; Quebec is half the size of Vancouver; Halifax is half the size of Quebec; and Saint John is a little less than half the size of Halifax. Although they were not the five largest ports in total cargo handled in 1978, they all ranked within the top nine. The bulk cargo ports of Sept-Îles, Port Cartier and Thunder Bay ranked above all except Vancouver, and Hamilton ranked above Saint John and Halifax. It is in the handling of general cargo – the wide variety of commodities involved in Canada's import and export trade – that the five are leaders and identified as truly national ports. That these five became Canada's only full-scale container ports in the 1970s is indicative of their world port status. All but Vancouver were prominent cities in their own regions from their earliest beginnings, and even Vancouver asserted its dominance over its early

rival, Victoria, before the nineteenth century was over. Those that were not leading ports except in their own regions in colonial times later became national ports after rail transportation confirmed their nodal status within the country. They were recognized as the key national ports by the Royal Commission on Transportation reporting in 1905 and the National Ports Survey of 1931-32.¹ Their special status can be well documented with the detailed statistical information on Canadian ports available since World War II.²

Competition between the ports has waxed and waned throughout the years and specific regional rivalries have developed. Montreal and Quebec have competed for the trade focused on the St. Lawrence system, as have Halifax and Saint John for that focused on the ice-free Atlantic coast. But in a broader context, Montreal and Quebec have co-operated against their Atlantic rivals in defending the St. Lawrence share of national trade versus that of the Atlantic ports. Vancouver, as a "Johnny-come-lately," was pitted against all Eastern ports in its battle to push the freight divide on the Prairies eastward against the strong resistance of entrenched trading patterns. A symbiotic relationship existed alongside competition in some situations, however. The Atlantic ports complemented the river ones as winter ports when the St. Lawrence was closed to shipping owing to ice, Montreal's winter port being Saint John and Quebec's being Halifax.

* The research grant support of the Social Sciences and Humanities Research Council of Canada and the assistance of Diana Hocking, who compiled and graphed statistical information, are gratefully acknowledged.

The aim of this study is to trace the evolution of each of the five ports since its founding to determine the role of each port in the nation's shipping trade and the competitive interrelationships between them. In order to facilitate comparisons and minimize redundancies, the development of the ports is considered on a regional basis in three periods: before 1900, 1900-1945, and since 1945. In the formative period before 1900 a national transportation system was established and all five ports assumed national functions. The first half of the twentieth century was marked by development of Western Canada, the elaboration of the rail transport system, and the modernization of the national ports in keeping with the needs of the steamship period. Since 1945 rapid growth of population and expansion of the economy has produced a tremendous increase in the shipping trade and the national ports have responded by the installation of automated handling systems and other technological improvements.

PRE-1900 PERIOD

The five port cities were founded at different times, for different reasons, and by different groups of people, but in each case the potential of the harbour for port development was recognized. All except Vancouver were well developed ports with flourishing shipping trades by the time of Confederation. The building of railways throughout the nation in the latter part of the century tied together the various different regions and established Vancouver as the key port of the Pacific coast.

St. Lawrence Ports

From the Gulf of St. Lawrence to Lake Ontario there are two key points of transition between significantly different segments of the St. Lawrence River. The first is the point where the broad estuary narrows and a well protected harbour exists at the western end of the Isle d'Orleans, and there Quebec was established in 1608. The channel at Quebec was over 18 metres (60 feet) deep and there was deep water close inshore.³ The second key point is 258 kilometres (160 miles) upstream from Quebec where the gradient suddenly steepens at the Lachine Rapids, and Montreal was established on the left bank below the rapids in 1642. In the early colonial period all classes of ships could navigate to Quebec, but the channel to Montreal was limited to a draft of about 3 metres (10 feet).⁴ Although Quebec was the head of deep draft navigation, Montreal was the head of ocean navigation and had remarkable nodality of the inland water transport routes: the Richelieu River-Lake Champlain-Hudson River route trending southward, the St. Lawrence trending southwest and the Ottawa trending northwest. Both Montreal and Quebec were blocked by ice and closed to shipping from December to May.

Quebec

Quebec was the key port during the colonial periods, both of the French and the British. Settlers arriving in New France disembarked at Quebec with their effects and fanned out from there to seigneuries along the river. Most of the imports for the colony were unloaded at Quebec and exports of timber, furs, fish and produce originated there. After the conquest in 1759, Quebec became the centre of British power in Canada. Its military importance for the British greatly increased a few years later during the American Revolution. Following the revolution its commercial and port activities expanded greatly with the increase of settlement. It was the timber trade beginning early in the nineteenth century that carried Quebec to the rank of a leading world port. Huge timber rafts were floated down the Ottawa and St. Lawrence rivers to Quebec where they were dismantled in numerous coves along the river. The timber was then sorted and loaded on ships for overseas markets.⁵ Shipbuilding was an important industry that was intimately connected with the timber trade. Many ships were built for one trip only, the timber they carried and the lumber of which they were made all being destined for the British market.⁶ Quebec continued to function as the leading port for export and import goods and the disembarkation point for the thousands of settlers arriving from overseas to take up land in Canada. Quebec's role as the leading port of Canada was undisputed until the middle of the last century, and its decline relative to Montreal was not marked until after Confederation.

The decline of the port of Quebec can be attributed chiefly to the gradual reduction of the timber trade and the improvement of the ship channel to Montreal. Extensive cutting for many years had depleted the supply of large trees suitable for the production of square and round timber. The rise of sawmilling near the sites of logging operations effectively utilized the smaller trees, producing lumber, planks and other wood products. The major part of the lumber-shipping business was acquired by Montreal during the latter part of the century when sizeable steamships were able to advance upstream in the newly deepened ship channel.⁷ Timber rafts moving down-river to Quebec became steadily less numerous until the last raft traversed the Lachine Rapids in 1911.⁸

The completion of the Grand Trunk Railway from Sarnia to Rivière-du-Loup by 1860 placed Quebec on the main line of railway transportation in Canada, and with the opening in 1876 of the Intercolonial Railway Quebec gained direct access to a winter port at Halifax. But Quebec did not profit greatly from this development because Montreal already had a railway connection with Portland, Maine. Nevertheless, the amount of shipping handled in the early 1870s was thought to warrant major harbour improvements and the construction of the Princess Louise Docks began in 1877, consisting of an inner

wet dock, as well as an outer tidal harbour.⁹

The Louise Dock is becoming quite an interesting resort for all that take an interest in the trade of the port, and the business done there is significant, even now, of the possible extension of its trade. For instance on one day last week could be seen a steamship from Cape Breton discharging coal near the Gas Works, a steamship loading cattle for Great Britain, another steamer discharging rails for the Lower Laurentian Railway, a large number of cars unloading deals from Lake St. John, and several cars trans-shipping cotton goods made at the Montmorency mills, and being shipped in C.P.R. cars for Hong Kong and Yokohama via Vancouver. At the same time, the mail steamer from Liverpool was alongside the dock transferring immigrants from the C.P.R. cars for the Far West.¹⁰

Toward the end of the century Quebec could boast of good port facilities and railway connections, but although it remained the third largest city in Canada, behind Montreal and Toronto, it was greatly overshadowed by the Port of Montreal.

Montreal

The initial site of Montreal on the left bank offered access to the shortest portage around the Lachine Rapids, and its water transport advantages made it a natural collection centre for furs from the interior.¹¹ Another factor in the growth of Montreal and the diversification of its economy was the settlement of Upper Canada (Southern Ontario) after the American Revolution. Montreal was the natural import and supply centre for this newly developed territory and the outlet for its products. Because the St. Lawrence River above Montreal was characterized by several sections of rapids, transportation improvements were considered essential to the full development of trade. Although several canals were built during the first half of the nineteenth century, it was not until 1848 that a series of locks and channels of 2.7 metre (9 foot) depth existed between Montreal and Lake Ontario. The St. Lawrence waterway system came too late to achieve a striking success as a medium of transport.¹² The railway era had begun, and many trade patterns focusing on New York had already been established. Nevertheless, freight rates on many items dropped by one-half after 1848, and some trade was certainly recaptured from the New York route.¹³

The 1850s ushered in the period of trans-Atlantic steamers, ships combining sail and steam, and by 1860 Montreal was a major railway centre. Its first connection with the Atlantic coast was completed in 1853 when the Atlantic and St. Lawrence Railway between Montreal and Portland, Maine was opened. This provided Montreal with a winter port through which goods could be consigned when Montreal was closed to shipping. The change

from sail to steam was a gradual process that greatly favoured Montreal over Quebec. Steamships could make headway against wind and current more readily than sailing ships and could follow a narrow channel without the necessity of tacking to achieve headway. The railways that focused on Montreal rather than Quebec made it a more desirable location for transshipment to water modes. Also, the greater importance of commercial and manufacturing activities in Montreal generated more diversified import and export activities and increased the desirability of the Montreal location for shipping facilities. The marking of the channel by lights and buoys and the deepening and straightening by dredging were key factors in the transformation of Montreal to ocean port status. Dredging in Lake St. Peter below Montreal began in 1844 when the ship channel was little more than 3 metres (10 feet) at low water and by 1865 it had a depth of 6 metres (20 feet) and a width of 91 (300).¹⁴ Hence, by the time of Confederation, Montreal had not only surpassed Quebec in size and become the principal commercial centre, but it had also become a competitive port for ocean vessels, as well as the gateway to a viable St. Lawrence waterway system.

Following Confederation Montreal grew in stature as a port. From the total metric tonnage of 185,976 (205,000 English tons) handled in 1866 the shipping trade increased to 1,360,800 tonnes (1,500,000 tons) at the close of the century.¹⁵ The progressive deepening of the St. Lawrence Ship Channel downstream from Montreal during the latter part of the century facilitated the entry of larger ships. It was deepened to 8.4 metres (27.5 feet) in 1883, comparable with the present day limiting depth of the St. Lawrence Seaway, and further dredging later achieved a 9.2 metre (30 foot) depth by 1907.¹⁶ The St. Lawrence canal system was upgraded in a piecemeal fashion by the rebuilding of locks and canal sections until a minimum depth of 4.3 metres (14 feet) was achieved by 1903 between Montreal and Lake Ontario.¹⁷ In railway transportation Montreal not only gained direct access to the whole of the West with the Canadian Pacific Railway but also gained access to the winter port of Saint John via the "short line" of the Canadian Pacific that was completed across the state of Maine in 1890. This line was considerably shorter than the Intercolonial route via Quebec and gave Montreal a Canadian winter port alternative to Halifax that was further supplemented by its earlier Portland connection. By the end of the century Montreal was established as the leading port of Canada, as well as the leading manufacturing, commercial and financial centre.

Atlantic Ports

The ports of the Atlantic Provinces are numerous, and many of them have a very long history, but only Halifax and Saint John have become major ports in a national sense. Before Confederation when there were no railway connections with Canada, Halifax served chiefly the ship-

ping needs of Nova Scotia, while Saint John performed a similar role in New Brunswick. These provinces were highly developed and relatively densely populated at that time, and Saint John and Halifax ranked fourth and fifth in size among the cities of British North America in 1867 – only Montreal, Quebec and Toronto were larger. After the railways were built Halifax and Saint John were able to perform port functions for inland regions and profited from the fact that they were ice-free in winter.

Halifax

Halifax is situated on a magnificent natural harbour some 24 kilometres (15 miles) in length with low water depths of at least 15.2 metres (50 feet) to within a short distance of the shore. The small tidal range of about 1.2 metres (4 feet), the absence of sea ice, and the ease of access were great advantages for use by ships. It is divided into two parts by The Narrows, Halifax Harbour proper and Bedford Basin. Both of these water areas are well protected and offer extensive shoreline for port development. Bedford Basin itself is so large that whole convoys were made up there before proceeding across the Atlantic during two world wars. The harbour was used as an anchorage by the French at an early date when they controlled Acadia but France never chose the site for permanent settlement. Instead it was settled in 1749 by the British, chiefly for military reasons. It was their intention to establish a strong military base to counteract the power of the French fortress at Louisbourg on Cape Breton Island. With an initial population of 2,500, it assumed immediate importance as a port and commercial centre. Within ten years of its founding, Halifax had witnessed the feverish activity of preparations for invasion armadas. The ships were assembled there for the successful attacks on Louisbourg in 1758 and on Quebec in 1759. The succession of wars in which Britain was engaged subsequently, including the American Revolution and the Napoleonic Wars, kept Halifax busy with military activities and the accompanying commercial supply functions. The war-borne prosperity that was based on the servicing of fighting ships was translated gradually into a commercial prosperity based on trade. Many trading firms in London, Liverpool and Glasgow established branches in Halifax and carried on active import trades. The West Indian trade was the chief branch of commerce, consisting mainly of the exchange of fish for rum, sugar and molasses. Halifax became one of the main distribution centres in North America for these West Indian products.

From the middle of the nineteenth century until Confederation, Halifax was at the zenith of its prosperity and its significance as an international port. Water-borne commerce was largely in wooden ships, and trade was well developed with the West Indies, Britain, United States and Mediterranean ports. Approximately thirty companies in Halifax owned vessels in the shipping trade, and banking, insurance wholesaling and manufacturing were

well developed.¹⁸ Attempts were made to foster trade between Nova Scotia and Canada, exchanging particularly Nova Scotian coal and West Indian products for flour from Canada. The Quebec and Halifax Navigation Company was formed in 1830 to carry on this trade.¹⁹ That company built the *Royal William* for the interprovincial service, and it made three trips before it undertook its famous journey to England under steam. However, the long journey in sailing ships from the Maritimes up to Quebec did not attract traders as much as the routes to Britain, United States and the West Indies.²⁰

The arrival of the Intercolonial Railway and the altered conditions for trade that prevailed within Confederation reoriented Halifax toward central Canada. Halifax achieved a short-lived advantage over its rival, Saint John, with the completion of the Intercolonial in 1876. While the railway handled a considerable import traffic, especially in the winter months when the St. Lawrence ports were closed, it was not highly successful in diverting substantial movements of exports from established route patterns. The West Indies trade remained important and there was considerable trade interrelationship with South America. Trade with the United States was adversely affected after Confederation by the introduction of the new tariff structure, but the export of fish, coal and goods originally from the West Indies was carried on successfully on a limited scale.²¹ Attempts to enlarge winter shipping activity met with some success in following years. In 1880 a committee of the Halifax Chamber of Commerce submitted a report to Sir Charles Tupper, the Minister of Railways and Canals, advocating expenditures on the Port of Halifax to make it a grain shipping terminal.²² The opinion was expressed that the cattle export trade could also be handled through Halifax. It was argued that by making Halifax a grain shipping port many of the exports then finding an outlet via American railroads and ports to European markets would be recaptured by a Canadian transportation system.²³ The committee suggested that freight costs in moving grain to Halifax could be cut greatly by constructing railway cars for grain that could also be used for shipping coal westward to central Canada as a return cargo.²⁴ A few years later a grain elevator was built in Halifax and a modest export trade was begun. By the end of the century Halifax was well established as a port with national functions, handling nearly 6,000 ships in 1901, as well as retaining its importance as a naval base.²⁵

Saint John

The harbour of Saint John is formed by the estuary of the St. John River and is characterized by spring tides with an average range of 8.5 metres (28 feet), a remarkably high tidal fluctuation that creates complex currents. Although the harbour was not as good as that of Halifax, it was satisfactory for shipping use and was recognized as a strategic location. The first of several French forts was

built in 1731 to protect the fur trade of the St. John River Valley, but no significant settlement developed and the British captured the site in 1758.²⁶ Shortly after a few British settlers established themselves, but it was not until 1783 that a large scale settlement was organized. In that year some 3,500 Loyalists landed there, most of them settling on either side of Saint John Harbour and some advancing up the valley to other lands.²⁷

From the beginning Saint John was mainly a commercial centre, unlike Halifax with its military role. Initially timber was the major export, joined later by lumber. The magnificent white pines of the St. John Valley were cut for masts and spars, particularly for the Royal Navy. Shipbuilding was established almost immediately and grew steadily in magnitude, reaching its peak in the 1860s. Lumber production had begun in Saint John by 1820, and the first cargo was shipped to England in 1822.²⁸ Exports of lumber escalated rapidly in following years, at a time when Quebec was still shipping mostly square and round timber. The various lumber products were destined mainly to Britain, United States and the West Indies.²⁹ The lumber trade continued to play a prominent role in Saint John until the end of the century, but the timber trade declined in the 1860s.³⁰

During the 1850s and 1860s Saint John rivalled Quebec in shipbuilding, and it was claimed to be the fourth port of the British Empire in tonnage of ships registered, and the first in British North America.³¹ Even during the 1870s the registry of shipping showed steady increases in number and tonnage of vessels.³² As was the case in Quebec, Saint John had its "golden age" during the period of wooden sailing ships and declined with the changeover to steam and iron vessels. At the time of Confederation Saint John, like Halifax, was a well developed commercial and financial centre for its provincial territory.

Although Saint John was served by a branch line connection with the Intercolonial Railway, it stood at some disadvantage to Halifax until the Canadian Pacific "short line" was built in 1890. This line was 437 kilometres (271 miles) shorter than the Intercolonial route to Saint John, but it was still 295 kilometres (183 miles) longer than the line from Montreal to Portland. Extensive terminal facilities were established on the west side of the harbour by the Canadian Pacific Railway, including many steamship berths, transit sheds and a large grain elevator, which by the late 1890s had a capacity of more than 27,215 tonnes (1,000,000 bushels).³³ Locations on the east side had been occupied by the Intercolonial Railway. Nevertheless, from 1890 to 1896 Portland remained the terminus of the Grand Trunk Railway and continued to handle Canadian freight.³⁴

Toward the end of the century there were great efforts to divert trade from United States ports, particularly in winter, to Saint John and Halifax. During the Session of

Parliament in 1895 the Canadian government decided to subsidize steamship lines between Saint John and British ports for the purpose of diverting Canadian trade from American ports.³⁵ The mail subsidy given to steamship lines making their terminus at Portland was withdrawn in 1897, leading to substantial increases of winter export tonnage from Saint John.³⁶ There was an increasing proportion of products of western origin and a declining proportion of Saint John lumber carried by the steamers.³⁷ Among the commodities that increased greatly were grain, flour, livestock and other agricultural goods.³⁸

Vancouver

The only portion of the present-day metropolitan Vancouver that was well developed before Confederation was New Westminster, though there were several sawmills established on either side of Burrard Inlet during the 1860s. New Westminster was founded in 1858 near the mouth of the Fraser River as the capital of the mainland colony of British Columbia and the port of access to the Fraser River valley where gold had been discovered. Colonel Richard Moody, the founder, chose the site for a number of reasons, certainly because it was a singularly advantageous military position but also because it was a good transport location.³⁹ New Westminster was best adapted to steamships because the relatively shallow river depths and shifting channels, as well as the long river entrance, made it less attractive to sailing ships. The first wharf was built in 1859 and initially exports were chiefly gold, furs, pickled salmon, lumber and cranberries, most of the value being accounted for by the gold and furs.⁴⁰

Burrard Inlet on which Vancouver developed constituted a commodious harbour divided into two main sections between the First and Second Narrows that were completely sheltered and landlocked. Depths throughout the harbour were excellent for shipping, except at First Narrows where a relatively narrow channel and limited depths existed. This did not constitute a problem until the arrival of larger ships in the twentieth century. Toward the middle of the 1860s two small settlements grew up around the sawmills, one on the north shore known as Moodyville which was to become North Vancouver, and the other on the south shore known as Granville which was to become Vancouver.⁴¹ Early shipping activity in Burrard Inlet consisted chiefly of lumber exports from the mills. By the time of Confederation Victoria on Vancouver Island was by far the largest city in British Columbia and the leading port, while New Westminster was the main commercial centre and port of the lower mainland.

New Westminster continued to be the main population centre on the mainland until the late 1880s when the rise of Vancouver, following the arrival of the Canadian Pacific Railway, resulted in its rapid eclipse in importance. The Canadian Pacific reached Port Moody in 1885 at the head of Burrard Inlet and in May 1887 the first train arrived in

Vancouver over the extended portion of the railway line on the south side of Burrard Inlet. Port Moody was recognized as being on a relatively shallow section of the inlet that was unsuitable for a major deep-sea terminal. Although a branch line was built to New Westminster later that year, the thrust of development was strongly concentrated on the Vancouver terminus. The Canadian Pacific Railway immediately established its trans-Pacific liner service, but it was mainly carrying passengers and mail and minor inbound cargoes of tea and silk from the Orient. Especially noteworthy was the silk trade inaugurated in 1887 when a special train received 65 bales of raw silk consigned to Montreal, New York and London by rail.⁴² This was the first instance of the use of Canada as a "land bridge" to move a commodity from Japan to England via a much faster route than the all-ocean alternatives. The despatch of silk trains eastward from Vancouver was a characteristic port activity for nearly half a century. By 1900 Vancouver had become the dominant urban centre of the province, surpassing Victoria in population, and was well established as the key Pacific coast port of Canada.

1900-1945 PERIOD

The basic transportation system of Canada, including the five ports under study, was greatly expanded and rationalized during this period characterized by economic prosperity, depression and two world wars. The movement of settlers to the Prairies became a flood tide, and the Canadian population expanded by thirty-five per cent within the first decade of the century. Commitments were made for the completion of two additional transcontinental railways, and an elaborate system of branch lines was built to serve the agricultural economy of the Prairie provinces. Grain became a major export, and this led to the establishment of extensive grain terminal facilities in the leading ports. Some co-ordination of port development eventually was introduced, and port administration was rationalized.

St. Lawrence Ports

The St. Lawrence ports experienced considerable development in response to the demands of the expanding Canadian economy. The grain export trade became a major element of port activity. There was greater awareness of the disadvantages imposed on the St. Lawrence ports by winter ice conditions and attempts were made to lengthen the season. Proposals for a deeper St. Lawrence waterway were made in this period but did not come to fruition until after World War II.

Attempts to develop a national ports policy began early in the century, but were not realized until the 1930s. A Royal Commission on transportation appointed in 1903 advocated that a system of national ports be established to co-ordinate the development of the port facilities needed

for Canada's expanding trade.⁴³ It was urged that the five ports under consideration, along with a few others, be declared national ports and be administered by a General Board of Harbour Commissioners.⁴⁴ Although these recommendations were not carried out, they represented a point of view that became more convincing as years went on and led to the commissioning of a comprehensive survey of ports in 1931.⁴⁵ In a nutshell the Gibb report recommended the establishment of a separate board to deal with the national harbours and the appointment of a port manager as the chief executive in each port.⁴⁶ By Act of Parliament in 1936 the National Harbours Board was created and charged with the task of administering the five key ports under study, along with the less important ports of Trois-Rivières and Chicoutimi.

The movement of freight in the foreign shipping trade has been documented on a uniform basis since the fiscal year of 1916-17 in the shipping reports and in more detail for the period 1920-1930 in the Gibb report.⁴⁷ Similar data on domestic trade were not collected and published until the 1950s. The major growth in the foreign trade took place during the 1920s, then traffic levelled off or declined during the depression and recovered during World War II (Figure 1).⁴⁸ Montreal dominated the group throughout the period, while Quebec held the lowest share of the trade. It was reported by Gibb that the five ports, on the average from 1920-1930, handled seventy-five per cent of Canada's overseas trade.⁴⁹ This proportion declined in future years, with the dispersion of port activity, becoming less than one-third by the late 1960s.⁵⁰

Quebec and Montreal

The St. Lawrence ports experienced considerable development in response to the demands of the expanding Canadian economy. The grain export trade became a major element of port activity. There was greater awareness of the disadvantages imposed on the St. Lawrence ports by winter ice conditions and attempts were made to lengthen the season. Proposals for a deeper St. Lawrence waterway were made in this period but did not come to fruition until after World War II.

Quebec

It was expected that the Port of Quebec would benefit considerably from the establishment of the new transcontinental railways, but these transport additions did little to counteract Montreal's advantage. Both of the new railways utilized Quebec as an important point in the system, in the case of the Canadian Northern as the eastern terminus, and in the case of the Grand Trunk Pacific Quebec was the only large city in eastern Canada through which the line passed. The portion between Moncton, the eastern terminus, and Winnipeg was built by the Canadian

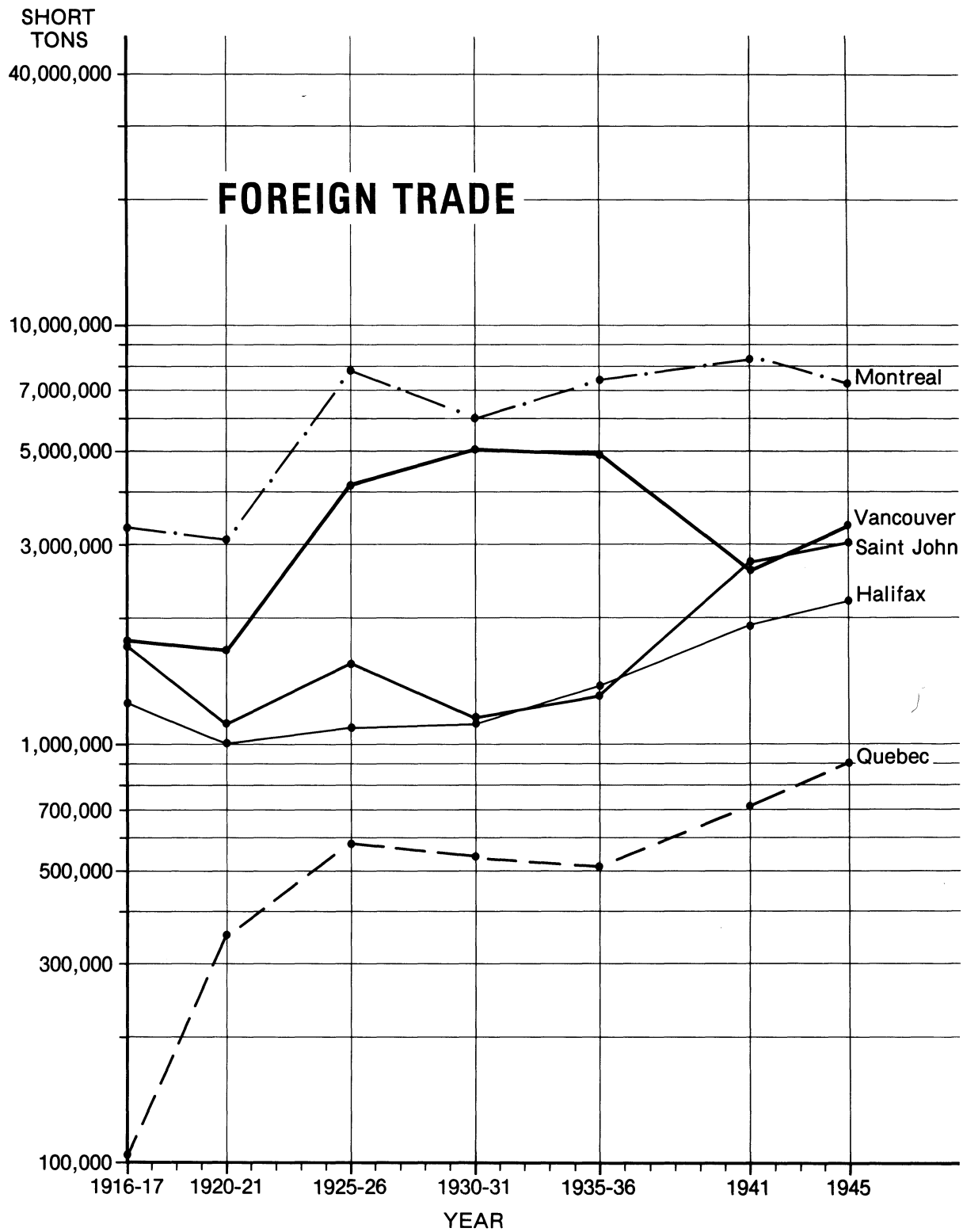


FIGURE 1. The Foreign Shipping Trade, 1916-1945.

government as the National Transcontinental to be operated with the Grand Trunk Pacific that was built from Winnipeg through Edmonton to Prince Rupert. Westward from Quebec the line cut across northern Quebec and Ontario and even passed north of Lake Nipigon, bypassing Fort William (Thunder Bay) en route to Winnipeg. Completed in 1913, it was 345 kilometres (214 miles) shorter from Winnipeg to Quebec than any other all-rail route. It performed a national service but was not a financial success, and Quebec did not obtain substantially increased freight shipments.⁵¹

Although Quebec had about half the number of ocean-going vessel arrivals as did Montreal in the late 1920s, and the ships on the average were larger, it was the destination of a small percentage of the Great Lakes and river vessels as compared with Montreal.⁵² The major commodities handled were coal, grain and fuel oil, while lumber and timber had dwindled to a relatively minor status. Other commodities of importance were lead and zinc concentrates and asbestos that originated in the Quebec hinterland area. Being a port of call for fast liners, Quebec had a substantial movement of imports and exports in the form of high value package freight, but it did not amount to a large tonnage.⁵³

The expansion of grain storage capacity was carried out during the 1920s in order to make Quebec a major winter storage centre so that ample grain would be available at the time navigation reopened in the spring. Quebec normally was open a little earlier than Montreal. Also, a special grain freight rate was established over the northern line of the Canadian National Railways, formerly the National Transcontinental, to move grain to Quebec.⁵⁴ It never became of great importance for grain shipments because all water or part water movement was more economical.⁵⁵ Gibb considered Quebec as a supplementary facility to Montreal in the grain trade and as a source of return grain cargoes for ships that had brought bulk cargoes to any of the St. Lawrence ports below Sorel.⁵⁶

Gibb's evaluation of the role of Quebec in the national transportation system of Canada was as follows:

For the most part Quebec is dependent on a long rail haul in competition with other ports more conveniently placed. Its hinterland is restricted and has been greatly diminished by the growth of the ports at Three Rivers and in the Saguenay river. The possibilities of the grain traffic are limited, and I am advised that there is no likelihood of extensive lumber exports.... There appears to be a definite possibility of increased coastwise traffic. But for ocean going vessels Quebec will not be more than a port of call, except so far as the growth of the size of ships may eventually outrun the capacity of the Ship Channel. In the meantime it is valuable as a refueling station and as a high-class freight and mails port. But the fact remains that

freight traffic through the Port of Quebec has at no time, at least within recent years, seriously taxed the available space and there appears to be little likelihood of it doing so.⁵⁷

This prognostication was reasonably accurate until after World War II, although, of course, there was increased traffic during the war (Figure 1). However, the shortage of ships during the war placed a lid on the growth of trade from the St. Lawrence ports because it was necessary to minimize the number of long trips inland and favour the Atlantic ports that were closer to Britain.

Montreal

Montreal experienced extraordinary development as a port in the early part of the present century. Besides the deepening of the ship channel to 9.2 metres (30 feet) at low water by 1907, a great deal of construction of wharfs, transit sheds and grain elevators was undertaken. Montreal quickly became famous as a grain exporting port. In 1921 it shipped fifty per cent more than the second grain port of North America, Galveston, Texas.⁵⁸ It was widely recognized that Montreal had become the key port of Canada:

The St. Lawrence today carries to and from the Port of Montreal over one-third of the country's national trade, equivalent to something like seven hundred million dollars in value.... The Port of Montreal is, therefore, only second to New York on this continent in point of foreign trade, and has attained that rank, although open to trade seven and a half months in the year as against twelve months of her competitors.⁵⁹

The decade of the 1920s was marked by a tremendous growth of commodity trade, followed by a pronounced decline during the depression (Figure 1). Among the many commodities handled, export grain constituted about forty per cent of the total tonnage.⁶⁰ By 1931 there were four large grain elevators in Montreal with a total capacity of 408,230 tonnes (15,000,000 bushels).⁶¹ The leading imports were coal, oil and gasoline for consumption in the Montreal market area, as well as for the bunkering of vessels. Also, Montreal was the leading Canadian port for the import of package freight.⁶² Montreal's foreign shipping trade experienced a rapid recovery in the late 1930s as the depression waned, but it declined during World War II, owing to the remoteness of Montreal from the North Atlantic shipping lanes (Figure 1).

In order to improve the competitiveness of the port, efforts were directed toward the achievement of a deeper channel and a longer navigation season. The deepening of the ship channel downstream to 10.7 metres (35 feet) was recommended in the Gibb report, but this improvement was not completed until 1951.⁶³ A gradual lengthening of the navigation season had occurred during the latter

part of the nineteenth century as a result of improved navigation systems. The introduction of icebreakers in the twentieth century led to a significant extension of the season. From 1871 to 1880 the harbour was open an average of only 207 days, compared with 234 days in the period from 1931 to 1940.⁶⁴ This amounts to a lengthening of the navigation season by almost a month in a sixty-year period.

Despite the dominance of railways in the transportation system of Canada, the St. Lawrence waterway retained its importance and carried increasing tonnages of goods, particularly bulk commodities. During the late 1920s, fully eighty per cent of the total tonnage of exports from Montreal was brought down by inland vessels, the remainder being carried by rail.⁶⁵ The total cargo tonnage through the St. Lawrence canals increased about sixfold during the period 1900 to 1945.⁶⁶ The average vessel nearly tripled in size from 1900 to 1934, despite the fact that the canals were unchanged in draft limitations, being 4.3 metres (14 feet) until the St. Lawrence Seaway was opened.⁶⁷

The St. Lawrence deep waterway project was mooted several times early in the century, but it was not until 1920 that the Canadian and United States governments requested the International Joint Commission to investigate the possibilities of improving the St. Lawrence, both for navigation and for hydro-electric power.⁶⁸ Engineering studies and international negotiations proceeded during the next decade, and in 1932 a treaty calling for an 8.2 metre (27 foot) channel was signed. Subsequently, this treaty was rejected by the United States Senate. In Montreal there was strong opposition to the deep waterway project because it was feared that the opening up of the whole of the Great Lakes-St. Lawrence region to ocean vessels would make Fort William and Port Arthur (Thunder Bay) the head of navigation and rob Montreal of a large part of its shipping trade. A contrary view taken by Gibb was later proven closer to reality:

Moreover, since a large traffic would in any case still continue to use Montreal, any improvement in the efficiency or economy of inland transport to Montreal should assist and extend that traffic.... In my opinion, after giving the matter my close thought, and hearing all sides and expressions of opinion, the threat to Montreal is largely illusory. The bulk of the traffic that at present uses Montreal is likely to continue to do so.⁶⁹

The power needs created by wartime production prompted close re-examination of the St. Lawrence waterway project early in World War II. Another agreement was signed between the United States and Canada, the Great Lakes-St. Lawrence Basin Agreement in 1941, with the same aim as the abortive treaty of 1932. Like its predecessor this treaty also failed to receive approval in the United States Senate. Opposition in the United States

came particularly from the railways, the ports of the northeast coast and the coal mining industry that feared displacement of coal as a result of additional generation of hydro-electric power.

Atlantic Ports

The Atlantic ports acquired new wharf and terminal facilities and operated effectively as railway terminus points during one-third of the year. Port facilities were strained during the winter months, while the rest of the year was characterized by excess capacity. Only during the two world wars were these ports utilized to their full capacity. Their aspirations in the grain trade were never fully realized, except during wartime.

Halifax

Though Halifax was out-performed by Saint John as a commercial port during the period 1900-1945, it retained its great importance as a naval base. Early in the century Halifax enjoyed a moderately successful trade, with eight major shipping lines calling regularly, but naval activity then was at a low ebb.⁷⁰ The Royal Navy and Imperial Army withdrew in 1905, and the dockyard was handed over to the Canadian government.⁷¹ Five years passed before the Royal Canadian Navy came into existence, but the advent of World War I brought a resurgence of naval activity.⁷² In recognition of the national importance of the Port of Halifax, the federal government began a major port development, Ocean Terminals, shortly before the war.⁷³ Construction continued for many years, as it was a multi-phase project, but the initial piers were operational in the early 1920s.⁷⁴ Despite these excellent facilities, the overseas trade grew more slowly than that of the other ports during the 1920s (Figure 1). Halifax was successful in capturing a sizeable portion of the winter shipping trade, but with this success the disadvantage of having much of its port activity compressed into four months was keenly felt. Two-thirds of its freight passed through in the winter months.⁷⁵ During the depression Halifax managed to avoid the decline in foreign trade experienced at all of the other eastern ports (Figure 1). Traffic rose to a peak during World War II when both Halifax and Saint John were called upon to handle a much larger portion of the nation's wartime shipping.

As a grain export point Halifax achieved a substantial throughput only during World War II. Grain elevator capacity was greatly enlarged in the late 1920s, but the amount of grain exported never exceeded 136,077 tonnes (five million bushels) until 1939-40.⁷⁶ Although it handled about three per cent of the total Canadian grain exports in 1919-20, its share of the total dropped to less than one per cent by the mid-1920s.⁷⁷ A major factor in the relegation of Halifax to a minor role in the grain trade was the rail distance disadvantage of Halifax relative to

Saint John. During the war, however, strategic consideration overruled economics, and Halifax shipped twenty to thirty million bushels each year.⁷⁸ In one year, 1941-42, Halifax even exceeded Saint John in grain exports.

Saint John

Saint John entered the twentieth century well established as a winter port for Montreal and was fairly successful in exploiting its newly-acquired rail advantage over Halifax. The timber trade had virtually become a thing of the past and was replaced by grain handling as the most important activity. Grain storage capacity was increased during the 1920s, giving Saint John a total capacity one-third greater than that of Halifax by 1930.⁷⁹ Like Halifax, Saint John acquired a most extensive railway terminal network to handle the winter period congestion of rail cars. The shipping trade was even more strongly winter-concentrated than at Halifax, some eighty per cent of the traffic being confined to the four and one-half month season.⁸⁰ Although Saint John had both Canadian National and Canadian Pacific connections with central Canada, most of the terminal development was on the Canadian Pacific (west) side of the harbour. Saint John became almost as strongly a Canadian Pacific port as Halifax was a Canadian National port.

Saint John generally exceeded Halifax in the foreign shipping trade, especially during World War II (Figure 1). However, Saint John's trade was more adversely affected by the depression than was that of Halifax. In the grain trade Saint John handled about four per cent of the Canadian exports throughout the 1920s and 1930s and some twenty per cent during World War II.⁸¹ Saint John was especially important, also, in the handling of general cargo, consisting of a wide variety of manufactured goods. Paper and newsprint became quite significant export items in the 1920s.⁸² Many food products were handled as well, flour and potatoes being the major exports and sugar and bananas the major imports.⁸³

Vancouver

Vancouver established itself clearly as the second-ranked port of Canada behind Montreal during the 1900-1945 period. The lumber trade continued to dominate shipping activity in Vancouver after the turn of the century. Trans-Pacific trade was well developed, and the coasting trade of British Columbia constituted a major element in port business.⁸⁴ The key factor in the rise of Vancouver to a higher level in the port hierarchy was the completion of the Panama Canal in 1914. This made the European market far more accessible and improved the competitive position of Vancouver relative to the eastern Canadian ports.

The development of the grain trade in particular was facilitated by the canal, but major shipments did not begin

until the 1920s. Although the first grain elevator was built in 1914, it was virtually unused during World War I when the shortage of merchant shipping made it impossible to divert grain vessels so far afield.⁸⁵ Grain exports began on a large scale in 1923 and peaked in 1929 at 2,013,934 tonnes (74,000,000 bushels).⁸⁶ Shipments held at fairly high levels throughout the 1930s, but very little grain moved through Vancouver during World War II.⁸⁷ Several other factors besides the opening of the canal contributed to Vancouver's success in the grain trade. The enlargement of the market for Canadian grain in the Orient aided Vancouver. On the Prairies there was a westward and northward expansion of wheat cultivation, placing more of the output in a favourable position for rail transport to Vancouver. Also, persistent agitation by the British Columbia government achieved a better freight rate for westward grain movement: in 1923 it cost 11.5 cents more to ship a bushel the same distance westward as eastward, but by 1927 that differential had been greatly reduced.⁸⁸ By the late 1920s Vancouver had become a close rival of Montreal in the grain trade, each handling about one-third of the total Canadian export.⁸⁹

Other commodities besides grain assumed increasing importance. Lumber and timber shipments from the ports of Vancouver and New Westminster combined generally exceeded grain in tonnage exported.⁹⁰ The rapid growth of Western Canada generated a strong demand for a wide variety of goods. This resulted in considerable expansion of the general cargo trade through Vancouver. In total foreign trade Vancouver maintained its gains throughout the depression but, unlike the other four ports, suffered a substantial reduction during World War II (Figure 1).

POST-1945 PERIOD

The postwar period was one of explosive growth of water-borne trade, as the Canadian population and economy expanded greatly, especially during the 1950s and 1960s when high birth rates coincided with high levels of immigration. A considerable portion of the expanded shipping trade in the east was accounted for by the new ports that arose and many of the smaller ports that achieved greater prominence. The development of the Labrador-Quebec iron ore deposits created new ports at Sept-Îles and Port Cartier and the opening of the St. Lawrence Seaway permitted the large lake carriers to take iron ore from these ports to the Great Lakes iron and steel manufacturing centres. Advantage was taken of the return trip capacity of these carriers by having them pick up grain at inland ports for movement to new grain elevators that were built on the lower St. Lawrence Estuary and Gulf near the sources of iron ore cargoes. The seaway facilitated the growth of the general cargo trade, as well as the bulk, in effect, making the lake ports competitors of the ocean ports for overseas traffic, though not on an equal footing owing to draft limitations. On the west coast, however, most of the in-

TABLE 1

Shares of Total Eastern and Western Shipping Trade in
Percentage of Cargo Tonnage, 1955 and 1976

Eastern Canada Trade		1955			1976		
Port		Domestic	Foreign	Total	Domestic	Foreign	Total
Quebec		4.4	2.0	3.0	5.6	5.6	5.6
Montreal		19.5	14.6	16.7	9.3	5.7	7.1
Halifax		2.6	5.8	4.4	3.2	5.8	4.8
Saint John		0.8	3.5	2.4	2.3	6.1	4.6
Total		27.4	25.9	26.5	20.4	23.2	22.1
Western Canada Trade		1955			1976		
Vancouver		64.4	61.7	63.1	32.0	74.8	58.9

SOURCE : Canada, *Shipping Report* (Ottawa: Statistics Canada, Parts II and III, 1955 and 1976).

creased foreign trade was channeled through Vancouver which managed to retain its near-monopoly position as the only significant Canadian outlet to the Pacific. Advances in technology introduced many changes that altered the physical characteristics of the five ports. Container terminals were developed, roll-on – roll-off wharves for trucks, specialized facilities for handling imported cars, and fully-automated bulk terminals for such commodities as coal, potash and sulphur. Detailed documentation of the shipping trade was introduced, permitting comparison of port function in domestic, as well as foreign trade. In the area of port administration attempts were made to loosen the tight rein of federal control by the National Harbours Board, in order to permit more local involvement in port management and development.

Changes in the shares of the eastern and western shipping trade held by the ports are indicated in Table 1. It is apparent that Montreal lost its dominance of the Eastern Canadian trade, its share dropping from seventeen to seven per cent of the total from 1955 to 1976, while the other ports increased their shares significantly. However, it is important to note that part of the growth of trade at Quebec, Halifax and Saint John consisted of imported crude oil for their refineries and petroleum products distributed by ship to coastal markets. Montreal, on the other hand, received most of its crude oil by pipeline from Portland. Nevertheless, the convergence of the four ports to almost equal shares of the foreign trade by the mid-1970s was remarkable, and indicated the renewed vitality of Montreal's three historic eastern competitors. Opposite to the situation in Montreal, Vancouver increased its share of the western Canadian foreign trade from less than two-thirds to three-quarters of the total, though its share of domestic trade was halved during the period. The wide-

spread growth of the domestic trade at many ports along the British Columbia coast was not paralleled by the diversion of foreign trade to the few alternative ports that could hope to compete with Vancouver.

Based on statistics published in the shipping reports several graphs have been prepared to illustrate the performance of the five ports in foreign trade since 1945, domestic trade since 1953, when the statistics first became available, and in total trade since 1953 (Figures 2, 3 and 4).⁹¹ As was the case in Figure 1, the vertical scales on these graphs are logarithmic, therefore, the slopes of the lines accurately represent rates of change. Quebec and Vancouver have posted the best performances in foreign trade, and Vancouver has assumed the dominant position among the group. In domestic trade both Vancouver and Montreal have lagged behind the three smaller ports in rate of growth. When domestic and foreign trade are totalled the increasing dominance of Vancouver is emphasized, along with the erosion of Montreal's position relative to the other ports.

Containerization was such an important technological advance in world shipping that it has been called "the container revolution." The use of standardized boxes, cranes and ships completely automated general cargo handling, and the intermodal use of containers resulted in an effective door-to-door service. The great expense and large throughput required for a container terminal eliminated all but a few Canadian ports as potential nodes in the international network of container ports. Montreal was the first to acquire a container terminal and enter the trade on a large scale, but the others followed shortly after, and these five became the internationally recognized container ports of Canada (Figure 5). **This does not imply that other ports**

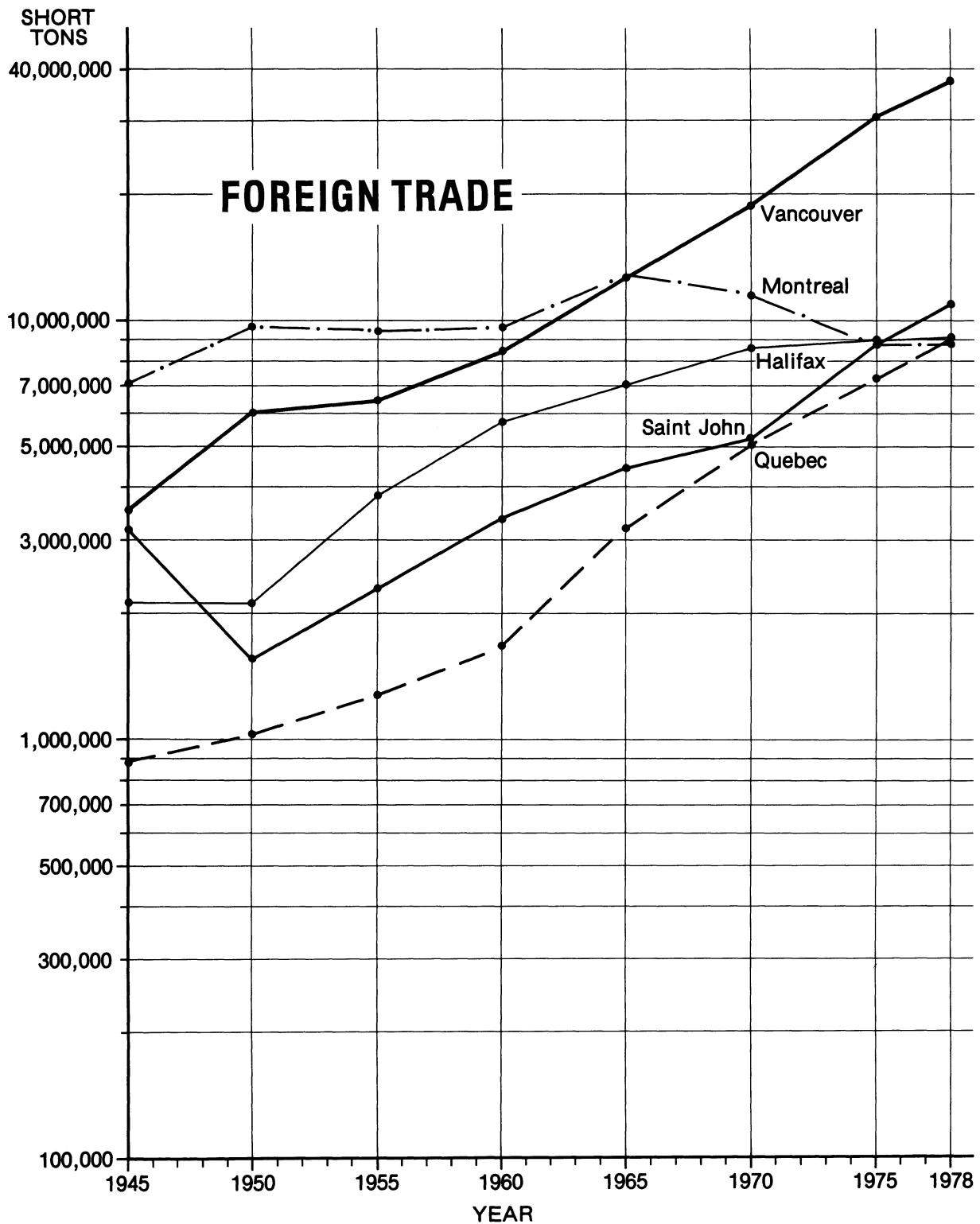


FIGURE 2. The Foreign Shipping Trade, 1945-1978.

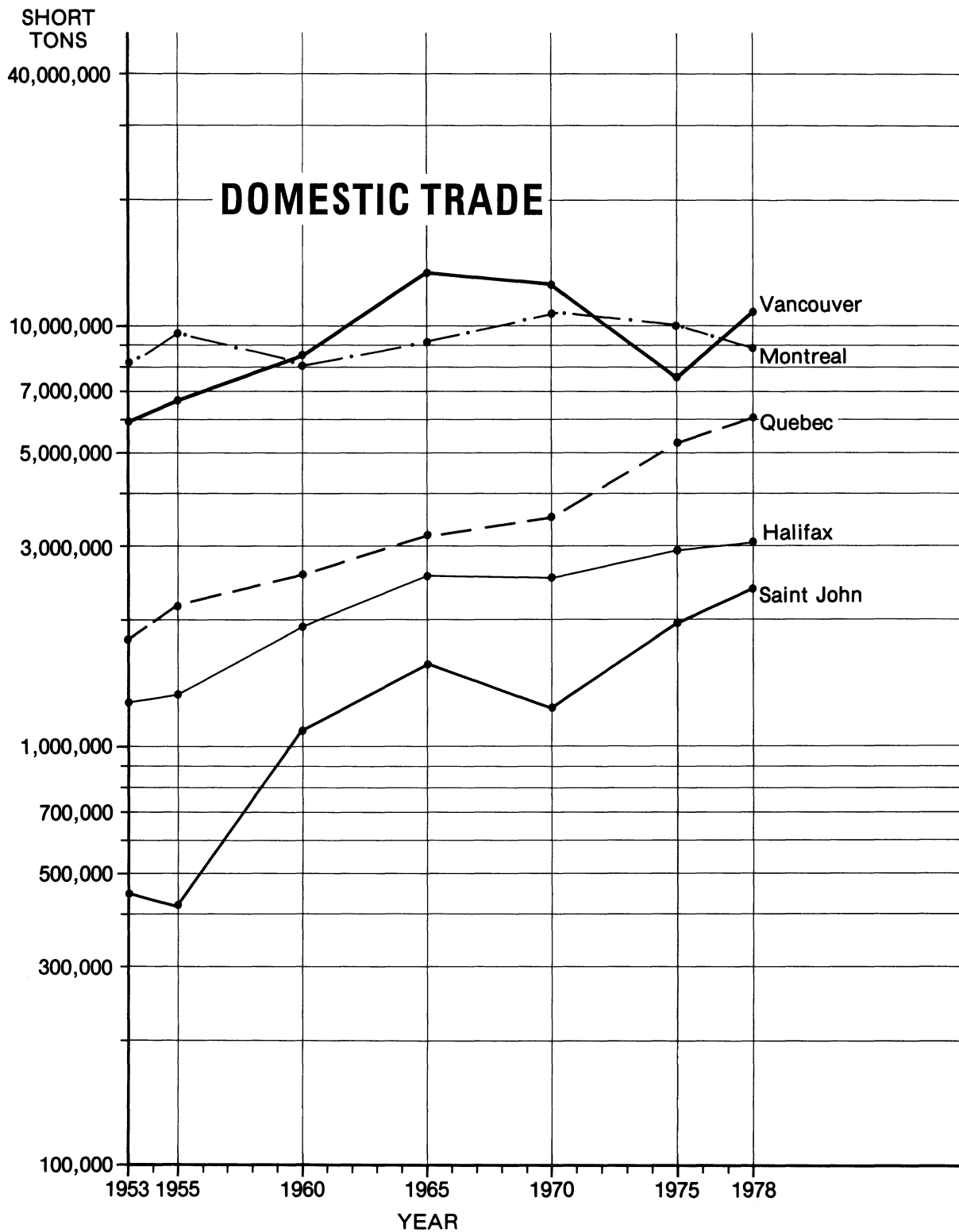


FIGURE 3. The Domestic Shipping Trade, 1953-1978.

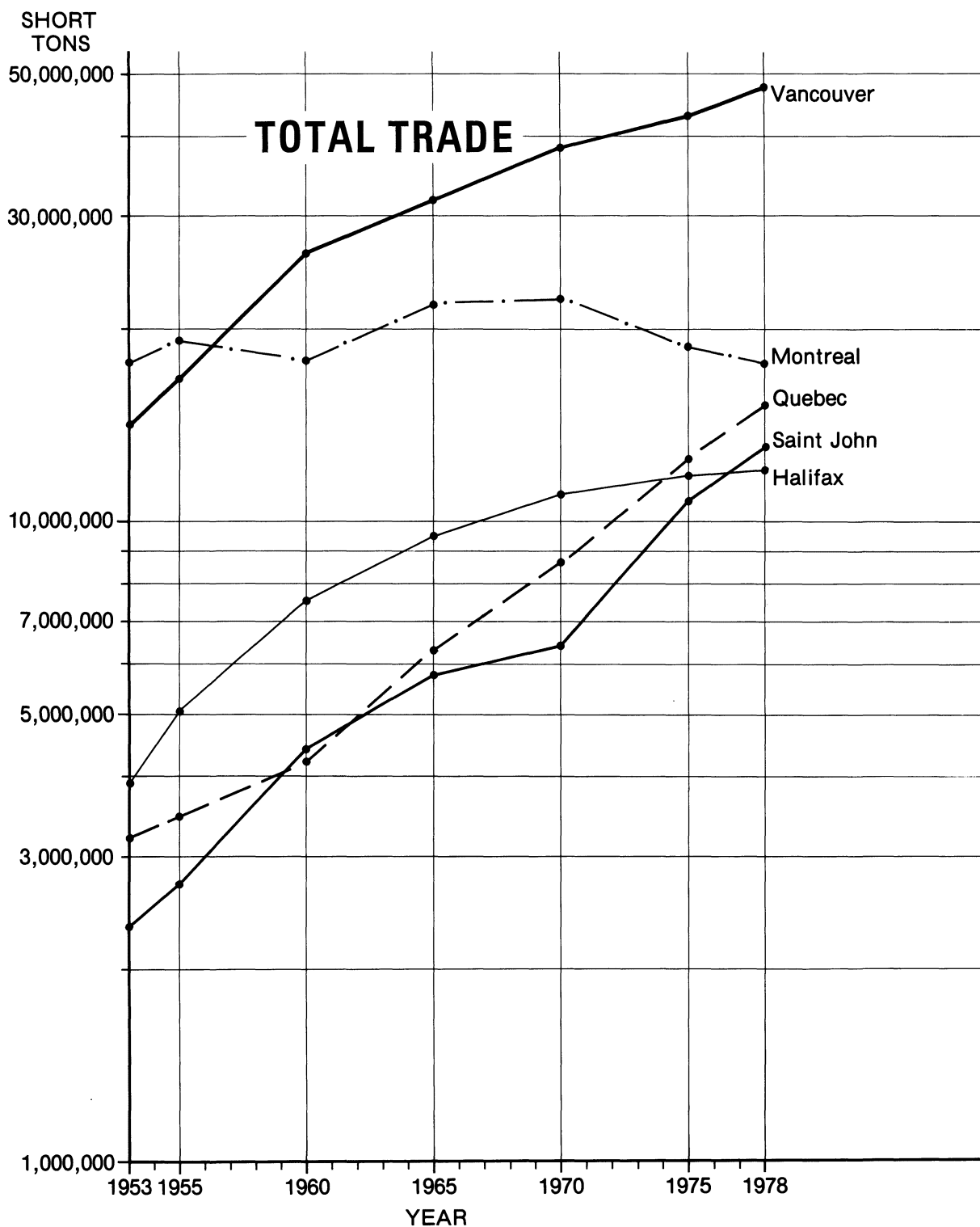


FIGURE 4. The Total Shipping Trade, 1953-1978.

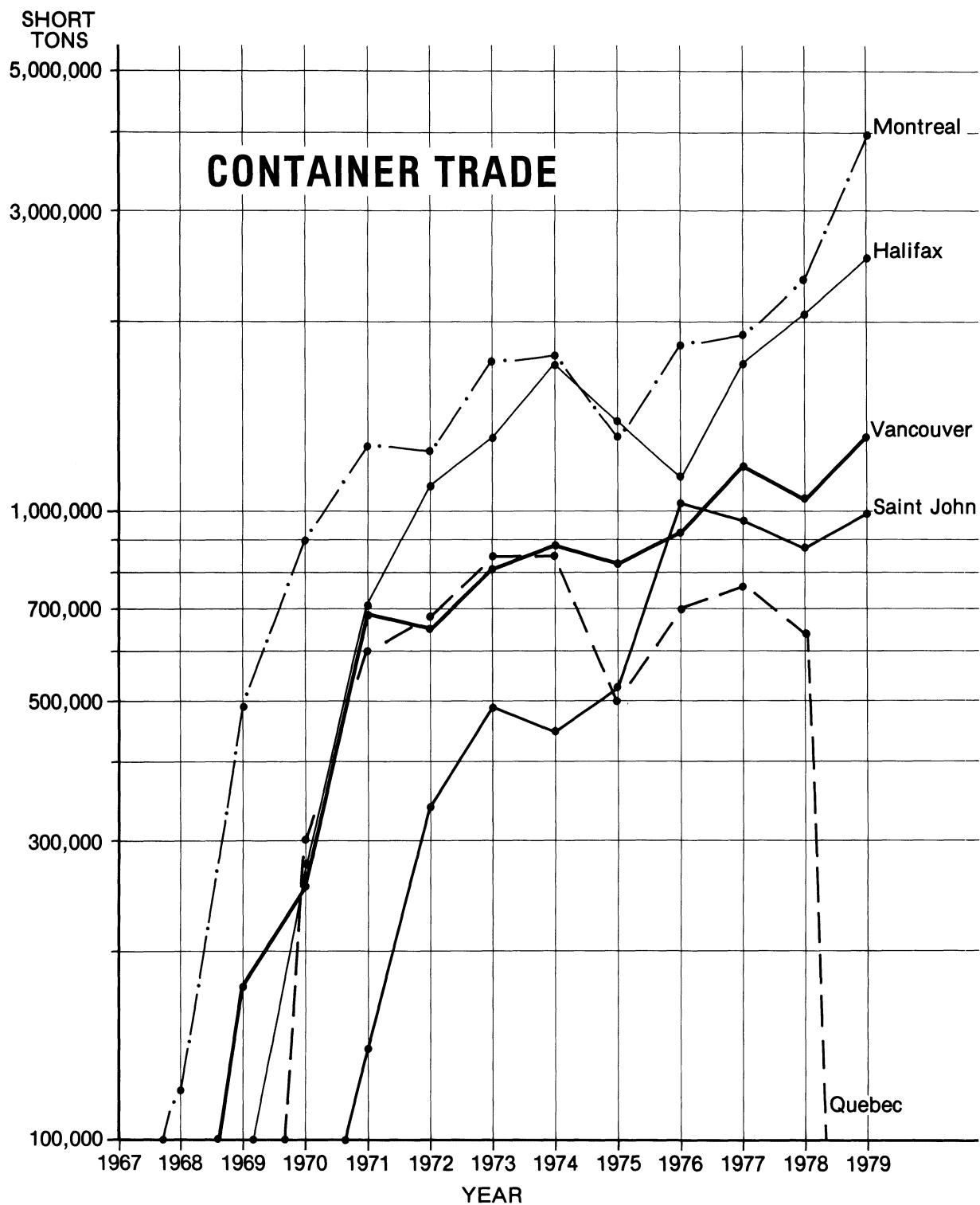


FIGURE 5. The Container Shipping Trade, 1967-1979.

do not handle containers, as many do, the most prominent being Toronto, but their throughput is insignificant compared with that of the major terminals. Montreal and Halifax have enjoyed the greatest success in the container trade, while Quebec was suddenly eliminated by the closure of its single container terminal at the end of 1978.

The National Harbours Board managed the five ports without exceptional criticism until the 1960s. It maintained the harbours and port facilities adequately and protected the "national interest" by careful fiscal management. It was generally unresponsive to local initiatives for imaginative but expensive port developments. Regional frustration, both at the provincial and municipal levels, was translated eventually into political activity that led to new port legislation proposals in the late 1970s. A study of harbour administration in Canada formed the basis for change, recommending more regional involvement in port management by reverting to a local harbour commission format wherever possible, with the commissions operating under a single government agency that would retain overall fiscal control.⁹² In legislation introduced in 1977, and again in 1978 when the earlier version died on the order paper, a further step toward liberalization of the port commissions was proposed: that within a set of guidelines they may set their own wharfage rates, manage their own revenues and prepare their own operating budgets.⁹³ Although this legislation was never passed, it seems likely to reappear in a modified form in the near future.⁹⁴ After thirty-six years of centralized federal control, the pendulum may swing back to the pre-1936 situation of semi-autonomous port commissions, though it is unlikely that overall federal supervision will ever be relinquished.

St. Lawrence Ports

The postwar period was marked by the rejuvenation of the Port of Quebec to a level of significance relative to the other four that it had not enjoyed since the nineteenth century. Paralleled by the relatively modest performance of the Port of Montreal, the rise of Quebec was especially noteworthy, but the recent development in the container trade does not augur well for its future. Among the important developments affecting these ports besides the introduction of containerization and the building of the St. Lawrence Seaway were the far-reaching changes in the grain trade and the advances achieved in winter navigation.

Quebec

The tremendous growth of trade at Quebec occurred at a uniform rate throughout the period, with foreign trade growing at a much faster rate than domestic trade (Figures 2 and 3). It is noteworthy, also, that growth rates of both bulk and general cargo were similar, indicating that the

attraction of the port was broad-based and not entirely dependent on one or two commodities. Of course, tonnages of general cargo handled took a nosedive toward the end of the 1970s, with the shutdown of the container terminal. In the bulk trade most of the growth was accounted for by increases in the handling of grain and petroleum products and the inauguration of crude oil imports after a new oil refinery was opened in 1971. The grain trade escalated substantially after the mid-1960s, and tonnage levels increased again in the early 1970s, at a time when they were declining at Montreal. The St. Lawrence Seaway released the large lakers from their inland realm, and grain transshipment points farther downstream from Kingston, Prescott, Cardinal and Montreal were favoured. The iron ore development, as pointed out earlier, was an additional factor influencing these changes. Before 1960 a large portion of Quebec's grain arrived by rail, whereas after that date most came by water.

Port facilities at Quebec were greatly improved and enlarged in the postwar period. The grain elevator at Louise Basin was doubled in capacity in two stages so that by 1964 it stood at 217,723 tonnes (8,000,000 bushels).⁹⁵ A new bulk terminal area was developed in the early 1970s at Beauport Flats on reclaimed land and a new petroleum terminal was built on the south shore to serve the Golden Eagle refinery. At Wolfe's Cove Canadian Pacific opened its container terminal in 1969 which was responsible for a large increase in the general cargo trade. Tonnage reached a peak in 1974, then fluctuated at a little lower level until the terminal was closed in late 1978 and operations shifted to Montreal (Figure 5). The reason given was that most of the container traffic originated from or was destined to points west of Montreal and that the cost of rail transport between the two cities had become prohibitive.⁹⁶ Hence, Quebec's container trade became the first major victim of the altered relationship between water and land transportation owing to higher energy costs.

The introduction of winter navigation of both Quebec and Montreal was a tremendous advancement for these ports in the competitive world of shipping. Below Quebec the estuary and gulf were never completely ice-covered, rather, there was floe ice shifting in response to wind conditions beyond a landfast strip of ice. The first ocean-going vessel to advance up the river in winter, with ice-breaker assistance, was the "Helga Dan" which docked at Quebec in mid-February, 1959.⁹⁷ This demonstrated the feasibility of winter navigation, and during the 1960s winter shipping traffic increased rapidly. The possibility of operating year-round schedules was an important factor in attracting the substantial container trade investment toward the end of the decade at both Quebec and Montreal. A much higher proportion of the winter traffic, compared with summer, consisted of general cargo, much of it containerized in the 1970s.⁹⁸ Despite the great advances in winter navigation, the total cargo tonnage handled in the winter quarter (January-March) at Quebec

during the 1970s amounted to only ten per cent of the annual total.

The rise of the Port of Quebec in the postwar period was brought about by technological changes, including the building of the St. Lawrence Seaway, the development of containerization and the achievement of a year-round shipping season, as well as the rapid growth of the eastern Quebec hinterland. However, its future as a competitor of Montreal in serving the general cargo market of central Canada is clouded by the reality of energy costs.

Montreal

The foreign shipping trade at Montreal increased from the artificially low wartime level until 1950, but henceforth neither the foreign nor domestic trade was characterized by significant or sustained growth (Figures 2, 3 and 4). A major factor that helps to explain the sluggish performance of the port was the decline of the grain trade at Montreal. By the early 1970s Montreal was exporting little more than half the grain it had moved twenty years previously and was exceeded in some years by export shipments at Baie Comeau and Port Cartier on the St. Lawrence Estuary and Gulf, not to mention Vancouver. The west coast port took over the role as Canada's leading grain shipping point in the mid-1950s. Although many factors were involved in the decline of Montreal's grain trade, probably the most important was that in the period following construction of the seaway Montreal was faced with far more competition from newly viable ports downstream, including Sorel, Trois-Rivières, Quebec, Baie Comeau and Port Cartier, as well as Thunder Bay at the lakehead.⁹⁹ Whereas Montreal controlled about sixty per cent of eastern Canadian grain exports in the early 1950s, its share had dropped to twenty per cent in the early 1970s.¹⁰⁰

The development of the container trade has been the major success story of the port (Figure 5). Manchester Liners inaugurated service in November, 1968 at its new container terminal, the first in Canada.¹⁰¹ Specially-built ships of ice-strengthened design were used on a regular twelve-month schedule. Since that time three additional terminals have opened, the most recent in 1978 operated by Canadian Pacific as the replacement of its former Quebec terminal. With this addition Montreal has leapt ahead of its competitors in containerized tonnage handled and likely will retain its dominance in the container trade for some time to come. Its inland location that minimizes the more expensive rail compared with water transport of containers is an advantage of increasing importance.

The achievement of regular winter navigation to Montreal was more difficult than in the case of Quebec because the river ice was more extensive and required more

persistent icebreaking action to maintain an open channel. Although Montreal was not opened to winter shipping until three or four years after Quebec, the buildup of traffic was faster, and by the early 1970s Montreal was handling a higher tonnage during the winter quarter than was Quebec.¹⁰² Nearly half of that tonnage consisted of general cargo that formerly would have moved through Saint John and Halifax.

The St. Lawrence Seaway was finally under construction in the 1950s at the insistence of Canada which had been prepared to go ahead without the participation of the United States. Agreement was required only with the New York power generating authority in order to construct the power dams in the international rapids section. All canals and locks could have been built on the Canadian side. However, negotiation with the United States resulted in agreement by 1954 to proceed jointly, and the 8.2 metre (27 foot) deep seaway was opened in 1959. The true impact on the Port of Montreal is difficult to determine and has been somewhat controversial. There was no drop in cargo tonnage at Montreal when the seaway opened or during the next few years that might have been attributed to a traffic diversion, and the Great Lakes ports have not been as successful in the overseas general cargo trade as they had expected. Of course, the introduction of containerization and winter shipping greatly favoured Montreal because the seaway still is closed in winter from about December 15 to April 1. The only clear diversion of traffic from Montreal that was facilitated by the seaway was in the grain trade, as outlined above. Except for that one commodity, there is little evidence to suggest that the shipping trade at Montreal would have been greater if the seaway had not been built.

Despite the existence of a greatly improved and deepened inland waterway, Montreal remains the head of deep draft navigation, and its future seems well assured as the leading container port in the high energy cost era. With the elimination of its nearby competitor, Quebec, from the container trade, Montreal has achieved a consolidation in the trade that makes it a more formidable competitor of Halifax and Saint John. Nevertheless, Montreal has relinquished the role of leading Canadian port that it enjoyed for so long and has virtually no prospect of ever regaining it.

Atlantic Ports

The Atlantic ports improved their position tremendously in the postwar period, despite their fears that the building of the seaway and winter navigation on the St. Lawrence would spell their doom. Although they lost some of their hard won winter traffic to the St. Lawrence ports, they were more than compensated with traffic gains throughout the other eight months, attributable largely to containerization.

Halifax

The shipping trade at Halifax was in a postwar doldrums until about 1950, after which both foreign and domestic trade registered gains, though at a decreasing rate approaching the plateau that was reached in the mid-1970s (Figures 2, 3 and 4). The foreign component always exceeded the domestic by a substantial margin, though not as much as it did in Saint John. The increase of general cargo at a much faster rate than of bulk since 1970 is an indication that Halifax has become more important as an interface between the central Canadian manufacturing belt and overseas points. Its bulk trade has grown chiefly through greater imports of crude petroleum for its refineries and distribution of the finished products, fuel oil and gasoline, as well as enlarged shipments of the locally-produced commodity, gypsum. Halifax continued as a grain export point, though it never became a major outlet comparable with lower St. Lawrence ports. In most years it exported about the same amount as Saint John, but in both cases they shipped somewhat less than during World War II. While export grain arrived by rail in winter, a summer grain movement from the Great Lakes ports by lake freighter developed after the seaway opened to supply grain to the Maritimes market. Although not designed for ocean navigation, the lakings were able to venture from the St. Lawrence to Halifax during the relatively calm summer period.

Halifax acquired new port facilities while retaining its role as Canada's major naval base, and both commercial and military needs had to be met within the limited waterfront properties available. An exchange was arranged between the National Harbours Board and the Department of National Defence whereby the former Seaward Defence Base became the site of the first container terminal, while the old Richmond Terminals became a naval facility.¹⁰³ Halifax quickly achieved a position rivalling Montreal in the container trade, even exceeding it in 1975 (Figure 5). Its location close to the great circle route from Europe to New York has made it an attractive port of call for container services, in contrast to Montreal's situation as an inland destination. The Halifax terminal handled by far the largest tonnage of any container terminal in Canada and reached full capacity in the late 1970s.¹⁰⁴ A second container terminal is under construction at Fairview Cove on the Dartmouth side of Bedford Basin and is slated for completion in 1982.¹⁰⁵ Another specialized terminal, Autoport, that was opened in 1971 has helped to diversify the functions of the port. A wide range of pre-distribution services are performed, as well as the basic loading and unloading functions. Approximately 100,000 vehicles were handled in 1979, consisting of imports (seventy per cent) from Europe, Japan and the Soviet Union destined to inland markets, and North American vehicles (thirty per cent) for distribution within the Atlantic Provinces market.¹⁰⁶

Halifax weathered the twin threats of the postwar period, the St. Lawrence Seaway and winter navigation on the river, very successfully, largely owing to the introduction of containerization. Its general cargo trade was spread evenly throughout the year in the 1970s, compared with the pronounced winter hump of the 1960s. Tonnages handled in the winter quarter remained about the same, but substantial increases were recorded from April to December. The "winter port" role had virtually come to an end, and Halifax can now claim to be a key national port the year round. Its great distance by rail from central Canada may be viewed as a disadvantage in the high energy cost era, but this is compensated for by its situation on North Atlantic shipping lanes. In this respect, its future success rides on the coattails of New York.

Saint John

A pronounced postwar slump in the foreign trade dropped Saint John behind Halifax in 1950 where it remained until the mid-1970s (Figure 2). Its better performance in the domestic trade, however, combined with its foreign trade surge of growth in the 1970s, has now relegated Halifax to the bottom position in total trade (Figures 3 and 4). Despite its strong showing in the domestic trade, Saint John remains the most dependent on foreign trade of the four eastern ports (Figure 3). All of the growth in tonnage was in the bulk category until about 1970 when containerization initiated a strong upward trend in the general cargo trade. As in Halifax, a large portion of the expansion in the bulk trade was related to the petroleum refining industry. Canaport, a supertanker moorage offering a depth alongside of 36.6 metres (120 feet), was established near Saint John a decade ago by Irving Oil to handle imported crude oil for its refinery. In the grain trade Saint John fared no better than Halifax, seldom handling as much as it did during the years of World War II. Also, its remoteness from the St. Lawrence prevented the movement of grain carrying lakings in summer as occurred in Halifax. The export of forest products, consisting chiefly of lumber, pulpwood and newsprint, was a more successful trade that expanded considerably during the 1970s. A huge new forest products terminal was opened in 1977 to centralize handling at one location within the port and to increase efficiency with automated systems.¹⁰⁷

Saint John was the last of the five ports to enter the container trade and experienced difficulties in competing against established patterns that seemed to favour Halifax and Montreal (Figure 5). Its doubling of throughput in 1976 by the attraction of several additional container lines placed it in a more competitive position and led to an expansion of its single container terminal in 1980.¹⁰⁸ Before containerization the general cargo trade in Saint John was even more unbalanced seasonally than in Halifax, but during the 1970s traffic was evened out and the customary

winter peak was almost eliminated. Unlike Halifax which retained its winter tonnage levels in the 1970s, Saint John actually lost some of its winter quarter traffic to St. Lawrence ports. On the other hand, its gains during the other months outstripped those of Halifax. Saint John also gave up the title of "winter port" for inland Canada.

Saint John exploited its "compromise" location between Halifax and Montreal: not quite as close to North Atlantic shipping lanes as Halifax, but a lot closer than its rival to central Canada by rail. It is especially well situated for Latin American lines or Asian services using the Panama Canal. The port has experienced extensive modernization and addition of new facilities, and its future prospects are favourable. It will soon acquire a new commodity, potash, originating from mining activities under development east of Saint John, and a new terminal is being constructed to handle the mineral.¹⁰⁹ With increasing energy costs the shorter rail route to Montreal that Saint John enjoys may become a more important element in its continuing competitive struggle with Halifax.

Vancouver

Vancouver became the leading Canadian port in the late 1950s when it surpassed Montreal in total tonnage handled (Figure 4). Following the severe wartime slump, Vancouver's foreign trade recovered rapidly in the late 1940s and posted steady growth thereafter (Figure 2). Domestic trade, on the other hand, fluctuated around the 9,000,000 tonne (10,000,000 tons) level, similar to that of Montreal (Figure 3). The boom in foreign trade was fuelled by exports of bulk commodities, especially coal from eastern British Columbia and grain, potash and sulphur from the Prairies. The logic and economy of the shorter grain transport route to Vancouver than to eastern ports from a large part of the Prairie region eventually prevailed, along with the increasing importance of Asian countries as export destinations. Although Vancouver retained its stranglehold on the inland trade, it was forced to share the coastal trade with many other British Columbia ports (Table 1). The general cargo trade grew relatively little in tonnage compared with the bulk movement, hence, its proportion of the total dropped from twenty-seven per cent in the early 1950s to a little over ten per cent in the 1970s. As in the other ports, a significant portion of the general cargo was containerized, but Vancouver was less successful than Montreal or Halifax in developing this trade (Figure 5). Obviously, of course, the latter ports had the advantage of serving directly the densely populated manufacturing heartland of Canada. Another factor that dampened Vancouver's performance was the persistent competition of nearby Seattle, the fifth ranked container port of North America, having nearly three times the container throughput of Vancouver.¹¹⁰ Lower port charges and less restrictive labour contracts in Seattle have been cited as major reasons why a large portion of Vancouver area traffic is routed through Seattle.¹¹¹

Expansion of port facilities has been carried out on a larger and more spectacular scale than in the other ports, owing to the immense tonnages that had to be accommodated. Specialized bulk terminals to handle potash, sulphur, phosphate rock, lumber, wood chips and coal were established in Burrard Inlet. Two new grain elevators were built on the north shore and the container terminals were established on the south shore. Centennial Pier, the first terminal, was opened in 1970 and a larger one nearby, Vanterm, was completed in 1975. Additional general cargo facilities were built on the north shore, Lynnterm, and in New Westminster. That city maintained its role as a subsidiary focus for general cargo handling. On the Fraser River near New Westminster a terminal was established to handle imported automobiles, mainly from Japan. The largest development was the coal handling terminal at Roberts Bank, situated just inside the international border south of the Fraser River. It consists of an extensive sand-filled area connected to land by a 4.8 kilometre (3 mile) causeway. Shipments of coking coal began in 1970, and the full capacity of the terminal was reached within ten years. A major expansion at Roberts Bank is underway.

Although Vancouver is well equipped to handle a continuing expansion of trade, its monopoly as Canada's only significant outlet to the Pacific is soon to be ended by the establishment of major new terminals at Prince Rupert. Since Vancouver replaced Montreal as Canada's leading grain shipping port in the late 1950s, it has often been hard pressed to handle the export volume required. Blockage of one or other of the key railway lines serving Vancouver by avalanches, landslides, washouts or accidents sometimes delayed the flow of grain westward. Even a ship collision that knocked the Second Narrows Bridge out of service for several months severely affected grain exports by cutting off rail access to the north shore grain elevators from the Vancouver side. The need for a large-scale alternative grain port on the west coast was viewed as essential by the Prairie Provinces, and the Alberta government offered financial assistance toward the development of a new facility at Prince Rupert. Construction is expected to begin in the near future. The signing of contracts in 1981 with Japanese iron and steel companies for the delivery of coal from northeastern British Columbia offers assurance of the parallel development of a major coal shipping terminal at Prince Rupert. Despite the rise of a viable competitor in one or two bulk commodities, Vancouver has little to fear in the long run because its dominance as a port has become so overwhelming. Its growth prospects are excellent, and it is likely to remain the leading port of Canada for many years to come.

CONCLUSION

The five leading national ports of Canada have dominated the shipping trade for nearly a century and likely

will continue to function in their key roles in future. They have competed strongly with each other over the years and recently have faced increasing competition from other ports. Because they have become established as important nodes in the overall transportation system of the nation possessing substantial port infrastructures, all have built-in survival mechanisms that carry them through the setbacks that sometimes occur. Quebec has experienced the most pronounced ups and downs. Although it was the leading port until Confederation, it became so overshadowed by Montreal and dogged with the competition of other St. Lawrence ports that it seemed headed for oblivion. Then it recovered dramatically in the postwar period. Montreal, on the other hand, assumed the mantle of leadership after Confederation, but entered a period of stagnation after World War II and relinquished its leading port role to Vancouver in the mid-1950s. Among the five Montreal alone depended strongly on man-made navigation improvements, hence, its transformation into a competitive deep-sea port was gradual, despite its superior location as the closest to the centre of Canada's heartland. Vancouver, the youngest port of the five, has been on an upward surge throughout most of its history. Its almost total lack of competition on Canada's west coast has been its greatest strength. Halifax and Saint John were never high fliers like Montreal and Vancouver but always maintained their somewhat limited roles as important national ports, especially in winter and in wartime. Their completely ice-free status and their locations near the heaviest flow of trans-Atlantic shipping traffic have long been their greatest assets.

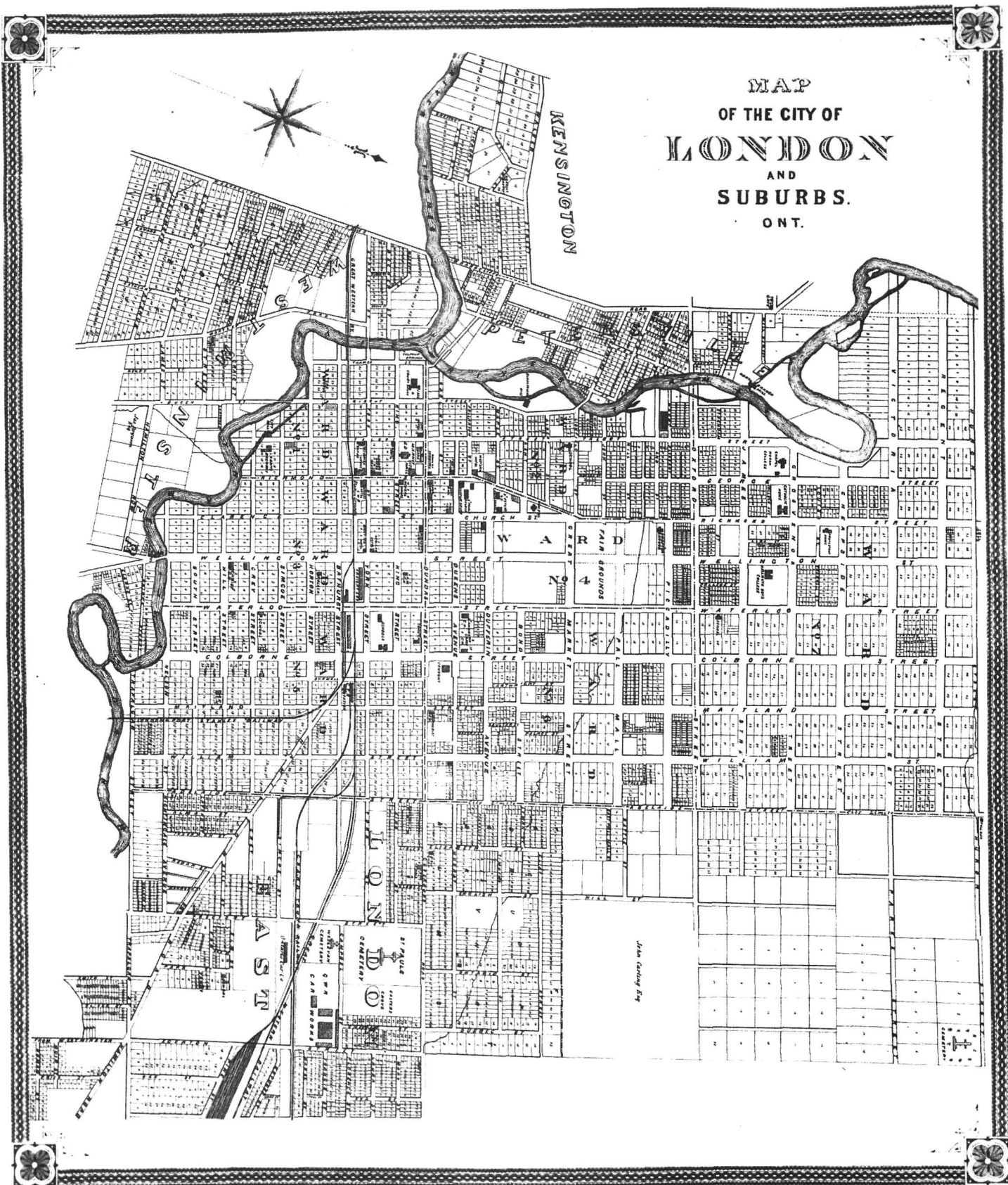
In future all will likely continue to thrive because Canada is steadily expanding its foreign trade, especially in bulk commodities destined to resource-short regions of the world. Among the five Vancouver likely will remain in the strongest position, being situated in the rapidly growing western part of the nation and having the prospect of only limited competition on the Pacific coast. Quebec probably occupies the weakest position, being close to its formidable competitor, Montreal, and having little to differentiate it, except for deeper water in case ships become much larger, which seems unlikely. Montreal, at last, is coming out of its prolonged depression as a port, aided particularly by the vitality of its container trade. Halifax and Saint John give promise of continuing to exploit successfully the advantages of their locations on the Atlantic rim, though increasing energy costs on the railways pose the possibility of troubled skies ahead.

NOTES

1. Canada, *Report of Royal Commission on Transportation* (Ottawa: King's Printer, 1905); and A. Gibb, *National Ports Survey, 1931-32* (Ottawa: King's Printer, 1932).
2. Canada, *Shipping Report* (Ottawa: Statistics Canada, Parts I-V, annual, 1941-1978).
3. N. Corley, "The St. Lawrence Ship Channel, 1805-1867,"

- Cahiers de géographie de Québec*, Vol. 11 (September 1967), p.281.
4. *Ibid.*, p.296.
5. W. Wodds, ed., *The Storied Province of Quebec, Past and Present*, Vol. 1 (Toronto: Dominion Publishing, 1931), p.172.
6. *Ibid.*, p.173.
7. S. Leacock, *Montreal: Seaport and City* (New York: Doubleday, Doran, 1942), p.204.
8. *Ibid.*, p.203.
9. *The Port of Quebec* (Quebec: Quebec Board of Trade, 1949), p.3.
10. *Quebec Morning Chronicle*, September 23, 1889, as quoted in E.T.D. Chambers, *The Port of Quebec* (Quebec: Morning Chronicle, 1890), p.15.
11. J.-C. Lasserre, "The St. Lawrence River at Montreal," in L. Beauregard, ed., *Montreal Field Guide* (Montreal: University of Montreal Press, 1972), p.58.
12. G.W. Brown, "The St. Lawrence Waterway in the Nineteenth Century," *Queen's Quarterly*, Vol. 35 (Autumn 1928), p.637.
13. G.P. de T. Glazebrook, *A History of Transportation in Canada*, Vol. 1 (Toronto: McClelland and Stewart, 1964), p.93.
14. Corley, "The St. Lawrence Ship Channel," p.296; and Lasserre, "The St. Lawrence River at Montreal," p.59.
15. Leacock, *Montreal*, p.199.
16. Lasserre, "The St. Lawrence River at Montreal," p.59; and C.W. Stephens and F.W. Cowie, *Report on British and Continental Ports, with a View to the Development of the Port of Montreal and Canadian Transportation* (London: Eyre & Spottiswoode, 1908), p.148.
17. Glazebrook, *History of Transportation in Canada*, Vol. 2, p.223.
18. A. MacMechan, "Halifax in Trade," *Canadian Geographical Journal*, Vol. 3 (September 1931), p.174.
19. Glazebrook, *History of Transportation in Canada*, Vol. 1, p.95.
20. *Ibid.*, p.96.
21. *Halifax and its Business* (Halifax: G.A. White, Nova Scotia Printing, 1876), p.169.
22. Canada, *Correspondence and Telegrams Relating to the Halifax Winter Port* (Ottawa: Department of the Secretary of State, 1881).
23. *Ibid.*, p.21.
24. *Ibid.*
25. *Halifax* (Halifax: Halifax Board of Trade, 1902), p.10.
26. W.O. Raymond, *The River St. John* (Sackville: Tribune Press, 1950), p.38.
27. *Ibid.*, p.226.
28. *St. John and Its Business: A History of St. John* (St. John: H. Chubb, 1875), p.92.
29. *Ibid.*, p.94.
30. *Ibid.*
31. *Ibid.*, p.157.
32. *Ibid.*
33. *Saint John, N.B. as a Canadian Winter Port* (Saint John: City Corporation and Board of Trade, 1898), p.12.
34. J. Hannay, *History of New Brunswick*, Vol. 2 (Saint John: John A. Bowes, 1909), p.358.
35. *Saint John as a Canadian Winter Port*, p.2.
36. *Ibid.*
37. *Ibid.*
38. *Ibid.*
39. B. Mather and M. McDonald, *New Westminster: The Royal City* (Vancouver: J.M. Dent and the Corporation of the City of New Westminster, 1958), p.15.
40. *Ibid.*, p.46.
41. J.L. Robinson and W.T. Hardwick, *British Columbia: One Hundred Years of Geographical Change* (Vancouver: Talon Books, 1973), p.18.
42. A. Morley, *Vancouver: From Milltown to Metropolis* (Vancouver: Mitchell Press, 1961), p.98.
43. *Report of Royal Commission on Transportation*.
44. *Ibid.*, p.34.
45. Gibb, *National Ports Survey*.
46. *Ibid.*, p.4.
47. Canada, *Shipping Reports* (Ottawa: Customs Department, Session-

- al Paper No. 11a, annual, 1916-17 to 1935-36).
48. Because the vertical axis of Figure 1 is a logarithmic scale, the slopes of the lines accurately represent rates of change.
 49. Gibb, *National Ports Survey*, p.65.
 50. Canada, *Study of Harbour Administration in Canada* (Ottawa: Information Canada, 1971), p.91.
 51. Glazebrook, *History of Transportation in Canada*, Vol. 2, p.138.
 52. Gibb, *National Ports Survey*, p.101.
 53. *Ibid.*
 54. *Ibid.*, p.107.
 55. *Ibid.*
 56. *Ibid.*
 57. *Ibid.*, p.108.
 58. *Facts of Interest in Relation to the Harbour of Montreal* (Montreal: Harbour Commissioners of Montreal, 1922), p.15.
 59. *Proceedings of the American Society of Port Authorities* (1921), as quoted in *Facts of Interest in Relation to the Harbour of Montreal*, p.28.
 60. Gibb, *National Ports Survey*, p.74.
 61. *Ibid.*, p.75.
 62. *Ibid.*, p.74.
 63. Gibb, *National Ports Survey*, p.88; and Lasserre, "The St. Lawrence River at Montreal," p.59.
 64. Leacock, *Montreal*, p.252.
 65. Gibb, *National Ports Survey*, p.75.
 66. M.C. Urquhart and K.A.H. Buckley, *Historical Statistics of Canada* (Toronto: Macmillan, 1965), p.544.
 67. Glazebrook, *History of Transportation in Canada*, Vol. 2, p.230.
 68. *Ibid.*, p.236.
 69. Gibb, *National Ports Survey*, pp.87-88.
 70. *Halifax, the Capital of Nova Scotia, Canada: Its Advantages and Facilities* (Halifax: Board of Trade, 1909), p.22.
 71. H.C. Wallace, "The Navy and Halifax," *Canadian Geographical Journal*, Vol. 61 (December 1960), p.199.
 72. *Ibid.*
 73. *Port of Halifax, Canada* (Halifax: Board of Trade, c.1919), p.1.
 74. E.A. Saunders, *Halifax: A Gateway to Canada* (Halifax: Morning Chronicle and Evening Echo, 1925), p.4.
 75. Gibb, *National Ports Survey*, p.118.
 76. Canada, *Annual Grain Review* (Ottawa: Statistics Canada, 1926-27 to 1939-40).
 77. Gibb, *National Ports Survey*, p.48.
 78. Canada, *Annual Grain Review*, 1939-40 to 1945-46.
 79. Gibb, *National Ports Survey*, p.132.
 80. *Ibid.*, p.140.
 81. *Ibid.*, p.48; and Canada, *Annual Grain Review*, 1926-27 to 1945-46.
 82. Gibb, *National Ports Survey*, p.137.
 83. *Ibid.*
 84. *Greater Vancouver Illustrated* (Vancouver: Dominion Illustrating, c. 1908), p.45.
 85. L. Stevens, "Rise of the Port of Vancouver, British Canada," *Economic Geography*, Vol. 12 (January 1936), p.63.
 86. Gibb, *National Ports Survey*, p.155.
 87. Canada, *Annual Grain Review*, 1939-40 to 1945-46.
 88. Stevens, "Rise of Port of Vancouver," p.68.
 89. Gibb, *National Ports Survey*, p.48.
 90. *Ibid.*, p.158.
 91. Canada, *Shipping Report*.
 92. *Study of Harbour Administration in Canada*, p.92.
 93. *Port of Toronto News*, March 1977, p.2; and *Financial Post*, July 8, 1978, p.34.
 94. *Financial Post*, January 10, 1981, p.7.
 95. *Port of Quebec Directory* (Quebec: National Harbours Board, 1965), p.9.
 96. N. Dupont, J. Lareau, and J.-C. Lasserre, *La conteneurisation du trafic Maritime au Québec* (Montreal: Université de Montréal, département de géographie, notes et documents, n° 79-02, juin 1979), p.58.
 97. H. Massue, *The Region with a Future: The Gulf and Lower St. Lawrence* (Montreal: Lower St. Lawrence and Gulf Development Association, 1959), p.82.
 98. Canada, *Shipping Statistics* (Ottawa: Statistics Canada, monthly, 1962 to 1978).
 99. B. Slack, "Recent Developments in the Grain Trade of the Port of Montreal," *Revue de géographie de Montréal*, vol. 18, n° 2 (1964), p.288.
 100. Canada, *Canada Grain Review*, 1950-51 to 1974-75.
 101. *Port of Montreal Bulletin*, Vol. 1 (Fall 1976), p.3.
 102. Canada, *Shipping Statistics*.
 103. C.N. Forward, "Port Functions and Shipping Trade of Halifax, Nova Scotia," *B.C. Geographical Series* (Vancouver: Tantalus Research, No. 8, 1967), p.44.
 104. *Financial Post*, September 10, 1977, p.10.
 105. *Port of Halifax Bulletin*, December 1980, p.3.
 106. *Ibid.*, April 1980, p.6.
 107. *Saint John Port News*, November-December 1977, p.4.
 108. *Ibid.*, November-December 1979, p.3; and *Financial Post*, July 24, 1976.
 109. *Saint John Port News*, November-December 1980, p.1.
 110. *Transport 2000*, November-December 1978.
 111. *Financial Post*, July 8, 1978, p.33.



THE BUREAU DES CARTES LITH. CO. MONTREAL.

Map of the City of London and Suburbs, Ont., Miles & Co., 1879.
ACML Facsimile No. 54, from an original lithograph in the D.B.
Weldon Library, University of Western Ontario.

See page 58.