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The Mercantile Fleet and its Owners: Yarmouth, Nova Scotia, 1840-1889*

In the decade following the Napoleonic Wars the volume of world trade grew at less than 1% per annum. Activity accelerated in the 1820s and 1830s, and from the mid-1830s to the mid-1870s world trade grew at a high and steady rate of 4.5%.[1] The second and third quarters of the nineteenth century, therefore, offered exceptional opportunities for entry into the world carrying trades. The town of Yarmouth, situated on the eastern shore of Cape Forchu Harbour, was one community which took advantage of these opportunities to evolve into a small metropolitan centre for the Western counties of Nova Scotia. The County of Yarmouth was not separated out of Shelburne County until 1836, but its prospective area contained approximately 7000 inhabitants in 1833.[2] During the 1840s, the major decade of growth in the century, its population rose by 43% from almost 10,000 to over 13,000. The town, founded by Yankees around 1761, consisted of only eighty buildings and 550 people in 1822. Its location near good fishing grounds, proximity to Saint John, and perhaps its family connections with New England, provided the basis for rapid growth in the second quarter of the century. By 1840 it contained some 2500 people and in 1861, 4152.[3] From that date, while the town (and county) population continued to increase, it did so at a decelerating rate, reflecting perhaps the maturity and ultimate decay of its major economic base.

Yarmouth was not uniquely favoured as a shipping centre, for it did not have much of an economic hinterland. But it did have the scarce materials for building ships, was part of a society with a long attachment to the sea, and spawned a business community with the initiative to enter the international shipping world.

*This paper is a small part of a large scale study of the shipping industry of Atlantic Canada being done by the Maritime History Group of Memorial University with the support of the Canada Council. A central task of the project is to produce machine readable data sets on vessels, voyages and seamen of major ports in the nineteenth century. The objective of this paper is to establish 'base line' time series on vessels at the port of Yarmouth and to indentify some of the major investors and the concentration of investment. The authors wish to acknowledge the help of their colleagues and the staff of the Maritime History Group, the Public Archives of Canada and of Nova Scotia, and the Yarmouth County Museum.

1 Calculated from Simon Kuznets, *Modern Economic Growth* (New Haven, 1966), Table 6:3, p. 306.

2 J. Murray Lawson, comp., *Yarmouth Past and Present: A Book of Reminiscenses* (Yarmouth, 1902), p. 634.

3 Canada, *Census,* 1870-1, vol. 1, p. 75 and vol. 4, pp. 125, 232, 344; 1880-1, vol. 1, p. 11; and 1890-1, vol. 1, p. 34; Nova Scotia, *Census,* 1861, pp. 66-7.

As early as 1811 a company was formed to create a waterway from the head of the harbour by lakes and locks to Lake George. By 1821 a series of wharves extended down the waterfront and by 1826 there was a shipyard at Milton, at the head of the harbour. The town became a free port in the early 1830s, and in 1837 businessmen launched a marine insurance association which in 1839 began to take risks on vessels and cargo owned in Digby and Shelburne Counties as well as Yarmouth County.[4] Yarmouth's shipping expanded rapidly in the two decades before its designation as a port of registry in 1840. Between 1820/22 — 1837/39 new investment in tonnage grew at 6.2% per annum, for a total of 277 vessels and 23,000 tons.[5] Small fishing vessels and schooners under 100 tons accounted for 38% of the total number, but almost half of the registrations were vessels between 100 and 250 tons and 17% were relatively big vessels between 250 and 500 tons. The achievement was still modest, but the town had begun its transformation into a major centre of ocean shipping.

In 1840 around 5,500 tons of shipping were on registry at Yarmouth, and at its peak in 1879 this had reached 179,400 tons,[6] over one-quarter of the tonnage of the Maritimes and around 12% of the Maritimes and Quebec. Although Yarmouth's fleet was built in about one hundred locations, 95% of the vessels were built in Nova Scotia and 88% in the Western Counties of Shelburne, Yarmouth and Digby. In the

[4] See Robert M. Aitken, "Localism and National Identity in Yarmouth, Nova Scotia, 1830-1870" (Unpublished M.A. thesis, Trent University, 1975), pp. 17-8, 39; George S. Brown, *Yarmouth, Nova Scotia; A Sequel to Campbell's History* (Boston, 1888), pp. 361-2, 364-5; James C. Farish, *Yarmouth, 1821* (Yarmouth, 1971), pp. 39-43; and Lawson, *Past and Present*, pp. 581, 586, 635.

[5] Calculated from registry lists in J. Murray Lawson, *Record of the Shipping of Yarmouth, Nova Scotia* (Yarmouth, 1876). Lawson's estimates relate to tonnage owned by residents of the town, and are therefore on a different basis from the tonnage of the port of registry from 1840. A more definitive estimate of the tonnage owned, and the port's rate of growth before 1840, awaits completion of a computer file on the port of Halifax presently being prepared by Professor Eric Sager of the Maritime History Group.

[6] The latter figure must be accepted with care. Not only are there measurement problems which inflate tonnage after 1854, but vessels which had left the port in terms of their ownership and management sometimes retained a Yarmouth registry for a number of years. Schooners in particular were often left on registry long after they had gone to the bottom or been hauled on the beach to rot, although periodically removed from registry in a 'cleansing' year, such as 1861. But since most of the error was concentrated among smaller vessels the distortion is much more in terms of number of vessels than aggregate tonnage. A laborious effort to correct the series by eliminating vessels from the registry in the year they were lost to the port's service, and to eliminate 'ghost ships' by assigning a disappearance date through the construction of a simplified life table, suggests that the table of "Tonnage on Registry" may overestimate at various points by between two and seven percent. The error should be noted, but its presence is equally likely at ports elsewhere and does not affect the gross characteristics and direction of change at the port which is described in this paper. The data from which these and other statistical estimates are made are drawn from a computer file built from the United Kingdom Board of Trade Series, B.T. 107 and 108. The file contains some 100 variables on over 2000 vessel registrations between 1840 and 1889, including data on the physical characteristics of the vessel, its registration and disposal, and its registered owners.

1840s and 1850s these counties supplied 97% of new registrations. During the 1860s boom their share fell to 86%, but in the 1880s it again reached 98%. Shelburne was an insignificant source in the 1840s and 1850s, but in the following decades contributed 13% of the vessels. Digby County shipbuilders equalled Yarmouth County builders in the 1860s and surpassed them in the following decades. The latter, while always important in relative terms, began to fade in the 1850s, and the contribution of other areas of Nova Scotia doubled in the decades of heavy demand in the 1860s and 1870s, as did the smaller contributions of New Brunswick and elsewhere.[7] Increased demand also induced a widening of activity within the three counties. In the 1840s and 1850s 26 centres provided vessels, 40 in the 1860s, 36 in the 1870s and 30 in the 1880s. This widening net of building centres did not, however, alter the dominance of a handful of major supply centres.[8] Yarmouth town and Tusket and Wedge built a third of the port's tonnage, although Yarmouth itself rapidly declined after the 1850s as construction shifted to Tusket and Wedge. Shelburne, Salmon River, Beaver River, Meteghan, Belliveau's Cove, Church Point, Little Brook and Gilbert's Cove emerged as important suppliers

Table 1

Tonnage on Registry

Year	Vessels	Tonnage	Average Tonnage	V
1840	55	5,551	100	90%
1845	266	17,119	75	105
1850	361	31,273	87	117
1855	357	39,507	111	138
1860	428	56,819	133	133
1865	454	93,798	207	124
1870	427	100,862	236	126
1875	441	157,285	441	116
1880	447	172,166	385	124
1885	429	142,119	331	150
1889	362	119,144	329	152

Note: V = the coefficient of variation (standard deviation/mean × 100). Before 1854 tonnage is measured as net burthen, and after that as gross registered. The change introduces an inflation factor of 5 - 10% on average.

[7] In the 1840s and 1850s the USA supplied less than 1%, but their contribution rose to 7% and 6% in the next two decades. This reflects the restrictions on foreign purchases before 1854 and the Civil War and subsequent maritime decline of the USA.

[8] We use the term 'building centre' rather than community or port because the precise location where vessels were built is not always given, such as when noted as Clare, St. Mary's Bay and Tusket and Wedge, which were all districts within the Counties.

providing a volume of tonnage equal or nearly equal to Yarmouth itself by the 1870s.

Building centres did specialize in the type of tonnage supplied to the port.[9] Ports such as Weymouth, Pubnico and Barrington produced few or no vessels over 250 tons, while Belliveau's Cove and Little Brook produced few or no vessels under 500 tons. While most building centres provided vessels in every class, there was a tendency to specialize. Almost half of the output from Tusket, Shelburne, Beaver River, and substantially over half of that of Salmon River and Church Point was over 500 tons; a quarter or less of the output of Yarmouth, Argyle, Clare, Digby and Weymouth exceeded that limit. Specialization strengthened over time so that the relation between places of build and vessel tonnage classification was almost twice as strong in the 1880s as it was in the 1840s.[10] Thus, while intense demand forced owners to place orders in a widening net of building centres, specialization did develop within the Shelburne to Digby arc with the emergence of large vessels in the late 1850s. This development did not reflect a higher level of industrial concentration, or the concentration at certain building centres of qualitatively different levels of capital, labour and technical sophistication, for the production function of shipbuilding apparently underwent no major shifts during the fifty year period, and the industry retained the characteristics of an untransformed cottage manufactory.

From 1840 when the registry was opened, until 1889 when the port's decline was well advanced, some 1,648 new registrations were opened.[11] Like other Atlantic colonial ports, Yarmouth was a wooden sailing ship port during its years of growth. No more than 1.5% of the registrations were steamers and most of these were small. More than half of the registrations were small schooners, a fifth were brigantines and brigs, and a quarter were barques, barquentines and ships, the ubiquitous bulk carriers of the nineteenth-century international economy. But while a third of the port's vessels were under 50 tons and over half under 100 tons, Yarmouth's strength as a deep sea port lay in the 45% of registrations over 100 tons and, more especially, the 28% between 250 and 2,500 tons.[12] The demand for

[9] The average vessel supplied by all building centres in 1840-89 was 260 tons. One-way analysis of variance of average tonnage supplied by all ports yields an F-statistic significant at 0.0001 and an *Eta* value of 0.54. The latter indicates that around 30% of the variance in size of ship coming on registry is explained by the building centres from which they came.

[10] With Chi-square significant at 0.0001, Cramer's V was 0.25 in the 1840s, rising to 0.45 in the 1880s.

[11] Unless otherwise noted, all re-registrations of the same vessels (known as *de novo* registrations) are omitted from analysis.

[12] There were a few large three-masted schooners, but generally tonnage and rig were closely correlated. Almost 94% of the schooners were under 100 tons; two thirds of the brigantines were in the 100 to 249 ton class; none of the brigs, barques and barquentines were under 250 tons; and all of the ships were over 500 tons. To know a vessel's tonnage class was to improve one's chances of guessing its rig by 43% (*lamda* with rig dependent = 0.43), and in the 1860s and 1870s, when the big vessels were being registered, this rose to 74% (*lamda* = 0.74).

Table 2
Major Building Ports 1840-1889

	1840-89		1840s		1850s		1860s		1870s		1880s	
	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons
Tusket & Wedge	154	70,285	3	110	14	2,881	60	20,891	50	32,817	27	13,586
Yarmouth	321	68,096	177	20,931	72	20,845	32	13,471	15	8,871	15	3,978
Shelburne	82	26,751	8	629	4	125	41	11,210	20	13,966	9	821
Salmon River	44	20,444	4	1,035	5	1,874	15	5,392	14	8,905	6	3,238
Beaver River	58	20,084	5	326	26	5,710	16	6,672	9	7,248	2	128
Meteghan	56	18,871	3	269	9	2,393	20	5,281	13	7,453	11	3,475
Belliveau's Cove	18	16,376	0	0	0	0	7	3,213	6	7,034	5	6,129
Argyle	148	15,896	57	4,871	50	6,574	26	2,162	11	2,227	4	62
Clare	64	14,417	35	3,851	12	2,039	10	2,406	4	3,615	3	2,506
Church Point	20	11,993	0	0	2	782	5	1,751	10	5,639	3	3,821
Little Brook	8	10,475	0	0	0	0	0	0	5	5,579	3	4,896
Gilbert's Cove	20	9,752	0	0	4	363	5	1,868	10	7,356	1	165
Digby	64	9,237	47	4,717	8	1,165	3	151	6	3,204	0	0
Green Cove	20	7,680	1	24	2	162	6	1,642	7	4,351	4	1,501
St. Mary's Bay	23	7,027	5	403	5	472	11	4,879	2	1,273	0	0
Plymouth	20	6,866	0	0	1	18	9	2,156	10	4,692	0	0
Weymouth	31	4,833	23	1,935	3	763	4	1,125	1	1,010	0	0
Pubnico	60	2,053	2	59	16	954	15	796	12	759	15	868
Barrington	36	1,968	16	625	12	709	6	491	2	143	0	0
Westport	27	1,441	21	1,309	3	52	2	60	0	0	1	20
Total	1,274	341,801	407	41,094	248	47,881	293	85,617	207	126,142	119	45,194
% All	78	81	84	91	92	94	72	77	71	80	78	82

various rigs and tonnage classes shifted over the fifty year period. In the 1840s 62% of the vessels registered were schooners and 70% were under 100 tons, whereas by the 1870s these shares had fallen to 42% and 40% respectively, mainly as a function of declining demand for schooners in the 50-99 ton class.[13] The fleet of brigantines and brigs and vessels between 100-249 tons shrank both absolutely and relatively after the 1840s. While vessels of this size were useful in the West Indies or British coastal coal trade,[14] Yarmouth's specialization into the deep sea trades necessitated a continual shift into larger tonnage and more powerfully rigged barques and ships.[15] While these formed only 7% of registrations in the 1840s, their share reached 21% in the 1850s and 48% in the 1870s. The port's development generated a fleet of small and a fleet of large vessels with very few in the middle, a physical distinction reflected in the community of shipowners.

Table 3
Tonnage Distribution 1840-1889

Tonnage	1840s	1850s	1860s	1870s	1880s
0-49	39%	25%	27%	26%	37%
50-99	31	28	21	14	20
100-249	23	20	12	11	19
250-499	6	16	16	1	4
500-999	1	11	22	23	2
1000-1499	0	0	2	22	11
Over 1500	0	1	0	2	6
No.	487	276	410	300	175

Between 1840 and 1879 the rate of growth of tonnage registered at Yarmouth was higher than in the Maritimes and the United Kingdom and British Empire, and in most decades was comparable to Norway. Although Yarmouth's low base in 1840 as a new port of registry exaggerates the pace of development in that decade, its growth from the 1850s through the 1870s equalled or bettered that of Norway, surpassed the deteriorating American performance, and bettered the Maritimes as a whole until the crash in the 1880s. There is no question that the development of the industry at the small community of Yarmouth was remarkable in national and international perspective.

[13] The weakening of this sector of the market has yet to be explored, but it may reflect a growing Halifax hegemony in coastal shipping.

[14] Professor Lewis Fischer of the Maritime History Group has found a large production of brigs at Prince Edward Island which were destined for the British market. This information will be detailed in a forthcoming MHG research report on Prince Edward Island shipping.

[15] Barquentines were rare at Yarmouth; only six were registered between 1840 and 1889.

Table 4
Tonnage on Registry — Growth Rates

Period	Yarmouth	Maritimes	British Empire	United Kingdom	United States	Norway
1840-79	7.4%	3.6%	2.2%	1.8%	0.8%	3.5%
1840-49	12.4	2.7	2.5	2.6	5.8	0.8
1850-59	6.4	3.0	3.0	2.7	4.8	6.5
1860-69	5.7	4.7	2.1	2.2	-5.3	6.2
1870-79	5.7	3.1	1.7	1.5	-1.2	4.0
1880-89	-4.2	-2.7	1.4	2.0	-3.6	1.2

Source: For Yarmouth, port registers B.T. 107 and 108; all other estimates from *Canada Sessional Papers* and A. W. Kirkaldy, *British Shipping* (London, 1914).

Note: Yarmouth growth rates are estimated from regression equations of the form Log Y = a + bt. Maritimes growth rate for 1870-79 and all other growth rates are estimated by end-point ratios.

Since tonnage on registry is the sum of new investment, disposals and an error factor, a more sensitive index of the underlying rate of growth is gross physical investment. Measuring from trough to trough on a three year moving average, the trend rate of growth for 1842/44 — 1878/80 was 4.4% per annum. Around this trend were strong cyclical swings.[16] There were five cycles measured from peak to peak between 1847 and 1878 with an average length of slightly more than six years and they closely tracked the swings in British GNP.[17] The 1847-56 cycle lagged behind the U.K. cycle by one year, and the second was as weak and uncertain at Yarmouth as in Britain. The terminal peak for the third Yarmouth cycle in 1866 again lagged a year behind the U.K., while the fourth terminated in 1874 in harmony with the British. Although the final cycle ran between 1874 and 1878 (as opposed to the British cycle of 1874-83), the approaching demise of Yarmouth's shipping industry could represent an exogenous local disturbance explaining the truncation of the cycle. Since there was a strong correlation among the trade cycles of all the major North Atlantic economies, the peaks and troughs at Yarmouth are familiar years in international

[16] The series has been detrended by fitting a linear least squares regression. A moving average of seven to nine years would have been a preferable device but was impractical because of the strength of the oscillations and the number of years lost through the smoothing process. So long as one is not identifying precise turning points the linear regression approach is sufficient.

[17] See Derek H. Aldcroft and Peter Fearon, *British Economic Fluctuations 1790-1939* (London, 1972), p. 9.

economic history, but the cyclical pattern of gross investment does confirm that the town's shipping industry was closely tied to the international economy rather than to local or regional conditions. This pattern generated periods when investment was above and below trend. The latter half of the 1840s was substantially above trend, but the entire 1850s, apart from 1857, was below.[18] The first six years of the 1860s saw a swing back to an investment boom, while the second half was again depressed. The final investment boom, stretching from the early to the mid-1870s, was followed by another depression in the second half of the decade and the secular collapse of the 1880s.[19]

Table 5
Yarmouth Investment Cycles

Peak to		Duration in Years		
Peak	Trough	Downswing	Upswing	Total
1847-57	1851	4	6	10
1857-63	1858	1	5	6
1863-66	1865	2	1	3
1866-74	1869	3	5	8
1874-78	1877	3	1	4
Average Duration		2.6	3.6	6.2

Various sectors contributed differently to growth and fluctuations in the shipping industry. Between 1843 and 1851 registrations of vessels under 100 tons correlated closely with aggregate tonnage growth ($r = 0.79$); thereafter these smaller vessels lost a determining role and by 1859 their registrations had little impact ($r = 0.13$). Among vessels under 50 tons, which were principally fishing vessels, there was a small trend decline of investment from 1843-79 averaging around eight tons a year. The 50-99 ton vessels, used in deep sea fishing, coasting and Western Hemisphere voyaging, were prominent at the port in the 1840s, but also recorded an average decline of 27 tons a year. A similar pattern is evident with vessels of the 100-249 ton class, mainly brigantines and brigs

[18] A complicating factor in analysis of trend levels of investment is the opening of new ports of registry in the Western Counties, notably at Digby in 1849 and less importantly, Shelburne in 1859. If the Digby registry had not been opened, the *level* of Yarmouth registrations would have been higher in the 1850s, but it is unlikely the cyclical movements around the trend would have been substantially different.

[19] These alternating periods of strong and soft demand for new vessels must have imposed strains on the shipbuilding industry unless demand from proximate registry ports, such as Saint John and Digby, followed an opposing cycle. Lewis Fischer, who is working on Saint John, has confirmed that it drew heavily upon the same building centres as Yarmouth, but the investment cycles at that port have not yet been determined.

engaged in the American, West Indies and British timber trade during the 1840s. Registrations of these tracked very closely the movement of total tonnage until 1851 (r = 0.93), weakened to 1861 (r = 0.52), and disappeared as an important element by the early 1860s (r = 0.06 by 1865). Vessels in the 250-499 ton class, which included some brigs but mainly barques, were the first generation of the port's ocean bulk carriers. From 1843-49 their registration also correlated strongly with total registrations (r = 0.74) and maintained a moderately strong association until 1869 (r = 0.63), after which their numbers dwindled. This class recorded a trend decline of almost 30 tons a year over the 1843-79 period, due largely to their disappearance in the investment boom of the early 1870s. The first generation of truly large sailing vessels at Yarmouth fell into the 500-999 ton class. In the 1840s these were invariably under 650 tons, but the average shifted upwards with each decade. From 1852 to 1873 their registration correlated strongly with total tonnage (r = 0.96), after which the determining role shifted to vessels over 1000 tons.

In fact, the port of Yarmouth developed in two phases. In the first the fleet of schooners, brigantines and small brigs dominated tonnage additions, the correlation reaching a peak in 1851 (r = 0.95). By 1859 the correlation had slipped (r = 0.42) and by the end of the 1860s boom had disappeared (r = 0.12). Vessels over 250 tons were less strongly correlated with total tonnage registered through the 1840s and 1850s (r = 0.77 to 1859), but were determinant from 1863 (r = 0.98) to 1879 (r = 0.98). The 1850s, therefore, represented a critical turning point when a port dominated by investments in relatively small vessels took the plunge into a heavy capital commitment in large ships that could only be employed in the international bulk trades. In the 1840s Yarmouth's ocean fleet seems to have been concentrated in the Saint John timber trade. But the new generation of shipowners who emerged in the 1850s shifted into the U.K. and Europe to U.S. East Coast, Gulf and South American trades, where an increasingly large vessel was required in the second half of the century.[20]

If analysis is shifted to net investment (new registrations less vessels leaving registry), the cyclical peaks and troughs coincide with those for gross investment. New registrations were either newbuildings or transfers of vessels from other ports. In the 1840-89 period around 80% of registrations were newbuildings, and the bulk of the transfers were small vessels.[21] Almost half of the transfers came to Yarmouth in the 1840s, and many were Yarmouth owned vessels repatriated from Halifax. Transfers were probably related to cyclical swings in registrations of smaller vessels. When demand for them was high or

[20] This generalization is a tentative explanation based upon sight analysis of voyage patterns from the 1840s through the 1880s.

[21] Almost 80% were under 100 tons (compared with 55% of registrations) and 97% were under 250 tons.

when building sites were fully occupied with construction of larger vessels, the purchase of an older vessel was an alternative to new vessels and Halifax offered the largest market for used vessels.[22] Over the period 1842/44 — 1878/80 net investment grew at 5.3% per annum, compared with 4.4% for gross investment. This indicates an increasing stock of assets at the port and an increasing modernization of the asset stock structure.[23] Net investment as a percentage of gross was comparatively high in the 1840s when the port's fleet was being established, but comparatively low and variable in the troubled 1850s. Surprisingly, this was also true in the 1860s when gross investment was much higher, because of the heavy drain of disposals of obsolete vessels in the smaller classes. While gross investment in the new fleet of big vessels over 500 tons was high, this was weighted down by consumption of the older and smaller. This effect had passed through in the 1870s and the ratio rose close to 50% (with a small standard deviation) with the launching of the new generation of big vessels.

Table 6
Net Additions to Tonnage

		Under						Over
Period	Total	50	100	250	500	1000	1500	1500
1841-49	25,985	3803	7637	8112	4119	2314		
1850-59	21,375	150	-2371	-2082	9903	15775		
1860-69	44,845	-180	-173	-4498	6418	35862	7416	
1870-79	81,736	508	-669	-80	-17631	14869	73668	11051
1880-89	-60,348	-1092	-1378	552	-297	-43194	-22852	7913

Was this ratio of net to gross capital formation high or low? Comparisons within the shipping industry cannot yet be made, but in a modern economy capital consumption is commonly around 40% of gross domestic capital formation,[24] leaving 60% for net capital formation. Deane and Cole speculate that capital consumption ratios may have doubled over the last century, implying an economy-wide capital consumption rate of 25% in the second half of the

[22] Some 94% of transfers were from British North America, with Digby supplying 12%, Shelburne and New Brunswick 6% each, and 65% coming from other Nova Scotia ports, overwhelmingly Halifax. In every decade Halifax was the main supply centre. Only five vessels came from the U.K. and fourteen from the USA — all but two in the Civil War years.

[23] While it might be assumed this is a truism for Atlantic ports in this period, Eric Sager's work on St. John's indicates long periods when the stock was aging.

[24] Kuznets, *Modern Economic Growth*, Table 5:4, p. 244.

nineteenth century.[25] By these standards capital consumption was very high in the Yarmouth fleet and net investment correspondingly low. It is probable that this was a characteristic of a wooden sailing fleet, and it implies either that replacement costs must be low or operating revenues high if the industry is to be sustained. By the 1880s neither condition prevailed.

Table 7
Net Physical Capital Formation as
% of Gross Capital Formation

Period	$\bar{X}$	S
1844-79	43.4%	21.5
1844-49	53.8	14.0
1850-59	38.8	23.3
1860-69	36.4	28.5
1870-79	48.6	12.5

Note: Based on three year moving averages.

The disposal of Yarmouth's vessels can be grouped into four general categories: vessels struck off registry because they no longer existed, vessels condemned out of British registry, vessels sold to foreign registry or transferred to another British port, and vessels involved in marine disaster. Vessels disappearing from existence and condemnations each accounted for about 10% of closures, sales and transfers for about 37%, and marine disasters for around 44%.[26] Condemnations were twice as numerous in the 1840s as in later decades, for prior to 1849 there were many possible infractions of the Navigation Laws which would call for a vessel to be struck off registry. In the 1840s, when the registry was new, 'no longer exists' closures were only 3% of all closures, but they increased to around 10% in the next three decades and reached 15% in the 1880s as the fleet shrank and 'ghost ships' assumed a relatively greater weight on the registry.

About 163,000 tons were sold or transferred between 1840 and 1931, rising from 9,133 tons in the 1840s to a peak of 45,655 in the 1890s.[27] An average of 10 vessels a year (V = 54%) were disposed of through sales between

[25] Phyllis Deane and W.A. Cole, *British Economic Growth 1688 - 1959* (Cambridge, 1964), p. 265.

[26] Eliminated from this analysis are *de novo* closures, since they did not involve the loss of the vessel to the port's registry.

[27] Henceforth sales to foreigners and transfers within the Empire will be referred to simply as sales.

1840-1900, but there were periods when the market was comparatively active, such as 1845-57 (15.8 vessels per year, V = 42%), 1865-67 (13.3 vessels, V = 19%) and 1888-92 (12.6 vessels, V = 17%). The first two periods coincide with years when gross investment was depressed, and the last captures the disposal of the final generation of big vessels registered in the late 1870s and early 1880s. When sales are examined by decade there is no evidence of any remarkable movements until the 1880s. Between the 1840s and 1870s the aggregate tonnage sold increased fourfold, but as a percentage of new registrations it was stable at some 18 to 20%, apart from an indication of somewhat heavier sales activity in the 1850s when it was 26%. In the 1880s, as new registrations dwindled, sales jumped to 61% of new tonnage registered.

Over 1840-89 an average of 2.9% of tonnage on registry was sold in any one year (V = 68%). The destination can be established for 93% of the cases. Ignoring Maritime transfers, the U.K. and Europe absorbed close to 80% of all sales in every decade except the 1840s, when sales to the West Indies were relatively high. Ships sold to the U.K. often found their way to Europe within a short time, and direct sales to Europe rose steadily after the 1860s as Britain moved into steam tonnage. Dublin and Belfast were the major sales and transfer ports for Yarmouth ships in Europe. In the 1870s and 1880s North German and Scandinavian buyers predominated, but Spain, Italy and Greece assumed more importance in the 1890s. Newfoundland and St. Pierre from the 1860s absorbed a significant number of small vessels and an occasional brigantine, brig or barque found its way to South America, Quebec and Saint John. Typically, vessels sold within British North America, the West Indies and Saint Pierre were under 100 tons. Those moving to Europe and to other distant ports were much larger, with the average size rising from 120 tons in the 1840s to over 1000 tons in the 1890s. While there were years when sales of the fleet were relatively high, there was no period of three or more years of heavy sales between 1840 and 1889. In fact, on a decennial basis sales as a percentage of tonnage on registry fell substantially from the 1840s, when it was 4.5%, through the 1870s, when it was down to 2.3%. Even in the 1880s when new investment began to fall, sales were only 2.3% of tonnage on registry.[28] Yarmouth was not a port which built and registered ships with an eye to sales overseas.

Since the decline in registrations from the 1880s was not matched by an increase in sales relative to tonnage on registry, it is unlikely that owners in the 1880s were confronting a crisis in the economics of shipping or finance which compelled or induced them rapidly to sell off assets. Nonetheless, it is possible

[28] A possible qualification of this conclusion could arise from the fact that after 1854 it was permissable rather than obligatory to re-register a vessel at a new port when ownership passed elsewhere within the Empire. But since most of the big tonnage sold was destined for non-Empire ports, this administrative change would mainly affect smaller vessels. It is unlikely that there is any significant bias in the results.

that at various times, and most critically in the 1880s, they confronted heavy losses through shipping disasters which weakened the fleet and the owners' capacity and incentive to maintain investment in the old technology or to venture into the new. Between 1840 and 1889 an average of 3,700 tons of shipping was lost each year in marine disasters, but this average masks the growth of tonnage losses. As the port's fleet grew in number and size of vessels, losses in the 1880s aggregated ten times those of the 1840s. In terms of new tonnage registered there appears to have been an increasing toll of losses, rising from 16% in the 1840s to 40% in the 1860s, 32% in the 1870s and an enormous 128% in the 1880s. The high rate of the 1860s may somewhat exaggerate the real rate of loss because of the effects of registry cleansing in 1861 and 1866;[29] but since this mainly affected vessels under 100 tons the distortion should be relatively minor. The data for the 1870s are less open to question, and they support the hypothesis of a higher losses rate relative to new investment.

Table 8
Marine Disasters

Period	No. Vessels	Tons	% New Tonnage Registered	% Tonnage on Registry	
1840s	67	7,176	16%	4.3%	
1850s	56	10,697	21	2.9	4.1
1860s	209	44,498	40	5.2	
1870s	152	51,153	32	3.5	
1880s	112	71,036	128	4.7	
1890s	43	29,180	-	-	
	639	213,700			

Note: Columns 3 and 4 are decennial averages of annual rates.

The more sensitive index of the situation is the rate of losses relative to tonnage on registry. By this measure the evidence is less clear for any rising loss rate. The relatively high rate of the 1860s is probably inflated and, if some of these losses are distributed back into the 1850s (by averaging annual losses for the 1850s and 1860s), the loss rate is comparable to the 1840s. The 1870s rate is lower still at 3.5%, while the increased rate of the 1880s reflects the declining volume of tonnage on registry. A linear least squares regression fitted to the

[29] Filtered out of the file used here are those cases where the registry was closed because of a marine disaster at an unknown date. Still included, however, are cases where the situation is ambiguous, such as a notation "vessel wrecked, closed 14 November 1861". This could reflect either a real loss in that year or registry cleansing.

annual data for 1840-89 indicates a virtually static loss rate.[30] Apart from years when the registry was cleansed (notably 1861, 1866, 1886 and 1889), there is no evidence that in any year owners faced a rate of loss high enough to place strains on the financial basis of the industry and the ability or inclination to re-invest.[31] The evidence on sales and marine disasters, therefore, eliminates two hypotheses respecting the rapid decline of the industry. The sales situation does not indicate any deliberate effort on the part of owners to leave the industry by liquidating assets. Owners did not withdraw because they suddenly confronted an alarming loss rate.

The softwood vessels of British North America were attractive to shipowners because they were cheap to build, although this advantage was balanced by faster rates of depreciation than with either hardwood or iron hulls. On average, vessels registered at Yarmouth between 1840-89 lasted around 14 years, but the variance was enormous.[32] The average was heavily weighted by the large number of vessels under 50 tons with a reputed average life of 21.7 years.[33] For other classes the average was 9.3 years for those between 100-249 tons, 9.9 for those between 250-499 tons, between 11.2 and 12.0 years for vessels over 500 tons, and 12.6 years for the 50-99 ton schooners. If average life is examined in terms of the decade when the vessel left service, these relatively large differences are muted, although the tonnage class rankings remain much the same. But the difference in average life among tonnage classes is not as significant as the evidence of a rising average life for all vessels across the decades. Vessels that survived for a very long time shifted the average upward as the registry aged, but a check against this bias is to measure the average life by the date of registry rather than the registry closure. This approach again

[30] The equation is $Y = 4.4 - 0.005t$, indicating an average loss of 4.4% of tonnage on registry per year, declining at a rate of 0.005% per annum.

[31] The possibility that losses were related to tonnage class was explored in detail. The evidence indicates that vessels over 100 tons faced an additional 20% risk of disaster compared with those under 100 tons, and that vessels in the 50-99 ton class were more at risk than those under 50 tons. But for all classes there was a trend decline in the disaster rate, which set in earlier and faster for the smaller vessels. There is no evidence that operators of the large ocean fleet confronted a losses situation which differed from the general characteristics of the port as it developed over time.

[32] An attempt to explain this variance through multiple regression analysis using dummy variables was disappointing, with $R^2 = 0.24$. Average life was essentially stochastic, involving a large number of variables determining when a vessel left registry, each with an individually small effect. The analysis is reported in David Alexander, "The Port of Yarmouth, Nova Scotia 1840-1889" in Keith Matthews and Gerry Panting, eds., *Ships and Shipbuilding in the North Atlantic Region* (St. John's, forthcoming 1978).

[33] Despite efforts to eliminate doubtful cases, it is probable that the average life for these vessels is inflated by ghost ships, although it is certain that the smaller vessels had a substantially longer average life.

confirms the trend. For all vessels there was an 86% improvement in average life, from 7.2 years in the 1840s to 13.4 in the 1880s. The explanation for this rising average life might be attributed to better construction, more careful inspection and regular repair, or an improving quality of seamanship. But since marine disasters and sales accounted for such a large fraction of disposals, it is profitable first to examine trends in these two areas.

Vessels involved in marine disasters were, on average, 11.6 years old (V = 98%). With the exception of the 1850s (where the average was a high 14.9 years), there is evidence of a modest improvement in longevity, from a low of 9.7 years in the 1840s to a high of 14.0 years in the 1880s. But the decade of registration explains only a poor 3% of the variance in average age at disaster.[34] Nor was there any important difference when average age was examined by tonnage class,[35] except between vessels over and under 100 tons. The vessels under 50 tons were, on average, 17.9 years old when disaster struck, and those between 50-99 tons were 11.4 years, whereas all other classes ranged between 8.4 and 9.9 years. It is likely that this difference is partly explained by the relative accuracy of reporting. It is also likely that fishing vessels and coasters, while exposed to the higher risks of near-shore sailing, were able to minimize risks by hovering close to port. The modest improvement in average life over time through staving off disasters certainly does not explain the major improvement in average registry life for all vessels.

Table 9
Average Age by Decade of Closure

	0-49	50-99	100-249	250-499	500-999	1000-1499	over 1500
1840-1849	7.4	4.6	3.9	2.5*	-	-	-
1850-1859	10.2	6.4	5.3	5.4*	6.1*		
1860-1869	12.8	9.6	7.1	7.9	7.4		
1870-1879	15.1	14.0	7.9	9.6	8.1	4.2*	
1880-1889	13.4	14.4	8.8	15.7*	15.1	8.4	14.8
1890-1899	27.6	15.9	12.8*	15.5*	18.0	15.9	15.3

Note: Starred entries indicate a total of less than 20 cases making up the average. Average life is calculated as the difference between the reported year when the vessel left service and the date of build.

[34] With one-way analysis of variance, the F-statistic is significant at 0.0002 and $Eta^2 = 0.033$. For this and subsequent tests the analysis was also made in terms of the decade in which the event occurred rather than the decade of registration. The results are almost identical.

[35] The F-statistic is significant at 0.0001 but $Eta^3 = 0.086$.

The evidence for average age at sale is more interesting. For the 1840s to the 1880s the average vessel sold out of the port was 9.8 years (V = 86%), but this rose sharply from 6.2 years in the 1840s to 15.0 years in the 1870s, falling back to 12.0 years in the 1880s. While some 15% of the average age at sale is explained by the decade of registration,[36] as with vessels involved in marine disasters the tonnage class did not as strongly affect average age.[37] Vessels under 500 tons were on average under 10 years when they were sold, and those over 500 tons ranged by class between 13.1 and 15.6 years. Most of this reflects the period when various tonnage classes were prominent on the registry. When it is broken down by decade of registration, the differences disappear. The important finding is the sharply rising life of vessels sold out of the port. Vessels sold, and those involved in marine disasters were vessels nearing the end of their useful lives. Yarmouth was not a port which built vessels for rapid sale overseas. When ships were sold they were, on average, quite old for wooden ships. If they were not sold, the probability was that they would end their service in disaster within two years (at 11.6 years). If they escaped that fate, then on average they would be condemned and broken up within another three years (14.3 years). This average span of life increased over the years, mainly because vessels were older at the time of sale, and not because the perils of the sea were avoided by better construction, repair and seamanship. The average life of those registered in the 1880s had improved by 86% over those registered in the 1840s; and the average age of vessels *sold* out of the port and registered in the 1880s rose by 93% over those registered in the 1840s. Vessels sold were generally younger than those disposed of in other ways. Since sales were a declining share of disposals over time, declining sales rates and rising average age at the time of sale would appear to best explain rising average life at the port.[38]

Since capital in British vessels was divided into 64ths, assets could be widely held. But although one Yarmouth schooner had eighteen investors, the typical vessel had a sole owner and the average had 3.2 (V = 86%).[39] Vessels under 100 tons and those over 500 tended to have more owners than vessels

[36] The F-statistic is significant at 0.0001 but $Eta^2 = 0.153$.

[37] The F-statistic is significant at 0.0001 but $Eta^2 = 0.067$.

[38] Reluctance to sell rather than inability is the most likely explanation for this trend, since if vessels were internationally a poor investment (as reflected in difficulties in realizing on assets) one would not expect rising investment at Yarmouth to the end of the 1870s. Moreover, in the 1880s when investment fell off, so did the average age of vessels sold.

[39] It is important to note that we are dealing only with the original registered owners, and not with the enormous and complex problems of ownership changes during registry life. Although no systematic work has yet been done on the stability of vessel ownership at Yarmouth, it appears there was considerable stability, at least among major investors in the ocean fleet: they were not speculators but shipowners who registered vessels to operate them.

between those limits.[40] The average number of owners also increased from 2.4 in the 1840s to 4.2 in the 1870s due to the stream of widely held vessels over 500 tons which came on registry and the decline of the more closely held 100-499 tonners from the 1860s, and to a trend from the 1840s for vessels under 100 tons to be more widely held. This latter trend reflects the decision of the better capitalized merchants and shipowners to abandon this market to fishermen and mariners. While the larger shipowners had the resources in the 1840s and 1850s to closely hold their fleet of brigs and small barques, the movement in the 1860s and 1870s into relatively gigantic ships forced them to spread risks and the investment base.

The occupations of the investors in Yarmouth shipping have been grouped into six broad categories to reflect occupational groupings.[41] Owners with primary occupations were disproportionately represented in vessels under 100 tons and were rare investors in larger classes. The merchants and marine tradesmen spread their investments more evenly across the range of vessels, while shipowners were oriented more exclusively to those over 500 tons. Both professionals and the small number of investors from non-marine trades

Table 10
Investment by Occupation

			Tonnage Class		
Occupation	No.	%	0-99	100-499	Over
Primary	2464	50%	78%	16	5
Shipowner	1231	25	16%	17	66
Merchant	890	18	40%	38	23
Marine Trades	168	3	43%	31	26
Professional	133	2	59%	33	8
Other Trades	32	1	66%	18	16
	4918				

Note: 'Primary' includes mariners, fishermen and farmers; 'Marine Trades' includes shipbuilders, shipwrights, sailmakers; 'Other Trades' includes tanners, mechanics, blacksmiths, coopers, shoemakers, etc.; 'Professionals' includes physicians, lawyers, accountants, clerks, clergymen, etc. Because of multiple ownerships, the total number of individual owners is less than 4918.

[40] The F-statistic is significant at 0.0001 but a test of linearity shows the non-linear relationship to be twice as important as the linear, and the Eta^2 statistic (which measures both the linear and non-linear variance explained) is a poor 0.06.

[41] The aggregation is very rough for categories overlap (should a carpenter be assigned to 'marine trades' or to 'other trades') and because fashions changed ('shipowner' was rarely used in the 1840s).

concentrated their investments in smaller vessels. It is clear that the industry did not attract *rentier* investors,[42] at least in terms of direct investment to launch new tonnage, for 97% of the investments were made by individuals with occupations which indicate an economic orientation to the sea. Professionals and non-marine trades investors accounted for only 3% of new investments and were rarely partners with shipowners in launching vessels over 500 tons. Whatever the occupation, residents of the town of Yarmouth dominated the industry. With 61% of all investments in shipping, they accounted for 93% of investments in vessels over 250 tons, and 95% of those over 1000 tons.

About 2200 individuals were investors between 1840 and 1889.[43] Participation in the market was highest in the 1840s and fluctuated sharply thereafter. The drop in the 1850s was a function of a 36% decline in investors in small vessels with a modest 4% growth in numbers launching vessels over 100 tons.[44] The 1860s stand out as the decade when there was a large net inflow of investors in both the small and larger vessel markets, with a 25% expansion in each. In the 1870s, however, the former dropped by 40% and the latter expanded by only 3%. In the 1880s the net loss of investors in vessels over 100 tons was 60% compared with 32% for the smaller class. These were distinct markets attracting different groups of investors. No more than 10% of all investors were active in both in the 1840s and 1850s, 6% in the 1860s and 1870s, and 11% in the shrunken market of the 1880s. Moreover, 62% of the investors never invested in more than one vessel and the 38% who did accounted for 72% of all the investments. The most active 9% (some 200 individuals) were responsible for placing 40% of the investments. In the 1840s only 23% of investors had more than one investment, but this rose to 34% in the 1870s before declining to 27% in the 1880s. There was also a significant difference in activity levels between the small and large vessel markets. In the 1840s only 17% had more than one investment in the former compared with 25% in the latter. There was little change in subsequent decades in the small vessel market, but in the 1870s 49% of those in the market for vessels over 100 tons had more than one investment.

The level of investor concentration at the port, however, is more striking than this analysis suggests. Between 1840 and 1889 over 400,000 tons of shipping was placed on registry. If major investors are defined as those who placed at least 500

[42] By which we mean investors whose principal economic interests lay in other sectors of the economy but who had surplus savings to invest under the management and control of shipowners.

[43] It is impossible to be precise because with the large number of small owners it is unprofitable and perhaps impossible to determine if a John Smith who was an investor in the 1840s was the same or different John Smith who was investing in the 1850s.

[44] The decline in investors in small vessels might in part reflect, as noted earlier, the opening of the Digby registry in 1849. The increase in the number of investors in the 1860s, however, suggests that this is not the whole explanation.

Table 11
Investors and Investments 1840-1889

No. Investments	% All Investors	% All Investments
1	62%	28%
2	17	15
3	8	10
4	4	7
5-9	6	17
10-14	2	10
15-19	1	6
20-24		4
25-29		2
Over 30		1
No.	2,205	4,973

tons on the registry,[45] then there were about 110 such individuals. They accounted for 5% of the total number of investors and 66% of tonnage registered. While this in itself indicates a high level of capital concentration, within this group of major owners concentration was no less extreme. Over half of them held only between 550 and 1500 tons and 20% of tonnage held by the major shipowners; 90% of them held between 500-1000 tons and 65% of tonnage. Thus, 10% of the 110 major owners were responsible for a third of the tonnage and, while representing 0.5% of all investors at the port, they placed on registry some 23% of the port's tonnage.[46] In all, this elite consisted of a dozen men.

To isolate a dozen individuals for closer analysis is to ignore other leading

[45] The figure of 500 tons is somewhat arbitrary, but below that limit the number of small investors widens rapidly. Five hundred tons appears to be a threshold which eliminates fishermen, mariners and one-time investors.

[46] The total investment of any owners is calculated by:

$$GTO_i = \sum_{k=1}^{n} \left[S_{ik} (GT_k / 64) \right]$$

GTO_i = gross tonnage owned by owner i

S_{ik} = shares held by owner i in vessel k

$(GT_k/64)$ = gross tonnage of vessel k divided by the total issued shares

figures who registered many ships and considerable tonnage.[47] But while a number of men had more investments than the dozen chosen for special attention, they invested in smaller vessels, in widely held vessels, and in vessels registered before the explosion in tonnage size around mid-century, and hence their tonnage count was lower. Collectively, the elite dozen in ascending order of tonnage held were John Murphy, John Lovitt, William Law, John K. Ryerson, John W. Lovitt, Samuel Killam, Aaron Goudey, George H. Lovitt, Loran Ellis Baker, Abel C. Robbins, Thomas Killam Sr., and the leader, William D. Lovitt. These men were investors in 270 of the 1,648 new registrations and they did not invest randomly. Over half of their vessels were barques or ships. Whereas they held shares in 16% of registrations, they participated in only 4% of schooner registrations, compared with 26% of brigs, 38% of barques and 54% of ships. Vessels under 100 tons were 55% of port registrations, but only 14% of their portfolios were allocated to this class. Their holdings were more heavily represented in the 100-499 ton classes (32% compared with 26% for the port), but it was in vessels over 500 tons that their presence was massive. Vessels above this limit accounted for 19% of port investments but 53% of the holdings of the elite. Ninety percent of their holdings were newbuildings and they relied heavily on the Digby County building centres of Beaver River, Belliveau's Cove, Church Point, Clare and Salmon River, which were generally centres for building large vessels. Since their ships were large, they were far less likely to become ghost ships on the registry or to be condemned, but twice as likely to be sold to foreigners, 20% more likely to be transferred within the Empire, and 25% more prone to marine disaster.

The investment pattern among the twelve differed from that of the port in that a much smaller fraction of their vessels went on registry in the 1840s. Their lives spanned two generations.[48] They were born between 1802 and 1834 and died between 1868 and 1908. Four of them entered the industry in the 1840s, seven in the 1850s, and one in the 1860s. If the 1840s investments are ignored, the decadal distribution of investment is virtually identical for the twelve and the port. On an

[47] The criterion used to isolate the twelve is that each placed on registry at least 5000 tons. Eleven of them placed between 5000 and 9000 tons on registry, and William D. Lovitt over 17,000. Our estimates of tonnage investment are still tentative, and at least two other investors may be included in the group when analysis is completed. There are problems of indentification, such as separating Thomas Killam Sr. and Jr., both of whom were active in the 1860s. A somewhat different ranking might prevail when we attempt to establish, for any year or years, how much tonnage was *owned* by individuals. Nonetheless, the dozen initial investors selected here will remain as major figures.

[48] Family relationships and genealogical details were drawn from "Yarmouth Genealogies Written and Presented to the Public Library and Museum by Clement V. Doane". These are held by the Public Archives of Nova Scotia and the Yarmouth County Museum. Additional details were provided by "Yarmouth Genealogies" by George S. Brown held by the Yarmouth County Museum.

annual basis the correlation between annual registrations for the port and for the twelve is a moderately high +0.69 between 1850 and 1889, and, if small vessels are removed, +0.83. This implies that close to 70% of the variance in annual registrations at the port is explained by their presence in the market. A more rigorous test, however, is the impact of annual *changes* in their investment on annual *changes* in investment at the port. Here the correlation falls to +0.52, indicating that close to 30% of the variance is explained by their presence. This is still impressive since they represented only 0.5% of all investors. If the calculations were shifted onto a tonnage basis rather than number of vessels registered, their domination of activity would be overwhelming.

Besides being a shipping elite the twelve were also a social elite. Nine of them, including Baker, the Killams, the Lovitts, Goudey and Ryerson traced their origins to the migrations from Massachusetts to Nova Scotia between the 1760s and the 1780s. The origins of the Murphy family outside Yarmouth County are not known, but during the nineteenth century they hailed from Pubnico in Argyle Township. The noteworthy outsider was William Law, an Ulsterman. Yet even he had relatives among the Burrells of Yarmouth. Half of the shipping elite bore the names of two families, who held almost two-thirds of the tonnage owned by the twelve. Four were Lovitts — John W., his son John and his nephews George H. and William D. — and two were Killams — the brothers Samuel and Thomas, who were uncles of John K. Ryerson. The remaining five elitists appear to have been unrelated, either to the Killams, Lovitts or to one another. There seems to have been a very close correlation between blood lines and shipping purchases among the twelve. Eight of them held 74% to 100% of their tonnage themselves or with close relatives. George H. and William D. Lovitt, for example, were in partnership only with close relatives. S. Killam held 86%, T. Killam 76% and Loran Baker 77% of vessels with which they were concerned. J.W. Lovitt and J.K. Ryerson owned 53% and 52% of their vessels and relatives owned 31% and 29% respectively. About 36% of his vessels was held by John Lovitt and 38% by relatives. Another three of the twelve, in partnership with close relatives, owned between 51% and 66% of their vessels. A.C. Robbins and A. Goudey held 49% and 61%, to their relatives' holdings of 5% and 2%. The division between John Murphy and his relatives was 54% and 12%. Of the twelve, only William Law owned less than half (24%) of his vessels, and his relatives less than 1%.

There were two connected methods of amassing capital for ship buying. The Lovitts illustrate clearly the importance of family ties, for their approach was to hold ships among relatives. During the 1840s John W. Lovitt bought ships along with his father and two brothers. One of the latter was Andrew Lovitt, who launched the careers of his own sons, G.H. and W.D. Lovitt, during the 1850s. Andrew remained their partner into the following decades, but after 1863 the sons went their own ways, without shipping partners, down to 1886 when their ship buying ceased. Similarly, during the 1850s, J.W. Lovitt was in partnership with his son John, and then during the 1860s with his son James J. Lovitt. Father and sons continued in

partnership down to 1873. After the death of their father in 1874, John and J.W. Lovitt were partners until they stopped buying ships in 1885. A cousin and brother-in-law, William H. Jenkins and Benjamin Murphy, and two sons-in-law, Joseph Burrell and Jacob Bingay, strengthened the family alliance. Jenkins, a major owner in his own right, bought with J.W. Lovitt in the 1840s and then with Andrew and G.H. during the 1850s. Murphy took up operations with J.W. in the 1850s, Burrell with J.W. in 1862, and Bingay with J.W. and his sons during the 1870s and 1880s.

The family solidarity of the Killams did not match the Lovitts. The Killam approach to ship buying was to operate as individuals, but partnerships were formed to provide a coalition of relatives. Samuel and Thomas Killam did not enter into shipping partnerships nor did they have common partners. Samuel had links to the Lovitts, through his secondary partners, Joseph B. Lovitt (1847), Benjamin Murphy (1859) and Lyman Cann (1855). Only Samuel's last shipping partner, in 1860, was a Killam, his nephew John. Thomas had thirty-one partners, only five of whom were relatives. But in the Lovitt pattern Thomas launched the career of his nephew John K. Ryerson during the 1850s, and between 1849 and 1862 he entered a ship chandling partnership with his son George and a brother-in-law William K. Dudman, which was also an instrument for acquiring ships during the 1850s. John K. Ryerson exemplified a different mode of ship buying. During the 1850s, besides Andrew Lovitt, his partners were his uncle Thomas, his brother Samuel M. Ryerson and his uncle's business partners, George Killam and W.K. Dudman. Another partner, briefly, was his father-in-law Joseph Shaw. Then, in 1860, Ryerson, Moses and Company was formed of Nathan Moses, brother-in-law of J.K. Ryerson and former partner of Thomas Killam, and three Killam nephews — the Ryerson brothers and Benjamin Killam Jr. Down to 1872, this co-partnership bought vessels through various combinations of partners, more consistently than had Thomas Killam and Company. After the death of Thomas in 1868, his three sons — Thomas Jr., Frank and John M. — formed Killam Brothers in 1869.

In the case of Baker, Goudey, Law and Murphy, partnerships were formed outside the immediate family. The last shipping partnership of John K. Ryerson was in 1874 with Loran E. Baker. Baker began his buying career in 1854, as a partner of A.C. Robbins, probably a former employer but certainly not a relative.[49] He had no relatives among his eighteen shipping partners but his most important colleague was John Young, a major shipowner and the other half of the firm of Young and Baker (1855 - 1864).[50] Aaron Goudey was a more complex figure. He had forty-six

[49] Baker was an employee of W.H. Townsend, who was in partnership with Robbins from 1840 to 1847, about the right period for Baker to have been a clerk for the firm. See *The Canadian Biographical Dictionary and Portrait Gallery of Eminent Self-Made Men*, Volume: Quebec and the Maritime Provinces (Toronto, 1881), p. 409.

[50] Information concerning business partnerships was drawn from the lists in Lawson, *Past and Present*, pp. 485-508.

partners but did not rely upon relatives to help buy ships. During the 1840s he began as a ship buyer with Thomas Killam, but his principal partners in the 1850s were Robert Brown and Nathan Utley. Following the Killam pattern, Aaron Goudey and Company was formed in 1867, with William Killam and Robert Ellenwood. The latter was Goudey's shipping partner between 1869 and 1873. Goudey's brother Thomas was a shipping partner before and after this period, but his nephew Zebina was Aaron's partner only once, in 1871. Both the Killam and Lovitt modes of operation were used by William Law, John Murphy and A.C. Robbins. Each had a large number of partners, seventy-eight, fifty-eight and thirty-three respectively, some of them in common. Both Law and Murphy used the Killam approach of general partnerships. Murphy and Churchill was formed (1854-1856) at Tusket with Nathaniel Churchill. Nathaniel and his son Nathaniel Jr. served as Murphy's shipping partners during the 1850s. William Law and Company, established in 1872, brought in George H. Guest as Law's shipping partner after 1877. Murphy and Law bought ships together in 1872 and 1874. John Murphy and A.C. Robbins also adopted the Lovitt mode of operation. During the 1870s Murphy had both his son Charles W. and his brother Cornelius as shipping partners. Among the partners of Robbins were fourteen Raymonds, presumably the kinsmen of his mother Hannah Raymond of Beaver River.

Apart from ship buying, the elite were heavily involved in other ventures in the community, the most popular being insurance. Only Samuel Killam was not involved as director of an insurance company. They held 46% of directorships in local banks (1865 - 1886), 40% in textile firms, 21% in insurance (1858 - 1886) and similar shares in utility companies (1863 - 1886) and railway directorships (1870 - 1885). The elite supplied 33% of the building fund for the Yarmouth Seminary and occupied 28% of the places on the governing body, as well as supplying 18% of the directors for the town cemetery. But in steamship companies and shipping related enterprises their involvement was minor.

The most active member of the elite was Loran Baker. He served as a school committeeman for the Yarmouth Seminary, was a director, and then the President, of the Bank of Yarmouth and the Western Counties Railway. He was Vice-President of the Yarmouth Agricultural Society, and a director of the Marine Insurance Association, the gas company and the cemetery company. By the 1880s his additional presidencies included the Yarmouth Woollen Mills and the cemetery company, and his directorships were in insurance, mining, steam shipping and the water company. In the Lovitt clan the most active member was John W., who in the 1850s entered a partnership, Lovitt and Burrell, and then became a director of the Steam Navigation Company. In the 1860s he was President of the Bank of Yarmouth, governor and trustee of the Seminary, a director of two insurance firms, the gas company and the cemetery company. After his son and his nephews had become shipowners, they turned to banking and insurance as directors during the 1870s, while John W. shed his activities, except for the gas company and Commercial Insurance. During the 1880s John and W.D. Lovitt were on the boards

of Pacific Insurance and the water company. John Lovitt was also a director of the Bank of Yarmouth. W.D. Lovitt sat as a director of the Western Counties Railway, the Exchange Bank and two textile firms, and was President of the Duck and Yarn Company. The Killams' activities were more disparate than those of the Lovitts. During the 1840s and 1850s Thomas Killam was a director of the Marine Insurance Association. Samuel and Thomas were directors in the 1850s of the Steam Navigation Company. During the next decade Thomas Killam went into banking and insurance and the two Killams helped to launch the shipping registry and Yarmouth Seminary. Samuel Killam presided over the gas company until the 1870s, and was also a provisional director of the proposed Western Bank. The 1880s saw him maintain his gas company presidency while taking on the Vice Presidency of the Yarmouth Duck and Yarn Company.

While the 1860s and 1870s were decades of heavy investment in shipping, it is clear that other investment opportunities were being vigorously pursued by the elite. Whether this compromised their position in the shipping industry, or at least deflected their attention from it, cannot yet be determined with any certainty. But the probate records of the elite indicate that by the time of their deaths shipping assets constituted only a small fraction of their personal worth.[51] The first to die was Thomas Killam in 1868. About one-third of his estate was in shipping, while 4% was in local stocks. In 1874 John W. Lovitt left shipping valued at 18% of his estate, and stock in local companies at 18%. In 1887 only 0.3% of Samuel Killam's estate was made up of shipping whereas 24% was in the stock of local companies and bonds. J.K. Ryerson died in 1890 with almost no assets. The net worth of W.D. Lovitt at his death in 1894 included 11% in shipping, 31% in stocks and bonds and 18% in bank deposits. John Murphy died in the next year and left 9% of his estate in shipping and 36% in stocks, almost all of which were in enterprises outside Yarmouth. In 1899 Loran Baker's estate had shipping valued at 31% of the whole, with another 10% in the shares of local companies. G.H. Lovitt left no shipping in 1900. Some 88% of his wealth was in bank deposits and 30% was in banks outside of Yarmouth. A.C. Robbins in 1901 had 46% of his wealth in local shares, and no shipping. The interest of William Law in William Law and Company virtually constituted his estate (94%) at his death in 1901. By the time of John Lovitt's death in 1908, he had no shipping interests and 29% of his estate consisted of stocks and bonds outside Yarmouth. The portfolios suggest, apart from Baker, a successive shift from shipping to rentier investment.

The objective of this paper has been to describe some of the characteristics of a nineteenth-century port, not to explain why the ocean going shipping industry, or certainly the shipbuilding industry around Yarmouth, withered and died towards the end of the century. While hypotheses on these questions can

[51] The Wills and Warrants of Appraisement for all the elite except Aaron Goudy are held by the County Office of Probate, Yarmouth, Nova Scotia.

only be tested when analysis is deepened and widened into areas not considered here, it is clear that the growth of Yarmouth from the 1830s reflected the strong competitive position of the region in terms of vessel supply in the context of a rapidly expanding world trade. In the 1830s and 1840s Yarmouth's businessmen lived in a relatively simple local economic environment. Alternative investment opportunities in the town and county were scarce, and financial institutions and instruments were weakly developed to deflect savings into more distant investment possibilities. It therefore made sense to develop an expertise in shipping, especially when across the Bay of Fundy was the large timber export port of Saint John. On that basis the movement into large bulk carriers began, and success with this venture led from the 1850s into a wider participation in the world shipping trades.

Yarmouth's international shipping industry was dominated and controlled by a handful of individuals. The vast bulk of the town and surrounding population had no investments in the industry, or confined them to small fishing and coastal vessels. It is tempting to conclude that this oligarchic domination represented a fragility in the industry in terms of long term stability and development. The evidence points to the absence of a vigorous and independent middle group of shipowners, and entry into the industry was difficult for anyone not connected with the elite, especially as capital requirements grew and the need for a new technological base and expertise became obvious.

The existence of a small shipping oligarchy was not unusual for it was also characteristic of northern Europe, and that region made a successful transition from a wooden sailing fleet through iron hulls to steam tonnage. But from the mid-1870s to the mid-1890s world trade growth decelerated. With rising capital requirements the shipping industry was concentrating into larger firms operating in shipping conferences to limit competition. By the 1880s the technology and business organization of the Yarmouth industry was rather old fashioned with its wooden sailing fleet and its sole owners and small partnerships. The Scandinavians and Greeks were to show it was not impossible for small countries, and small communities within those countries, to maintain a prominent place in world shipping. Yarmouth's elite chose not to follow this path. The northern Europeans built their industry around the same natural resource base as Yarmouth's shipowners, but in the crucial decades of the late nineteenth century they were closer to the centre of steam shipping technology, closer to the market for used steamers, and closer to the dense European coastal trades in which to accumulate experience and assets before moving into the ocean steam trades. At Yarmouth the transition would have had to be more abrupt, for there was nothing at home to compare with the European coastal traffic in which to develop these new skills. The Yarmouth elite did not abandon the industry in panic. They continued to operate their vessels into the 1890s in the shrinking trades available to sail, and until their ships were old. What they did not do was to re-invest.

All but one of the elite entered the shipping industry in the 1840s and 1850s. Thomas Killam was dead by 1868. Apart from W.D. Lovitt and William Law, none was young by the 1880s. Nevertheless, seven of the twelve had sons, who by the 1860s and 1870s were of an age to be potential successors. In the 1870s and 1880s, however, the elite began to diversify their investments into non-marine areas, perhaps in response to the shift in economic orientation associated with the creation of the new Dominion. Those who went to their graves with sizeable estates left portfolios containing a large fraction of rentier investments in local and more distant activities. Whatever the implications for the future of the town they had done so much to build, these were hard driving and capable men, and they did not translate themselves and their families from Atlantic shipowners to local gentry in a fit of absent mindedness. But in making the transition, they were participants in the loss of dynamism and encroaching stagnation that gathered over the Atlantic region.