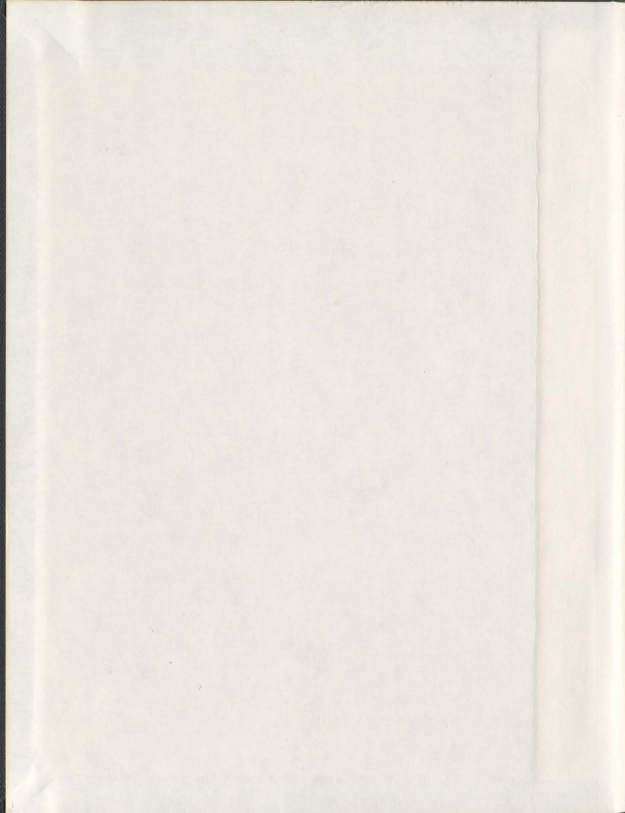


BURRELL & SON OF GLASGOW:
A TRAMP SHIPPING FIRM, 1861-1930

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Burrell & Son of Glasgow: A Tramp Shipping Firm,

1861-1930

by

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Για τη μαμά και το μπαμπά, τη Λιλό και την Καίτη

ABSTRACT

A tramp ship is a vessel with no regular ports of call or sailing schedule. Tramp ships normally carry low-value, bulk cargoes, such as coal, timber, grain and other raw materials and are usually sent wherever necessary to secure freight and to minimize voyages in ballast.

Burrell & Son of Glasgow was one of the most important British tramp shipping firms of the late nineteenth and early twentieth century. George Burrell entered the shipping business as a shipping and forwarding agent in the 1850s, but his successors took advantage of opportunities in the 1860s to expand into shipowning, mostly through the purchase of steamers. Over the next sixty-odd years, they engaged in many typical tramp trades and cross-trading. During the Boer War in the late 1890s, Burrell & Son exited the shipping business. A few years later, it embarked on an ambitious shipbuilding program only to sell its steamships once more, at a considerable profit, during the First World War.

The thesis uses quantitative and qualitative methods to analyse British tramp shipping along three broad themes: the acquisition of vessels by a tramp firm; the deployment of these ships and the cargoes they carried; and finally, the crew members who manned them. Crew agreements and bills of entry allow us to examine some of the business strategies and investment patterns of Burrell & Son and shed some light on the world of tramp shipping.

Burrell & Son was a fairly typical British tramp shipowner. The company, for the most part, avoided exposure to risky endeavours and opted for reliability

and economy, especially in terms of technological developments. It maintained a relatively young fleet, without establishing an exclusive relationship with any particular shipyard. It remained mindful of the need for economy, reducing costs wherever possible (especially through the reduction of the man/ton ratio and the employment of Asian crew members). Its scope of operations was global and its trade was in low-value, bulk tramp cargoes, but it also participated in less typical enterprises, like the first successful carriage of frozen meat from Australia to the United Kingdom.

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Table of Contents

ABSTRACT	ii
ACKNOWLEDGMENTS	iv
Table of Contents	vi
List of Tables	vii
List of Figures	x
Chapter 1: The Burrells and the Clyde	1
1.1 Sources	19
1.2 Methodology.....	28
1.3 Outline	42
Chapter 2: The Literature	49
Chapter 3: The Physical Capital	78
3.1 Patterns of Investment.....	81
3.2 The Age of the Fleet	86
3.3 Technological Improvements.....	100
3.4 Relationships with Shipyards.....	106
Chapter 4: On Ports and Cargoes	134
4.1 Ports of Departure and Final Destinations	136
4.2 The Limits of Technology.....	143
4.3 Intermediate Ports of Call: The Early Years	156
4.4 Intermediate Ports of Call: The Heyday.....	187
Chapter 5: A Gathering of Strangers	223
5.1 Crew Numbers	228
5.2 Who was Employed by Burrell?	235
Chapter 6: Crew Economics	282
6.1 A Question of Loyalty.....	284
6.2 A "Jail" Breached	297
6.3 Money Matters	316
Chapter 7: The Fringes of the Sea	336
Bibliography	359

List of Tables

Table 1.1	Burrell & Son Vessels Reported in the London Bills of Entry (by voyage origin), 1862-1929	40
Table 3.1	Burrell & Son's Fleet Size, 1862-1930 (Gross Tonnage)	83
Table 3.2	Burrell & Son Annual Number of Vessels, 1862-1930	84
Table 3.3	Burrell & Son Average Vessel Age (selected years)	88
Table 3.4	Burrell & Son Average Vessel Age at Time of Sale	90
Table 3.5	Burrell & Son Vessel Losses, 1862-1898	95
Table 3.6	Burrell & Son Second-Hand Tonnage, 1862-1900	96
Table 3.7	Burrell & Son Technological Changes	102
Table 3.8	Tonnage Classes of Burrell & Son Vessels	108
Table 3.9	Regional Distribution of Shipbuilding Purchases, Burrell & Son, 1862-1930	111
Table 3.10	Russell & Co. and Burrell & Son Financing	119
Table 3.11	Tyne Iron Shipbuilding Co. (Ltd.) and Burrell & Son Financial Transactions	121
Table 3.12	Grangemouth and Greenock Dockyard Co and Burrell & Son Financial Transactions	124
Table 3.13	Twentieth Century Shipyards and Burrell & Son Financial Transactions	125
Table 3.14	Burrell & Son Fleet Average Delivery Time	127
Table 3.15	Burrell & Son Shipbuilding Costs, 1862-1930 (selected examples)	129
Table 3.16	Relative Building Costs, Russell & Co. and R. Duncan & Co. (Percent of Total Cost)	131
Table 4.1	Mean Port Time in Days, 1865-1911 (selected regions, steamers only)	146

Table 4.2	Trade Routes on which Sail and Steam became Competitive for Bulk Cargoes, 1855-1895	150
Table 4.3	Top 7 Ports Served by Burrell Vessels, 1865-1870 (Tons)	157
Table 4.4	Top 25 Ports Served by Burrell Vessels, 1871-1880 (Tons)	158
Table 4.5	Customs Bill of Entry for <i>Grange</i> , from Málaga, February 1872	160
Table 4.6	Customs Bill of Entry for <i>Strathleven</i> , from Bombay, December 1876	168
Table 4.7	Customs Bill of Entry for <i>Strathleven</i> , from Sydney & Melbourne, February 1880	177
Table 4.8	Top 25 Ports Served by Burrell Vessels, 1881-1890 (Tons)	180
Table 4.9	Top 25 Ports Served by Burrell Vessels, 1891-1900 (Tons)	188
Table 4.10	Top 25 Ports Served by Burrell Vessels, 1906-1929 (Tons)	200
Table 4.11	Isserlis Index for Ore from Mediterranean Ore Ports to the United States, 1885-1896 (1869=100)	207
Table 4.12	Voyage of the Steamship <i>Strathleven</i> , 1889-1890	213
Table 4.13	Voyage of the Steamship <i>Strathlay</i> , 1909-1911	214
Table 5.1	Age Composition of Burrell Crew	242
Table 5.2	Regions Providing Burrell & Son Masters	249
Table 5.3	Officers' Region of Birth	250
Table 5.4	Engineers' Region of Birth	251
Table 5.5	Region of Birth for Petty Officers, Engine Room and Catering Departments and Seamen	255
Table 5.6	Stewards on Burrell & Son Steamships, 1890-1911	257
Table 5.7	British and Foreign Crew Members, Burrell & Son, 1891-1911	260
Table 5.8	Asian Crew Members Place of Origin, 1891-1921	268
Table 5.9	Foreign and Asian Seamen on Burrell & Son, 1891-1911	270
Table 5.10	Burrell & Son Crew Literacy (percent)	274

Table 5.11	Literacy Levels among Burrell & Son's Seamen and Engine Room Personnel, 1890s	275
Table 5.12	Burrell & Son Crew Age and Literacy (excluding Officers and Engineers)	277
Table 5.13	Burrell & Son Crew Literacy by Joining Port, 1862-1929	279
Table 6.1	Mercantile Marine Office Returns for Glasgow	295
Table 6.2	Burrell & Son Desertion	299
Table 6.3	Popular Desertion Ports, 1862-1870 (N = 29)	300
Table 6.4	Popular Desertion Ports, 1871-1880 (N = 143)	301
Table 6.5	Popular Desertion Ports, 1881-1890 (N = 207)	303
Table 6.6	Popular Desertion Ports, 1891-1900 (N = 642)	304
Table 6.7	Popular Desertion Ports, 1900-1929 (N = 247)	305
Table 6.8	Desertion Rates in Major Ports of Desertion, Burrell & Son, 1880-1929	306
Table 6.9	Desertion by Age	309
Table 6.10	Desertion by Capacity	311
Table 6.11	Desertion Rates by Place of Birth for Selected Nationalities	313
Table 6.12	Desertion Rates in New Overseas Territories of Settlement by Place of Birth for Selected Nationalities	314
Table 6.13	Burrell & Son Crew Wages, 1862-1915	317
Table 6.14	Burrell & Son, Mean AB Wages, 1862-1915, by Port of Engagement	322
Table 6.15	Burrell & Son Trimmers and Firemen/Trimmers Wages, 1862-1915	331
Table 7.1	Burrell & Son's Vessel Sales during the Second Boer War	344
Table 7.2	Burrell & Son's Vessel Sales during the First World War	349

List of Figures

Figure 3.1	Burrell & Son Fleet Development (Acquisitions and Losses) 1862-1930	91
Figure 3.2	Burrell & Son Vessels Sold & Lost, 1862-1930	93
Figure 4.1	Burrell & Son Visits to the Caribbean and Southern United States, 1885-1895	183
Figure 5.1	Burrell & Son: Number of Crew over Time	229
Figure 5.2	Men per 100 Tons of Shipping in the Fleet of Burrell & Son	230
Figure 5.3	Mean of Age of Crew, Burrell & Son	233
Figure 5.4	Man/100 Tons Ratio Based on Distance Travelled	235
Figure 5.5a	Mean Ages of Masters	236
Figure 5.5b	Mean Ages of Mates	237
Figure 5.5c	Mean Ages of Petty Officers	237
Figure 5.5d	Mean Ages of Seamen	237
Figure 5.5e	Mean Ages of Engineers	238
Figure 5.5f	Mean Ages of Engine Room Department	238
Figure 5.5g	Mean Ages of Catering Department	238
Figure 5.6	Man/100 Tons Ratio, Burrell & Son (Select Departments)	253
Figure 5.7	Burrell & Son Crew Members Literacy Rate by Region	276
Figure 6.1	Master Retention Rates, Burrell and Son	286
Figure 6.2	Officer Retention Rates, Burrell and Son	287
Figure 6.3	Non-Officers Retention Rates, Burrell and Son	292

Chapter 1

Introduction: The Burrells and the Clyde

According to the most widely accepted definition, which actually is more of a description than an analytic tool, a tramp ship is a vessel with no regular ports of call or sailing schedule. Tramp ships normally carry low-value, bulk cargoes, such as coal, timber, grain and other raw materials. Their owners are willing to send them wherever necessary to secure freight and to minimize voyages in ballast (since voyages in ballast generate little or no revenue, shipowners have always tried to avoid them when possible). This is probably as close we can get to a definition that would be applicable to all time periods and to all sizes and types of vessel.

Tramp shipping was especially important in the nineteenth and the early twentieth century. Yet as a distinct sub-category of maritime historical analysis, tramp shipping has not been served well. The specialist literature on tramp ships, their owners and their crews is practically non-existent. In short, the subject has attracted very little serious attention from maritime historians. The explanation for this cannot be that questions about tramps are insignificant or trivial. On the contrary, tramp shipping, especially in the century after 1850, has been arguably the single most important type of marine transport and hence ought to be of prime interest to maritime historians. Moreover, since tramps have long been the primary long-distance carriers of bulk goods, their operations ought to be of concern to all historians concerned with the creation and growth of the international economy.

Even though many, if not most sailing vessels operated as tramps, it was the arrival of steam that ushered in what we might call the “golden age of tramping,” in the process forcing those in the shipping industry (and later on, historians) to draw a relatively distinct line between tramps and liners. The latter have attracted significant attention, both in academic circles and among the public, associated as they are with the luxurious steamships transporting people and high-value, low-bulk goods between continents. In terms of numbers, though, it is the tramp that became the workhorse of the British merchant marine (and most others as well), providing the carrying capacity that facilitated a great part of the expansion of trade in the second half of the nineteenth century. In 1914, there were 7000 tramps out of a total of 12,862 steamships registered in the United Kingdom, comprising sixty percent of the country’s tonnage and two-thirds of its ocean-going steamers. The role of tramps was even more significant in the cross-trades (the transportation of goods between foreign countries), where they carried about seventy-five percent of that commerce by value.¹

This is a thesis about tramp shipping. But it is not a study of an international, or even a national tramp fleet. Instead, it is an examination of the tramp fleet operated by a single firm, Burrell and Son, which grew from inauspicious beginnings in the mid-nineteenth century into one of the larger British owners of tramp shipping by the 1890s. Burrell & Son was based not in London, the centre of the British shipping world, or even Liverpool, the “gateway to the North Atlantic.” Instead it was located in Glasgow, Scotland, on the River Clyde. Glasgow was a city that had grown to prominence based in large measure on its links with the British colonies in America in the early eighteenth

¹ Ronald Hope, *A New History of British Shipping* (London: John Murray, 1990), 332.

century. This of course required investments in shipping. In the later part of the eighteenth and the early part of the nineteenth century, Glasgow also became one of Britain's most important industrial centres and one of its largest industries soon became shipbuilding. In short, Glasgow had a long maritime heritage.

A shorthand way of understanding these shifts in Glasgow is through the work of a man named Thomas Campbell. He was the son of a Glasgow tobacco trader, but is remembered today chiefly for his sentimental poetry, a medium he used to explore human affairs. Born in 1777, while the American War of Independence that would ruin the family business in Virginia was raging, he was also a witness to the dramatic changes wrought on Great Britain as a result of the Napoleonic wars and the Industrial Revolution. In his poem "Lines on Revisiting a Scottish River," published in 1828, the Scottish poet lamented the arrival of the heavy industries that he believed were ruining the natural beauty of the Clyde: "...that though no more through pastoral scenes should glide, my Wallace's own stream, and once romantic Clyde..."² While such sentiments might have been prevalent among the more romantic residents of Glasgow and the surrounding areas along the Clyde, it is highly unlikely that this was the paramount feeling among the businessmen and merchants who reaped the profits of the Industrial Revolution. To them, the arrival of heavy industries and the concomitant growth of trade were portents of good fortune, the foundations upon which the prosperity of their businesses and the city depended.

²The poem can be found in Brian D. Osborne and Ronald Armstrong (eds.), *Mungo's City: A Glasgow Anthology* (Edinburgh: Birlinn Publishers, 1999), 161-162.

The repeal of the Navigation Acts in 1849, a reflection of the strong support for free trade, marked a turning point in the history of the British merchant marine.³ Despite opposition from many shipowners, the abolition of restrictive regulations ushered in a period of extraordinary growth in the shipping industries of the United Kingdom. The total foreign trade of the UK, worth £260,000,000 in 1855, expanded to approximately £1,232,000,000 by 1912. Tonnage entering and clearing ports in Britain over the same period increased from 18.5 to 139 million tons per annum.⁴ Most of this trade was carried in British-registered vessels; seventy-nine percent of entrances and clearances to and from British ports in 1870 were in British vessels, and this figure still stood at 77.5 percent in 1890.⁵ During the same period, the British merchant marine comprised between fifty-four and sixty-three percent of world tonnage.⁶ Moreover, the UK was among the leaders in making the transition from sail to steam propulsion.⁷

³For the repeal of the Navigation Acts, see Sarah Palmer, *Politics, Shipping and the Repeal of the Navigation Laws* (Manchester: Manchester University Press, 1990), and the detailed discussion of her book in "Notes on Sarah Palmer, *Politics, Shipping and the Repeal of the Navigation Laws*, with a Response by Sarah Palmer," *International Journal of Maritime History*, 4, 1 (1992), 227-255. For a convenient summary of the subsequent development of the British merchant marine, see Palmer, "The British Shipping Industry, 1850-1914," in Lewis R. Fischer and Gerald E. Panting (eds.), *Change and Adaptation in Maritime History: The North Atlantic Fleets in the Nineteenth Century* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1985), 87-114.

⁴For an overview of clearances by port, see David J. Starkey, with Richard Gorski, Tony Pawlyn and Sue Milward (eds.), *Shipping Movements in the Ports of the United Kingdom, 1871-1913: A Statistical Profile* (Exeter: Exeter University Press, 1999).

⁵Adam W. Kirkaldy, *British Shipping: Its History, Organization and Importance* (London: Kegan Paul, Trench, Trubner and Co., 1914; reprint, Newton Abbot: David and Charles, 1970), 337-338.

⁶Hope, *A New History of British Shipping*, *ibid.*, 307.

⁷Although the British fleet consistently led the world in total steam tonnage, it trailed several other countries throughout the late nineteenth century in the proportion of tonnage propelled by steam. For a discussion of the transition in international perspective, see Lewis R. Fischer and Helge W. Nordvik, "Maritime Transport and the Integration of the North Atlantic Economy, 1850-1914," in Wolfram Fischer, R. Marvin McNinn and Jürgen Schneider (eds.), *The Emergence of a World Economy 1500-1914* (Wiesbaden: F. Steiner, 1986), 519-544. On the early history of steam in the British fleet, see John

The British shipping industry received ample support from the government in the decades following the repeal of the Navigation Laws. Between 1855 and 1862, acts limiting the liability of investors encouraged new investments in shipping enterprises.⁸ In addition, the government provided subsidies to encourage ship ownership, especially in the liner sector.⁹ Rising demand for steam-powered tonnage supported a vigorous shipbuilding industry around the British Isles that provided shipowners with new and increasingly efficient tonnage at competitive prices.¹⁰ Prevailing conditions in the global economy also offered ample rewards for the adventurous shipowner. Markets in the colonies of white settlement, such as Canada, Australia and South Africa, as well as in the Indian Ocean and Latin America, provided buyers for expensive, high value-added goods manufactured in Great Britain, and producers of primary commodities found a strong

Armstrong and David M. Williams, "Technological Advance and Innovation: The Diffusion of the Early Steamship in the United Kingdom, 1812-34," *Mariner's Mirror*, 96, 1 (2010), 42-61; and Armstrong and Williams, "The Steamship as an Agent of Modernisation, 1812-1840," *International Journal of Maritime History*, 19, 1 (2007), 145-160.

⁸See Robin Craig, "Capital Formation in Shipping," in J. Higgins and Sidney Pollard (eds.), *Aspects of Capital Investment in Great Britain, 1750-1850: A Preliminary Survey* (London: Methuen, 1971), 131-148, reprinted in Craig, *British Tramp Shipping, 1750-1914* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 24, 2003), 41-58; and Charles H. Feinstein, "Transport and Communications," in Feinstein and Sidney Pollard (eds.), *Studies in Capital Formation in the United Kingdom, 1750-1920* (Oxford: Clarendon Press, 1988), 334-353. For a detailed discussion of investment in a particular port, see David Clarke, "Liverpool Shipowners: 1820-1914" (Unpublished PhD thesis, Memorial University of Newfoundland, 2005).

⁹On the provision of subsidies, see, for example, Freda Harcourt, "British Oceanic Mail Contracts in the Age of Steam, 1838-1914," *Journal of Transport History*, Third series, 9, 1 (1988), 1-18; J. Forbes Munro, "Shipping Subsidies and Railway Guarantees: William Mackinnon, Eastern Africa and the Indian Ocean, 1860-93," *Journal of African History*, 28, 2 (1987), 209-230; and Chih-lung Lin, "British Liner Shipping and Government Subsidies since the 19th Century," *New History*, 17, 2 (2006), 219-236.

¹⁰See the essays in Simon Ville (ed.), *Shipbuilding in the United Kingdom in the Nineteenth Century: a Regional Approach* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 4, 1993); and Sidney Pollard and Paul Robertson, *The British Shipbuilding Industry, 1870-1914* (Cambridge, MA: Harvard University Press, 1979).

demand in the United Kingdom.¹¹ The opening of the Suez Canal in 1869 dramatically reduced sailing times to some of the most important markets for British goods, such as India and China, and ensured that the steamship would eventually dominate global shipping lanes.¹² Considering the dominant position British shipbuilders had achieved in the technological development of the steamer, and the easy access this afforded British shipowners through their close ties with domestic yards, the demise of the sailing ship could only hurt the competition and buttress the UK's position.¹³

Cities, symbolic of the industrialization occurring in Great Britain, grew rapidly, and among them Glasgow held a prominent position.¹⁴ This was reflected in the growth of the Clyde port within overall British shipping. The origins of this ascendancy lay in the trade in luxury goods – especially tobacco – from the colonies in the middle of the eighteenth century.¹⁵ Glasgow never became a warehouse port with extensive storage

¹¹On British overseas investment, see, for example, William N. Goetzmann, *British Overseas Investment, 1870-1913: A Modern Portfolio Theory Approach* (Cambridge, MA: National Bureau of Economic Research, 2005); D.C.M. Platt, *British Overseas Investment, 1870-1914* (London: Economic and Social Research Council, 1985); and P. L. Cottrell, *British Overseas Investment in the Nineteenth Century* (London: Macmillan, 1975). For the impact of this investment on Canada, see Donald G. Patterson, *British Direct Investment in Canada, 1890-1914* (Toronto: University of Toronto Press, 1976).

¹²For the importance of the Suez Canal for British shipping, see Gerald S. Graham, "The Ascendancy of the Sailing Ship, 1850-85," *Economic History Review*, Second series, 9, 1 (1956), 74-88; Max E. Fletcher, "The Suez Canal and World Shipping, 1869-1914," *Journal of Economic History*, 18, 4 (1958), 556-573; and Anthony Gorst and Lewis Johnman, *The Suez Crisis* (London: Routledge, 1997).

¹³Hope, *New History of British Shipping*, 303. For some examples of the close ties between British shipbuilders and shipowners, see Robin Craig, "William Gray & Company: A West Hartlepool Shipbuilding Enterprise, 1864-1913," in P. L. Cottrell and Derek H. Aldcroft (eds.), *Shipping, Trade and Commerce: Essays in Memory of Ralph Davis* (Leicester: Leicester University Press, 1981), 165-191, reprinted in Craig, *British Tramp Shipping*, 345-376; and Michael S. Moss and John R. Hume, *Shipbuilders to the World: 125 Years of Harland and Wolff, Belfast, 1861-1986* (Belfast: Blackstaff Press, 1986).

¹⁴For a survey of urban growth in the century after the repeal of the Navigation Laws, see Martin J. Daunton, *Wealth and Welfare: An Economic and Social History of Britain, 1851-1951* (Oxford: Oxford University Press, 2007), chapter 3.

facilities.¹⁶ Located in the middle of the city, the port lacked easy access to open space, and the available room was used to accommodate the loading and discharge of cargo. The large number of coastal steamers, which required facilities for speedy turnaround, complicated matters for port officials, who rejected locks and opted instead for improved quays. The result was an inexpensive port that was extremely attractive to cost-minded shipowners.¹⁷

Glasgow was also an important industrial centre. Shipbuilding was perhaps the best known manufacturing activity on the Clyde, but it employed only a small percentage of the city's industrial workforce. Engineering, metal-working and iron and steel production were far more important, not only in terms of employment but also in the volume of goods provided for export.¹⁸ The demand for raw materials and foodstuffs to support the local population and the expanding industries created an increased demand for imports. Starting in the early 1830s, growing volumes of exports, in particular local coal and pig iron, balanced this. By mid-century, Glasgow was at the centre of a world-wide trading network, with locally-owned vessels calling at ports around the globe.¹⁹ It was

¹⁵See especially the eight articles in Jacob M. Price, *Tobacco in Atlantic Trade: The Chesapeake, London and Glasgow, 1675-1775* (Aldershot: Variorum, 1995). Still useful, although older, is the discussion in T.M. Devine, *The Tobacco Lords: A Study of the Tobacco Merchants of Glasgow and Their Trading Activities, 1740-90* (Glasgow: J. Donald, 1975).

¹⁶For an example of a British port (Liverpool) that did build extensive warehouse facilities, see Lewis R. Fischer, "Storage Factors: Warehouses and Profits on the Liverpool Docks, 1870-1930," *Northern Seas Yearbook* (2005), 18-59.

¹⁷Gordon Jackson and Charles Munn, "Trade, Commerce and Finance," in W. Hamish Fraser and Irene Maver (eds.), *Glasgow, Vol. II: 1830 to 1912* (Manchester: Manchester University Press, 1996), 76.

¹⁸Irene Maver, *Glasgow* (Edinburgh: Edinburgh University Press, 2000), 120-121.

¹⁹For examples of these networks, see J. Forbes Munro and Tony Slaven, "Networks and Markets in Clyde Shipping: The Donaldsons and the Hogarths, 1870-1939," *Business History*, 43, 2 (2001), 19-50;

hard to disguise the interest in overseas markets. Europe, the United States and, from the 1850s, India, attracted large volumes of shipments.²⁰ By the last few decades of the nineteenth century, frozen meat from Australia and Argentina, fruits and vegetables from the Mediterranean, tea from Ceylon and China, sugar and tobacco from the West Indies, wood from Canada and the Baltic, iron ore from Spain and North Africa, ice from Norway, and a myriad of other goods from overseas provided cargoes for the local shipping industry.²¹

and Paul Ingram and Arik Lifschitz, "Kinship in the Shadow of the Corporation: The Interbuilder Network in Clyde River Shipbuilding, 1711-1990," *American Sociological Review*, 71, 2 (2006), 334-352.

²⁰For an example of a firm engaged in the Indian trade, see J. Forbes Munro, *Maritime Enterprise and Empire: Sir William Mackinnon and His Business Network, 1823-93* (Woodbridge: Boydell, 2003).

²¹For an excellent account of the development of trade in Glasgow, see Jackson and Munn, "Trade, Commerce and Finance," 62-70. On the meat trade, see Forrest Capie and Richard Perren, "The British Market for Meat 1850-1914," *Agricultural History*, 54, 4 (1980), 502-515; Robert G. Greenhill, "Shipping and the Refrigerated Meat Trade from the River Plate, 1900-1930," *International Journal of Maritime History*, 4, 1 (1992), 65-82; Greenhill, "Latin America's Export Trades and British Shipping 1850-1914," in David Alexander and Rosemary Ommert (eds.), *Volumes Not Values: Canadian Sailing Ships and World Trades* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1979), 245-270; Richard Perren, "The Meat and Livestock Trade in Britain, 1850-1870," *Economic History Review*, New series, 28, 3 (1975), 385-400; Perren, *The Meat Trade in Britain, 1840-1914* (London: Routledge and Kegan Paul, 1978); and Perren, *Taste, Trade and Technology: The Development of the International Meat Industry since 1840* (Aldershot: Ashgate, 2006). On the Mediterranean fruit trade, see José Morilla Critz, Alan L. Olmstead and Paul W. Rhode, "'Horn of Plenty': The Globalization of Mediterranean Horticulture and the Economic Development of Southern Europe, 1880-1930," *Journal of Economic History*, 59, 2 (1999), 316-352; and Peter N. Davies and David Hope-Mason, *From Orchard to Market: An Account of the Fruit and Vegetable Trade in the UK* (London: Lockwood Press, 2005). On the tea trade of the late nineteenth century, see Roland Wenzlhuemer, *From Coffee to Tea Cultivation in Ceylon, 1880-1900: An Economic and Social History* (Leiden: Brill, 2008); and Robert Gardella, *Harvesting Mountains: Fujian and the China Tea Trade, 1757-1937* (Berkeley: University of California Press, 1994). On the Canadian timber trade, see Graeme Wynn, *Timber Colony: A Historical Geography of Nineteenth-Century New Brunswick* (Toronto: University of Toronto Press, 1981); and Arthur R.M. Lower, *Great Britain's Woodyard: British America and the Timber Trade, 1763-1867* (Montréal: McGill-Queen's University Press, 1973); on the Baltic wood trade, see Lewis R. Fischer and Helge W. Nordvik, "Myth and Reality in Baltic Shipping: The Wood Trade to Britain, 1863-1908," *Scandinavian Journal of History*, 12, 2 (1987), 99-116. On the Spanish iron ore trade, see Miguel A. Sáez García, "El Mercado Español de hierros comerciales: el caso de San Pedro de Araya, 1867-1925," *Revista de Historia Industrial*, 15 (1999), 11-40. On the Norwegian ice trade, see Robert David, "The Demise of the Anglo-Norwegian Ice Trade," *Business History*, 37, 3 (1995), 52-69; Tore Ouren, "The Norwegian Ice Trade," in David V. Proctor (ed.), *The Ice Carrying Trade at Sea* (Greenwich: National Maritime Museum, 1981), 31-55; and Bodil Bjerkvik Blain, "Melting Markets: The Rise and Decline of the Anglo-Norwegian Ice Trade, 1850-1920" (Unpublished MSc thesis, London School of Economics and Political Science, 2006).

In the early nineteenth century Glasgow was not a major shipowning port; indeed, even the Customs House was located in Greenock. But by the 1840s the situation had changed appreciably. Navigational improvements on the Clyde, the development of a robust local shipbuilding industry, and the opening of the shipping registry in 1810 allowed local shipowners to increase their capital commitment and to transfer their vessels to the new register. By 1851 the city's shipping register contained 508 vessels with a carrying capacity of 145,684 tons. The majority were sailing ships, but the commitment of Glaswegians to steam was already apparent, for eighty-one steamers grossing 29,371 tons were registered in Glasgow; even though they represented only one-sixth of the vessels on register (and were used predominantly as tugs and in local trade) they comprised half of the entire Scottish steam fleet.²²

Shipbuilders and shipowners soon became symbols of local entrepreneurial success. Their mansions adorned the city, which was frequently referred to as the "Venice of the West."²³ George Burns, one of the original partners in Cunard, his son and grandson (both known as Lord Inverclyde), Alexander Allan (founder of the Allan Line), James Bell and Thomas Dunlop were some of the more successful shipowners to base their operations in Glasgow.²⁴

²²Jackson and Munn, "Trade, Commerce and Finance," 60 and 73.

²³Ebenezer Cobham Brewer, *The Reader's Handbook of Allusions, References, Plots and Stories* (Philadelphia: J. B. Lippincott & Co., 1880), 1063.

²⁴Edwin Hodder, *Sir George Burns, Bart: His Life and His Friends* (London: Hodder and Stoughton, 1890); "Lord Inverclyde," <http://gdI.cdlr.strath.ac.uk/eyrwho/eyrwho0903.htm>, accessed 12 March 2008; Thomas E. Appleton, *Ravenscrag: The Allan Royal Mail Line* (Toronto: McClelland and Stewart, 1974); "Sir James Bell," <http://gdI.cdlr.strath.ac.uk/eyrwho/eyrwho0314.htm>, accessed 12 March 2008; and "Thomas Dunlop," <http://gdI.cdlr.strath.ac.uk/eyrwho/eyrwho0525.htm>, accessed 12 March 2008.

The family firm of Burrell & Son emerged out of this climate of abundant opportunity and rapid expansion. The origins of the company were humble. George Burrell, the founding father of the enterprise, started as a shipping and forwarding agent on the Forth & Clyde Canal in the 1850s. When his son William joined him in 1857, the name of the company was changed to Burrell & Son, and it focused its operations on shipping between the Firth of Forth and the Firth of Clyde. In 1862, George and William purchased *Janet Houston*, a small schooner, and employed the craft in coastal shipping. Soon they embarked upon grander schemes, shifting their focus to overseas trading with the acquisition of larger sailing vessels. Within four years, they bought their first steamship. In 1885, after both George and William had died, William's sons, George and William, assumed the management of the company. In their hands, the firm became one of the largest tramp shipping operators in the United Kingdom controlling no fewer than ninety-five ocean going vessels, the vast majority of them steamships.²⁵ From their offices in central Glasgow, William and George Burrell assumed their place in a global trading network radiating from the Clyde. Their management style was characterized by caution and lacked the pioneering spirit characteristic of some other British shipowners of the era.²⁶ Yet the firm was not oblivious to available opportunities. For example, at the

²⁵For more biographical information on the family, see R.A. Cage, *A Tramp Shipping Dynasty – Burrell & Son of Glasgow, 1850-1939: A History of Ownership, Finance, and Profit* (Westport, CT: Greenwood Press, 1997), 7-12.

²⁶Such pioneering spirit was exhibited, for example, by Alfred Holt of Liverpool. For more on Holt, see Francis E. Hyde, *Blue Funnel: A History of Alfred Holt and Company of Liverpool from 1865 to 1914* (Liverpool: Liverpool University Press, 1956); Hyde, "The Expansion of Liverpool's Carrying Trade with the Far East and Australia," *Transactions of the Royal Historical Society*, 6 (1956), 139-160; Malcolm Falkus, *The Blue Funnel Legend: A History of the Ocean Steam Ship Company, 1865-1973* (Basingstoke: Macmillan, 1990); Crosbie Smith, Ian Higginson and Phillip Wolstenholme, "Avoiding Equally Extravagance and Parsimony: The Moral Economy of the Ocean Steamship," *Technology and Culture*, 44,

end of the 1870s Burrell & Son was the first shipowning firm to carry frozen meat from Australia to London successfully, a point discussed in more detail in chapter 4.

The history of Burrell & Son is important not only because the company was one of the largest tramp fleet operators in the United Kingdom in the period of British dominance of world shipping and trade but also because the firm was involved in most of the world's major tramp trades. Unfortunately, the company's records have not survived the passage of time (except for occasional material located in the archives of other companies), but we can trace Burrell & Son's operations through a variety of official sources. We can follow the firm's steamships as they plied the world's oceans in search of cargoes and through doing so comprehend the ways by which it attempted to crew its vessels. Burrell & Son may not have been "typical" British shipowners of the time. Nevertheless, the firm provides us with an excellent opportunity to better understand British tramp shipping in some key areas of its operations.

I am not the first historian to recognize the utility of studying Burrell and Son. In 1997, R.A. Cage's work *A Tramp Shipping Dynasty – Burrell & Son of Glasgow, 1850-1939* appeared.²⁷ Indeed, he had published on the firm for the first time a few years earlier in an article which appeared in *The Great Circle*.²⁸ In the earlier essay, Cage used Burrell along with three other Glasgow shipping companies to illustrate certain aspects of tramp shipping operations, namely forms of ownership, types of vessels used, management

3 (2003), 443-469; and Smith, Higginson and Wolstenholme, "'Imitations of God's Own Works': Making Trustworthy the Ocean Steamship," *History of Science*, 41, 4 (2003), 379-426.

²⁷Cage, *Tramp Shipping Dynasty*.

²⁸R.A. Cage, "The Structure and Profitability of Tramp Shipping: 1850-1920: Some Evidence from Four Glasgow-Based Companies," *The Great Circle*, 17, 1 (1995), 1-21.

structures and profitability.²⁹ All the examples he adduced bolstered his main argument that British tramp companies were characterized by a high degree of concentration of decision-making powers in the hands of their owners and a few immediate associates. The capital base was narrow, and the owners exercised tight control over daily decision making by keeping staff to a bare minimum and confining the capital base to a small circle of investors. Profitability could be secured by expeditious and thoughtful deployment of the fleet in areas marked by good employment opportunities. The shift from sail to steam was also of paramount importance, with companies that refused to invest in the new technology facing stiff competition and eventually being forced out of the business.³⁰

Since Burrell & Son was the largest company in his analysis, at least in terms of the number of vessels owned,³¹ Cage revisited the subject two years later with an expanded study of the company. His stated intentions were two-fold: first, to provide the "most comprehensive database on tramp shipping" and subsequently to present "a detailed history of one of Britain's major tramp shipping firms, providing an understanding of the process of creating wealth through the ownership and control of tramp ships." As an added bonus, he wanted the reader to appreciate the "usefulness of material housed in public archives."³²

²⁹The four companies that Cage chose for the analysis were Edmiston & Mitchell, R. & J. Craig, J. M. Campbell & Son and Burrell & Son.

³⁰*Ibid.*, 15.

³¹Burrell owned ninety-five vessels compared with twenty for Edmiston & Mitchell, twenty-six for Craig and twenty-three for Campbell.

³²Cage, *Tramp Shipping Dynasty*, 1.

Cage's history followed the familiar format of many shipping company histories.³³ After the opening chapter with a brief description of the development of the British shipping industry and the defining characteristics that separated tramps from liners, Cage focused on the history of the Burrell family and its connection with the firm.³⁴ He organized the material to show changes in the ownership structure between 1850 and 1939 as each successive generation of Burrells entered the business arena. But he was forced to deal with the period after 1900 differently because what happened then was the complete disposal of the fleet, followed by apparent inactivity for a few years and then a massive reinvestment program that restored the company to its position as a prominent tramp shipping operator in the years prior to the outbreak of the First World War.

Cage emphasized what he had highlighted in his *Great Circle* article. Patterns of ownership, the financing of tramp shipping and its profitability were his main concerns, and he dedicated most of the book to an exploration of these themes. He described a company which experienced no broadening of the capital base: funds necessary for operations and for expansion came from a small pool of investors concentrated in a

³³See, for example, David Jenkins, *Jenkins Brothers of Cardiff: A Ceredigion Family's Shipping Ventures* (Cardiff: National Museum of Wales: 1985); and Francis E. Hyde, *Cunard and the North Atlantic, 1840-1973: A History of Shipping and Financial Management* (London: Macmillan, 1975).

³⁴It should be noted that William Burrell has already been the subject of a biography. Apart from his activities as a shipowner, he was particularly well known for his enthusiasm about art, especially from China and south-east Asia and he dedicated substantial funds and effort creating a personal collection. The life of Sir William Burrell is explored in more detail in R. Marks, *Burrell - A Portrait of a Collector - Sir William Burrell, 1861-1958* (Glasgow: Richard Drew Publishing, 1983).

restricted geographical area around Glasgow.³⁵ Drawing upon the evidence of wills and discharged mortgages Cage claimed that the firm was profitable. It is important to note, however, that he found no accounting or other records that reflected specifically on profitability.³⁶

The book also provided an extensive fleet list, with information on each vessel owned by the company. The registration number and technical specifications were followed by details regarding the builder, owner, first master and (wherever possible) the cost of construction. Finally, it listed numerous transactions regarding the movement of shares, the issue of mortgages and any changes in the ownership status of the vessel. The appendices actually comprise the greatest part of the published study, with the analysis being restricted to less than one-fifth of the entire book, the rest being taken up by the fleet list, some statistical information associated with acquisitions and losses of vessels, another list of puffers and other ships built by the shipyards owned by Burrell & Son in Hamilton Hill and Dumbarton, and a table comprising the names, addresses and occupations of shareholders in Burrell & Son. Cage also provided a summary of wills of the members of the Burrell family.³⁷

³⁵Similar arguments were presented by P. L. Cottrell in his analysis of Liverpool shipowning practices. See "The Steamship on the Mersey, 1815-1880: Investment and Ownership," in P. L. Cottrell and Derek H. Aldcroft (eds.), *Shipping, Trade and Commerce: Essays in Memory of Ralph Davis* (Leicester: Leicester University Press, 1981), 137-164.

³⁶It must be noted in this context that Cage went to some length in his effort to explain the profitability of the firm after 1900 but failed to do so for the years before the turn of the century. He also provided information regarding the disposal of the fleet during the war years (1915-1917) but did not attempt to account for similar actions in the period 1898-1900 when Burrell & Son completely disposed of its assets. Cage restricted the discussion about the selling of the entire fleet to declaring that it was a "mystery." See Cage, *Tramp Shipping Dynasty*, 9.

³⁷*Ibid.*, 39-207.

While Cage certainly made a contribution in collecting this material, the book failed at more levels than it succeeded. Rather than providing a detailed history of the company, Cage restricted himself to the areas where information was readily available, at the same time neglecting large sections of the company's important activities. Very early on, he claimed that since the company's records no longer existed, it was essential to use public sources to reconstruct its history and activities.³⁸ Yet he failed to follow his own strategy effectively. His main sources were the Registration Books at the Glasgow Customs House and the Board of Trade Defunct Company Records (Scotland) from the Register House West in Edinburgh. He supplemented these materials with wills, shipbuilders' records and newspapers. Although these are important sources, as a result of the limitations imposed by the information in these archives, Cage could not provide a complete picture of Burrells' operations. His focus was on ownership patterns, shareholding and profitability, but there was no mention of the crew, no analysis of voyages, and no information regarding cargoes. These are fundamental aspects of any shipping operation, yet it is these areas about which we learn the least from the book. Although company papers may not have survived the dissolution of the enterprise and the passage of time, there are extensive records available to the researcher which permit a more comprehensive approach to the subject, opening windows on such important questions as manning, destinations, employment and utilization of available cargo space.

One of these sources – the crew agreements housed primarily in the Maritime History Archive at Memorial University of Newfoundland – enable the maritime historian to answer some important questions. There are hundreds of crew lists documenting the

³⁸*Ibid.*, 7.

voyages of Burrell's ships for the entire period of the firm's operations. Using these documents, it is possible to fill in substantial gaps in our knowledge about who manned the vessels owned by Burrell & Son, where they came from, how long they remained with the company, how well they were remunerated, and whether or not they were literate. Moreover, they offer numerous possibilities for a labour approach to the world of the tramp steamship of the late nineteenth century and the years preceding the First World War.

These documents also present fascinating prospects regarding the operation of the vessels. While the lack of company documents prevents us from answering some intriguing questions about the process of procuring cargoes, the organization of operations on land prior to the arrival or departure of the ship or connections between the shipowner and actual or potential clients, it is possible to analyze the voyages in terms of destinations, points of origin, and turnaround times. The mandatory endorsement of the crew agreement by British authorities at each foreign port of call ensures that we have adequate proof of where the vessel went and some reasonable indications about the time spent in port; this enables us to make some calculations of productivity.

Cage's book contains very little information about the cargoes carried in the holds of the company's vessels. While the absence of cargo manifests makes it difficult to ascertain exactly what was carried, Cage certainly did not attempt to remedy this lack of information, restricting his discussion to mentioning the successful carriage of frozen meat from Sydney to London in *Strathleven* in the winter of 1879.³⁹ Although the crew

³⁹*Ibid.*, 34.

agreements contain no information about cargoes, bills of entry can serve as a very useful starting point in any effort at understanding the cargoes carried. Burrell's centre of operations was Glasgow, but the company's vessels were employed globally and frequently spent months crisscrossing between ports around the world. Considering the nature of tramp shipping, bills of entry from British ports can illuminate only a relatively small section of their activities. I chose to use the London A bills because Burrell's ships frequently visited London. In many instances, the vessel would unload cargo there before proceeding to a different British port (most often Glasgow) where the crew was discharged. It is therefore more reflective of the general pattern of tramp operations, characterized by relatively brief stops for the loading or unloading of cargo, compared with Glasgow or Hamburg where the voyages usually ended.⁴⁰ All we can glimpse is the final cargoes carried back to London, generating discussions as to how typical these were and the extent to which they can be used in to understand the activities of Burrell & Son. Nevertheless, even an incomplete understanding of this vital section of shipping activity can illuminate decisions and actions and support or disprove attempts at analyzing profitability and operational deployment.

There is an important caveat to the discussion about voyage patterns and cargoes. There are two basic ways in which shipowners can use their assets. They can operate the vessels themselves, assuming responsibility for every aspect of the business, from locating cargoes and choosing destinations to handling all costs, etc., or they can charter

⁴⁰Munro and Slaven make a brief reference to the problems associated with an analysis of cargoes carried by tramps, with a particular focus on Glasgow. In their study of networks and markets in the Clyde, they used the tramp firm of the Hogarth Group and argued that since the group's steamships visited Glasgow infrequently and only for brief periods of time, we cannot place too much emphasis on the port records for an analysis of the trades they were involved in. See Munro and Slaven, "Networks and Markets in Clyde Shipping," 28.

their ships to third parties. Gordon Boyce has used the relatively small Liverpool tramp shipping firm of Edward Bates & Sons to determine that its fleet was on charter for approximately twenty percent of its voyages.⁴¹ The absence of comparative studies does not allow us to place this percentage in perspective or to ascertain how typical the Bates firm was. But it does lend qualified support to the assumption in this study that in this period many British tramp shipping operators, including Burrell, likely devoted the vast majority of their time and energy into operating their own fleets, choosing cargoes, identifying promising areas of trade, and embarking on business on their own terms rather than merely “renting out” their vessels. This is the key assumption behind much of my analysis in the chapters on Burrell & Son’s voyages. Since no charter parties or other business records for Burrell & Son have been located, it is uncertain who made some of the crucial decisions regarding fleet deployment. Still, in light of Boyce’s research it does not seem totally improbable that the Burrells were the masterminds behind their fleet operations rather than simply chartering their vessels to interested parties.

Using the crew agreements and the bills of entry, both sources that Cage neglected, a study of Burrell & Son offers the researcher the opportunity to study more adequately the operations of a large tramp shipping company. Even though the very size of its operations and its numerous vessels might imply that Burrell was atypical, its longevity and multifarious activities in most major trading areas of the world economy during the nineteenth and early twentieth century justifies another approach to the subject. Cage did not take advantage of the available sources, and his work is at best a

⁴¹Gordon Boyce, “Edward Bates and Sons, 1897-1915: Tramping Operations in Recession and Recovery,” *International Journal of Maritime History*, 23, 1 (2011), 12-50.

fragmentary analysis of ownership patterns, far from the detailed study of a major shipping concern that was his stated intent.⁴² A better appreciation of the available sources and a new set of questions will offer us a more balanced and complete picture of tramping, a shipping sector that has too often been neglected by maritime historians.

1.1 Sources

Two fundamental problems that historians often encounter are the lack of relevant records and the imperfections of the surviving evidence. While these difficulties bedevil scholars in various fields, they are especially vexing to students of shipping companies, whose records are notorious for their fragmentary nature.⁴³ A desire to avoid disclosures about personal fortunes and a widespread fear of revealing business practices or trade secrets have combined with more mundane factors to create problems for historians of businesses, including shipping enterprises. The nineteenth-century British Companies Acts, which established the legal framework for record keeping and the supply of information to the public, were the first of their kind.⁴⁴ While they were limited in scope,

⁴²Cage, *A Tramp Shipping Dynasty*, 1.

⁴³See, for example, the discussions on sources in Freda Harcourt, "Black Gold: P&O and the Opium Trade, 1847-1914," *International Journal of Maritime History*, 6, 1 (1994), 1-83; Stephanie Jones, *Two Centuries of Overseas Trading: The Origins and Growth of the Inchcape Group* (London: Macmillan, 1986); and, especially, Jones, "The P&O in War and Slump, 1914-1932: The Chairmanship of Lord Inchcape," in Stephen Fisher (ed.), *Innovation in Shipping and Trade* (Exeter: Exeter University Press, 1989), 131-143.

⁴⁴On the origins of these laws, see R.A. Bryer, "The Mercantile Laws Commission of 1854 and the Political Economy of Limited Liability," *Economic History Review*, 50, 1 (1997), 37-56. See also Donna Loftus, "Capital and Community: Limited Liability and Attempts to Democratize the Market in Mid-Nineteenth-Century England," *Victorian Studies*, 45, 1 (2002), 93-120; and Victor M. Batzel, "'The

they did little to erode the hostility many shipowners felt towards intervention by outsiders in their business affairs. Circumvention, where possible, or minimal compliance, where necessary, were the standard, if understandable, responses of businessmen to the pressures of disclosure and demands for paperwork whether these originated with governments, journalists or shareholders. Even worse, relatively few tramp shipping operators formed limited-liability companies, which meant that information on this sector is scarcer than for most liner firms.

Other general factors have also worked against the preservation of certain types of records. For example, much documentary material was of only ephemeral long-term value to firms or individuals; storage and preservation meant unwelcome maintenance costs; premises were moved or demolished; space was often at a premium; and amalgamations and mergers have been especially endemic in shipping.⁴⁵ As a result, records have often been destroyed, and even the best-managed firms have been surprisingly haphazard in establishing and maintaining archives. Histories of firms and entrepreneurs have had to be written in the face of such difficulties, although the absence of centrally-located records is not necessarily an insurmountable obstacle *per se*.⁴⁶

General Scope of the Act: A Study of Law, Moralism and Administration in England, 1844-1910," *Canadian Journal of History*, 22, 3 (1987), 349-366.

⁴⁵See Gordon Boyce, "Transferring Capabilities across Sectoral Frontiers: Shipowners Entering the Airline Business, 1920-1970," *International Journal of Maritime History*, 13, 1 (2001), 1-38. On the general problems of the preservation of business archives, see Edwin Green, "Business Archives," *Modern History Review*, 5, 3 (1994), 24-26. On shipping archives, see Robin Craig, "Shipping Records of the Nineteenth and Twentieth Centuries," *Archives*, 7 (1966), 191-198.

⁴⁶Andrew N. Porter, *Victorian Shipping, Business and Imperial Policy: Donald Currie, the Castle Line, and Southern Africa* (New York: St. Martin's Press, 1986), 3.

As mentioned earlier, Burrell & Son's records have not survived, at least not in any readily identifiable or organized form. Previously published works used readily available material in public sources and depositories to analyze the company and its business activities.⁴⁷ As previously mentioned, Cage based his study on the Registration Books at the Glasgow Customs House and the Board of Trade Defunct Company Records (Scotland) from the Register House West in Edinburgh. Wills, shipbuilders' records and newspapers provided some additional circumstantial evidence in support of his arguments.

A range of other publicly available sources offers a great opportunity for a different approach to understanding tramp shipping. There are a plethora of documents relevant to the history of Burrell & Son that Cage did not use. This thesis is built upon the abundant wealth of information provided by two accessible series of records, although each presents the researcher with opportunities and burdens him (or her) with restrictions and problems to be solved. But by combining the material available in these sources we can begin to answer a new range of questions.

The most important source is the British Empire Agreements and Accounts of Crew. The Merchant Shipping Act of 1835 required that the master of any ship belonging to a British subject, bound for a foreign voyage, or any British-registered vessel of eighty tons or more and employed in the coastal trades or the fisheries, carry a written agreement signed by each crew member specifying the wages to be paid and the capacity in which each was to serve, as well as the nature of the intended voyage. The master was also required to deposit a copy of the agreement with the Customs before the voyage began.

⁴⁷Cage, *Tramp Shipping Dynasty*; and Cage, "Structure and Profitability," 1-21.

At the end of a foreign voyage, the master was obligated to deliver the original agreement, together with a list of all the men who had been on board. Another form was prescribed for home trade and fishing vessels; these were to be deposited every six months. All these documents were transmitted by the Customs officers to the newly established Registrar-General of Shipping and Seamen.

Some, however, have survived in the Board of Trade (BT) 98 series as forms A and B, agreements for foreign and home trade vessels; form C, lists of crew for foreign voyages; and form D, half-yearly returns of crew for home trade voyages. These documents give the name of the ship; its port of registry and number and date of registration; tonnage, master's name; and date and place of the agreement. For each crew member there is name; age; birthplace; details of last ship and the date and the place of discharge from it; the date and place of entry onto the current ship; and the rate of pay. In the crew lists the date, place and cause of a crew member leaving the ship were also entered. Before the 1854 Act provided for an official number for each vessel, the crew lists were preserved alphabetically by port. From 1857, however, the lists are arranged numerically based on the vessel's official number.⁴⁸

The voluminous records necessitated a new preservation policy. Beginning in 1860, only a ten percent sample of the Agreements and Crew Lists for each year was preserved. The crew agreements in the National Archives form the class Board of Trade: Registrar General of Shipping and Seamen and its predecessor, Agreements and Crew Lists, Series II 1861-1994 (BT 99). From 1867 forms A and C were amalgamated as form

⁴⁸Nicholas Cox, "The Records of the Registrar-General of Shipping and Seamen," *Maritime History*, 2, 2 (1972), 177-178.

Eng 1, while forms B and D became form Eng 6 in 1874. Eng 1 was printed in red ink when occurring as an Outward List, and in black ink when occurring as an Inward List, deposited at the port of discharge at the end of the voyage. The Outward List was usually destroyed upon the return of the vessel to port. Most of the agreements preserved in the Maritime History Archive are in fact the Inward List. There were only a handful of Outward Lists, for those vessels that did not complete their voyage.⁴⁹

The third class used was the Transcripts and Transactions, Series IV, Closed Registries (BT 110). The general registration of British merchant vessels was introduced in 1786 at which time customs officers began to keep records on the ownership and building of British ships. The 1854 Merchant Shipping Act created a new registry form and recorded (in addition to the information already gathered in the previous forms) details about the shipbuilder and the technical specifications of the vessel (in particular the engines and the tonnage). It also included the names, addresses and occupations of the owners and the number of shares they held. The form also introduced the ship's official number. From 1889, all papers relating to a ship were kept together, filed under the date that the ship came off the registry. This is the BT 110 class and it separates vessels by decade according to the year of closure, and alphabetically under the ship's name. As with the BT 98 series, to locate a vessel it is essential to know the date that the vessel was removed from the registry. The *Mercantile Navy List* or *Lloyd's Register* can be used to identify the year. The BT 110 series includes the certificate of registration, a summary of

⁴⁹*Ibid.*, 178.

ownership and copies of the transactions subsequent to registry. Copies of all papers for vessels registered before 1890 can also be found in this class.⁵⁰

The crew agreements are a valuable source for reconstructing the voyage patterns of vessels. When a vessel entered an overseas port, British maritime law required the masters to deposit the crew list with the local shipping master or consular official within forty-eight hours of arrival. The official was to endorse the document, specifying the name of the port and the official dates of entrance and clearance. Given the rule that an agreement had to be deposited within forty-eight hours of arrival, ports of call requiring less time were frequently omitted. This is not a major problem for sailing vessels, which generally spent fairly long periods in ports. But it does pose a more critical issue for steamers and motor vessels, which sometimes entered and cleared a port more quickly.

The crew agreements are not preserved in a single archive. Since 1971, between seventy and eighty percent of the surviving documents for the period 1863-1939 have been preserved in the Maritime History Archive at Memorial University of Newfoundland.⁵¹ These records include information about more than 70,000 vessels, about a million voyages and twenty-five million signatures by entrants to the labour force before 1912; they also provide "complete information on the labour force and the workplace during the transition from pre-industrial craft to large-scale capitalist

⁵⁰*Ibid.*, 169-173.

⁵¹David Alexander and Keith Matthews (comps.), *A Computer Index to the Crew Lists and Agreements of the British Empire* (8 vols., St. John's: Maritime History Group, Memorial University of Newfoundland, 1974); and Maritime History Archive, *A Guide to the Agreements and Crew Lists: Series II (B. T. 99) 1913-1938* (St. John's: Maritime History Archive, Memorial University of Newfoundland, 1987).

production.⁵² The National Maritime Museum in Greenwich, England, holds ninety percent of the Crew Agreements for the years 1861-1862, ninety percent of the Crew Agreements for the years ending in "5" from 1865-1935, and ninety percent of the records for years ending in "5" from 1955-1975, as well as many Mates and Masters Certificates of Competency (and their applications). The National Archives (previously known as the Public Record Office) hold all the surviving documents from 1747-1860, a ten percent sample of each year from 1861-1938, all official logs from 1902-1919, all papers from 1939-1950, a ten percent sample of each year from 1951-1976, and all records pertaining to famous ships (e.g., *Titanic*) from 1861-1938. Finally, local record offices in the United Kingdom hold any crew agreements that they wanted for the period 1861-1913.⁵³

The Mercantile Marine Act of 1850 instituted *Official Log Books* in which masters recorded illnesses, deaths, births, disciplinary problems and particulars concerning

⁵²Eric W. Sager, "The Maritime History Group and the History of Seafaring Labour," *Labour/Le Travail*, No. 15 (1985), 165-166. See also Lewis R. Fischer and Eric W. Sager, "An Approach to the Quantitative Analysis of British Shipping Records," *Business History*, 22, 2 (1980), 135-151; and Malcolm Cooper, "Maritime Labour and Crew List Analysis: Problems, Prospects, and Methodologies," *Labour/Le Travail*, No. 23 (1989), 179-194.

⁵³The Atlantic Canada Shipping Project demonstrated persuasively the ways in which the crew agreements could be used to analyze and explain important issues in maritime history. In the late 1970s and early 1980s the members of the project published a number of influential volumes covering different aspects of Canadian and international maritime history. See Keith Matthews and Gerald Panting (eds.), *Ships and Shipbuilding in the North Atlantic Region* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1978); Lewis R. Fischer and Eric W. Sager (eds.), *The Enterprising Canadians: Entrepreneurs and Economic Development in Eastern Canada, 1820-1914* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1979); David Alexander and Rosemary Ommer (eds.), *Volumes Not Values: Canadian Sailing Ships and World Trades* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1979); Rosemary Ommer and Gerald Panting (eds.), *Working Men Who Got Wet* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1980); Lewis R. Fischer and Eric W. Sager (eds.), *Merchant Shipping and Economic Development in Atlantic Canada* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1982); and Lewis R. Fischer and Gerald E. Panting (eds.), *Change and Adaptation in Maritime History: The North Atlantic Fleets in the Nineteenth Century* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1985).

conduct. Although most of these log books appear to have been destroyed, several thousand have survived and are filed with the Crew Agreements. They provide a wealth of information on medical and health matters for crew and passengers, as well as a surprising amount of information about what Keith Matthews termed "the hazards of the sea." They are also good indicators of the literacy of masters engaged in various trades. Problems of discipline were also well chronicled and described. Such a source would have been useful in answering a number of questions regarding Burrell's policies in regards to the crew during the voyage,⁵⁴ but there were no official log books among the company's crew agreements in the Maritime History Archive.

The second source is the Customs bills of entry. These bills, which list in detail the cargoes of all vessels entering selected British ports, allow the researcher to address a crucial issue of shipping operations: the cargoes carried by the Burrell vessels.⁵⁵ The bill of entry was a digest of information about the arrival and departure of ships and contained details of their cargoes taken from Customs entries and published for the benefit of the merchants of London.⁵⁶ Individual merchant's bills of entry inward and bills of entry outward were prepared in the Custom House as part of the paperwork attending the importing and exporting of goods. The individual merchant's bill of entry inward or

⁵⁴ Keith Matthews, "Crew Lists, Agreements and Official Logs of the British Empire, 1863-1913," *Business History*, 16, 1 (1974), 79.

⁵⁵ The fullest discussion of the various bills of entry is Lewis R. Fischer, "Sources in Canadian Maritime History, 1850-1914: The International Dimension" (Unpublished paper, Memorial University of Newfoundland, 1986). See also Matthews, "Crew Lists, Agreements and Official Logs," 78-80; Kenneth Morgan, *The Liverpool Customs Bills of Entry (1820-1939): A Brief Introduction to the Microfilm Edition of the Liverpool Customs Bills of Entry* (East Ardsley: Microform Academic Publishers, 2002); and John J. McCusker, *European Bills of Entry and Marine Lists: Early Commercial Publications and the Origins of the Business Press* (Cambridge, MA: Harvard University Library, 1985).

⁵⁶ Edward A. Carson, "Customs Bill of Entry," *Maritime History*, 1, 2 (1971), 176.

outward, once passed into the Customs records, became the basis for all subsequent actions by both parties, including the assessment and payment of any duties. The individual merchant's bills of entry were public documents, open to public inspection.⁵⁷

The date of the first publication of these bills cannot be ascertained precisely. The earliest known specimen held in the old Customs House Library, London (and now in the National Archives), is dated 30 June 1660.⁵⁸ Private individuals who held the relevant patents published bills of entry until 1816, when the Customs Service purchased the patents to provide a source of income for the Customs Annuity and Benevolent Fund.⁵⁹ In 1881 the publication was taken over by the Customs Department.⁶⁰

There are bills of entry for a number of British ports. A process of consolidation began early in the nineteenth century. In 1822, publication of separate bills for Liverpool, Bristol and Hull was consolidated with the London Bills. Beginning in 1854 Southampton was included, and in 1889 Harwich, New Haven, Folkestone and Dover entries became regular features. By the end of the century the London Bills had expanded to include Manchester, Runcorn, Fleetwood, Preston, Barrow, Goole and Grimsby.⁶¹

⁵⁷ Copies could be obtained for a fee payable to one of the Custom House clerks. For a discussion of the early history of the bills of entry see John J. McCusker, *European Bills of Entry and Marine Lists: Early Commercial Publications and the Origins of the Business Press* (Cambridge, MA: Harvard University Library, 1985), 15-16.

⁵⁸ *Ibid.*, 19.

⁵⁹ The Customs Annuity and Benevolent Fund was intended to provide for the widows and dependents of members of the Customs service.

⁶⁰ See Edward A. Carson, "Customs Bill of Entry," *Maritime History*, 1, 2 (1971), 176-189.

⁶¹ Lewis R. Fischer and Helge W. Nordvik, "The Nordic Challenge to British Domination in the Baltic Timber Trade to Britain, 1863-1913," in Lewis R. Fischer, Helge W. Nordvik and Walter E.

Originally there were three types of bills, designated as A, B and C. Publication of C bills ceased at an early date, but the A and B bills were published up to the beginning of the Second World War. B bills listed consignees, the amount of produce imported or exported, and the place of origin or destination of the cargo. But for the maritime historian the most valuable type of document is the A bill, which listed the vessel, tonnage, master, port from whence it came, and a full list of commodities. From no other source, except for bills of lading, which are extremely rare, is it possible to reconstruct so completely the cargoes carried by specific vessels.⁶²

Bills of entry exist only for vessels entering specific ports in the United Kingdom. It is probably not possible to ascertain with precision the cargoes carried on outward legs from the United Kingdom except from general sources like *Lloyd's List*. Moreover, since Burrell's vessels frequently operated from non-UK ports, it was not possible to analyze many of the cargoes carried with the degree of detail and precision that one might like. Despite these limitations, however, my research unearthed a fair amount of information that can shed light on the operations of the firm.

1.2 Methodology

All maritime historians are faced with crucial methodological problems when tackling subjects dealing with international shipping and trade. The first is the vast quantity of

Minchinton (eds.), *Shipping and Trade in the Northern Seas* (Bergen: Norwegian School of Economics and Business Administration for the Association for the History of the Northern Seas, 1988), 76.

⁶²Fischer and Nordvik, "Myth and Reality in Baltic Shipping," 101. On the same subject, see also Derek H. Aldcroft, "British Shipping and Foreign Competition: The Anglo-German Rivalry, 1880-1914," in Aldcroft (ed.), *Studies in British Transport History* (Newton Abbot: David and Charles, 1974), 53-99.

available sources. Most of these records require a quantitative approach to yield the maximum information.⁶³ It is not so much a question of looking for some missing documents to answer a particular question, as in traditional historical research, as it is a matter of the systematic study of impersonal registries, catalogues, lists and journals. In addition, we need an international approach to an apparently national subject. Gelina Harlaftis' search for data about the development of the Greek-owned fleet in the nineteenth and twentieth centuries led her to examine sources in other countries (especially Great Britain and France) that dealt with twenty-five ports spread all over the eastern Mediterranean and the southern provinces of Russia.⁶⁴ The amount of evidence available presented a familiar problem: the need to be selective. In many cases it was simply impossible to examine all the surviving material closely. Instead, sampling had to be used, a technique also used by Yrjö Kaukiainen in his history of the Finnish shipping industry.⁶⁵ The outcome of such an effort in dealing with an extensive and complex

⁶³The pioneering, though often forgotten, example of this type of quantitative approach to the analysis of shipping records was Bernard Bailyn and Lotte Bailyn, *Massachusetts Shipping, 1697-1714: A Statistical Study* (Cambridge, MA: Belknap Press of Harvard University Press, 1959). Bailyn's study utilized the so-called "Naval Officer Lists" which recorded shipping and trade movements in the British colonies. For other examples of the use of this source, see Gary Max Walton, "A Quantitative Study of American Colonial Shipping" (Unpublished PhD thesis, University of Washington, 1966); James F. Shepherd and Gary M. Walton, *Shipping, Maritime Trade, and the Economic Development of Colonial North America* (Cambridge: Cambridge University Press, 1972); and Lewis R. Fischer, "Revolution without Independence: The Canadian Colonies and the American Revolution, 1749-1775," in Ronald J. Hoffman, John J. McCusker, Russell R. Menard and Peter J. Albert (eds.), *The Economy of Early America: The Revolutionary Years, 1763-1790* (Charlottesville: University of Virginia Press, 1988), 88-125. For a similar study using European sources, see Jake V. Th. Knoppers, "Dutch Trade with Russia from the time of Peter I to Alexander I: A Quantitative Study in Eighteenth Century Shipping" (Unpublished PhD thesis, 2 vols., McGill University, 1975).

⁶⁴Gelina Harlaftis, *A History of Greek-Owned Shipping: The Making of an International Tramp Fleet, 1830 to the Present Day* (London: Routledge, 1996).

⁶⁵Yrjö Kaukiainen, *A History of Finnish Shipping* (London: Routledge, 1993). Although Kaukiainen's book appeared before Harlaftis's, Harlaftis had been developing this particular methodology for more than a decade before the publication of her study on the Greek merchant marine. For examples, see

network of sources can be quite rewarding and can also provide the basis for comparative studies.

Since maritime historians have not always been the most innovative of scholars, it is fair to say that they have employed only two basic methodological strategies: the qualitative and the quantitative. Maritime historians interested in the economic and social aspects of their subject have applied the latter more widely in the past thirty years, in the process forging links with the social sciences, especially economics, anthropology and sociology. This in turn allows the investigation of a host of new issues, including freight rates, seamen's wages, employment patterns and ship operations.⁶⁶

Individual motives and reasons for particular actions may not be always easily discernible.⁶⁷ The lack of company papers determined my approach to the history of Burrell & Son. Cage has provided us with a fairly accurate idea about the ownership patterns, which he suggested became increasingly concentrated as the nineteenth century progressed.⁶⁸ The pool of investors providing capital has been presented by Cage, who based his analysis on public sources in Scotland. He established a rudimentary picture of the fleet, especially the technical aspects of the steamships (and the handful of sailing ships in the early years) used by Burrell.

Gelina Harlaftis, "The Greek Shipowners, the Economy and the State, 1958-1974" (Unpublished PhD Thesis, Oxford University, 1989).

⁶⁶Yrjö Kaukiainen, *Sailing into Twilight: Finnish Shipping in an Age of Transport Revolution, 1860-1914* (Helsinki, 1991), xv.

⁶⁷Guy Debord, *Panegyric* (London: Verso, 2004), 4.

⁶⁸Cage, *A Tramp Shipping Dynasty*, 37.

Crew agreements and the London (A) bills of entry offer an exciting opportunity to build a far more complete picture of the company's operations and the development of British tramp shipping during a period of rapid globalization and the expansion of the British merchant marine. The information contained in these sources is voluminous and necessitated the use of computer technology for the collection and analysis of the data, especially in the case of the crew agreements. The Atlantic Canada Shipping Project (ACSP) was the first organized effort to make systematic use of the information contained in the crew agreements. The researchers involved with the project sifted through thousands of documents, entering the data into databases that allowed the maximum level of analysis and comparison in the least amount of time. The principal historians involved with the ACSP have detailed the exact process in various articles.⁶⁹ Entering the data from the crew agreements in a database proved feasible for the project. Focusing on a single tramp shipping company was a task more easily manageable by an individual researcher, but some of the problems encountered by the ACSP team were bound to occur again.

The greatest problem in using the crew agreements when the ACSP first tried to do so was that the individual returns were filed yearly under the official number of the vessel. The clerk responsible filed the records in numerical sequence under these numbers, and then stamped the outside of each box with the year, and the sequence of numbers within which the records inside the box fell. It was impossible to establish what

⁶⁹Most notable among them, especially for the detailed presentation of the technical aspects connected with the collection and presentation of the data, is Lewis R. Fischer and Eric W. Sager, "An Approach to the Quantitative Analysis of British Shipping Records," *Business History*, 22, 2 (1980), 135-151.

records might exist for any particular ship without the extremely cumbersome and time-consuming process of turning to the ship's registry, locating the years for which it was in service and then opening all the boxes in which that vessel's number might fall to see whether there was anything inside.⁷⁰ To solve this problem, the Maritime History Archive created an index to the crew lists and agreements which allows the researcher to ascertain rapidly what documents the archive possesses for any particular vessel. The index covers the period 1863-1938 and is based on the official number of the vessel and returns the year and type of document that exist for that number. It also identifies whether there is an official log attached to the crew agreement. A separate index contains information on material held in archives in the United Kingdom, but this is not complete because it depends to a large extent on information provided by the British institutions. Still, it is possible to establish the years for which crew agreements exist in British institutions along with contact information.

The Maritime History Archive holds 826 crew agreements relating to voyages made by ships belonging to Burrell & Son between 1866 and 1930. Within this period the MHA holds few Burrell & Son crew agreements for the years ending in "5" (most of these are held in the National Maritime Museum and are not catalogued). There are also few Burrell crew agreements for the years from 1862-1865 or for the war years 1914-1918 (most of the latter are held in the National Archives at Kew). The unavailability of crew agreements for the years spanning the First World War would be a serious cause of concern if it were not for the decision by Burrell to disinvest during this period. A more detailed discussion about company policies during the war years will follow in a later

⁷⁰Matthews, "Crew Lists, Agreements and Official Logs," 80.

chapter, but we can state at this point that almost all ships belonging to Burrell & Son had been sold by 1916. A single ship survived into the 1920s, making seven voyages for which we have records. For all intents and purposes, the company's main period of operations was between 1863 and 1914, and for this time frame we have a sufficient number of agreements to conduct a reasonable analysis.

The crew agreements were not static documents; the standard information contained therein went through numerous revisions over the years. However, all crew agreements between 1854 and 1913 contain amongst other things the following information:

- A) The official number, name, rig, tonnage, date and place of built of the vessel
- B) The name and address of the managing owner
- C) The name, official number and address of the master
- D) The ration scales of the crew
- E) Destination and maximum duration of the intended voyage
- F) "Special instructions"- for example, consumption of liquor, advance of wages, leave in ports of call
- G) The name, age, date and place of birth of all crew members
- H) Their rate, rank of pay and the place and date of joining and leaving the vessel
- I) The name and port of registry of the last vessel upon which they had served and the date of leaving her
- J) The amount of wages advanced
- K) Details of all apprentices carried

L) The reason for discharge of each crew member

M) The dates at which the agreements were deposited and withdrawn by the master at the consulate or shipping office of each port of call.⁷¹

The collection of data for this thesis entailed the creation of a computer database using Paradox 7, a relational database management system. The database was divided into three different sub-databases following the three general groups of information contained in the crew agreements: one for the vessels, one for crew members and one for voyages. Each individual voyage was given a unique identification number comprising three elements: the official registration number, the position of the list among consecutive crew agreements for the same vessel and, finally, the month and year of the voyage. For example the voyage of the steamship *Strathness* (official registration number 102,672) in December 1895 was given the identification number 102,672-001-Dec95. The "001" element identified the agreement as chronologically the first for this particular ship in the collection of the Maritime History Archive. This system was a quick, easy and efficient way of retrieving the relevant information for each voyage from the three sub-databases.

The fleet was the physical capital of Burrell & Son's operations. The company began with the acquisition of three sailing vessels between 1862 and 1864 but soon turned its attention to steam. The focus was on ocean-going ships. This is fortunate, for details about Burrell & Son's coasting activities are limited to only a handful of crew agreements scattered among the ocean-going records and whatever information can be gleaned from them about ports of call along the British coast, generally on the way to an overseas destination. It was not uncommon for a vessel to sail from a given port in the United

⁷¹*Ibid.*

Kingdom and visit two or three additional British ports before proceeding to its actual destination. Loading additional cargo, completing the complement of crew and clarifying orders necessitated such stops, but vessels could potentially be carrying quantities of cargo from Glasgow to other British ports. Occasionally a vessel would be placed in the coastal trade, navigating between various United Kingdom ports for months on end. While the crew agreements for these voyages prove Burrell's ongoing interest in coastal shipping, we cannot know the precise degree of the company's involvement because the crew lists for its coastal voyages have not survived. The fragmentary nature of the evidence precludes safe conclusions on this topic, and I therefore decided to exclude coasting from the analysis.

Because there was simply not enough material for a proper analysis of coastal ship movements, no such information will be presented here unless visits to ports in the United Kingdom occurred shortly after the departure of the ship from its initial port on the way to an overseas destination (and correspondingly, when the vessel entered British ports coming back from abroad). Burrell & Son also owned and operated a number of puffers⁷² (most of which were built at the company-owned shipyard), but again we do not have adequate material to include them in our analysis.

The Registries in the BT 107, 108, and 110 series in the National Archives were used to create a database of the company's fleet. This computer file contained information about the gross tonnage, type of propulsion (sail or steam), date of acquisition, whether the vessel was bought new or second-hand, and the date of disposal (either through sale or accidental loss). Such data can enable the scholar to develop valuable insights into the

⁷² Dan McDonald, *The Clyde Puffer* (Newton Abbot: David & Charles, 1977).

business practices and managerial policies of Burrell & Son. As will become clearer later, company managers early on developed a set of preferences regarding the technical aspects of their principal assets. Steam was first chosen in 1866 and compound and, later triple-expansion vessels were Burrell's choices. Burrell preferred to commission new tonnage, demonstrating a clear preference for the output of shipyards in Northeast England and Scotland.

Every decision relating to the vessels had an impact on the trades in which Burrell could participate and influenced manning policies (and vice-versa). The use of steam placed a premium on the use of inexpensive, unspecialized labour that could work in the harsh conditions of the engine room, prompting Burrell to employ large numbers of Asian seamen. The gradual adoption of the compound engine (and the hesitant movement towards triple-expansion) affected the potential range of operations. The quality of the tonnage and the special circumstances under which vessels were purchased had an impact on the quality of life for the crew members, the trust placed on the company by potential clients, and (likely) the level of profitability. All of these topics will be discussed in this thesis.

The crew agreements contained some information relevant to the vessels themselves, and such material was used to complete the fleet database. The completed database is comprised of 826 individual records, corresponding to all the vessels for which there are agreements in the Maritime History Archive. Some of the information available in the crew agreements, while useful, was of limited value for the analysis of the development of the fleet. The vessel name, official number, port of registry and number and date of registry were useful for identifying the ship. The name of the managing owner

and his address was also of minimal interest since, in the vast majority of cases, Burrell & Son was identified as the manager of the vessel. Only until the mid-1870s do we find a few cases of other individuals appearing as managers of company vessels. The first page of the crew agreement identifies the intended destination, but more often than not it was stated in a particularly vague way, not necessarily corresponding perfectly with the actual destination of the ship. The use of the crew ration scales was of limited interest in the context of this thesis. The quantities stated in the relevant section were standardized, and without first-hand accounts from crew members we cannot be certain whether the company exceeded them. Both the intended destination and the rations were therefore excluded from the analysis.

The consular endorsements on the crew agreements provided the bulk of the material for the second database, which contains information on the actual voyages of Burrell & Son's vessels. These endorsements have been generally neglected by maritime historians. In the case of Burrell & Son, I was able to recreate with a good degree of certainty a complex mosaic of arrivals and departures in hundreds of different ports around the world. In certain cases, however, the endorsements were not complete. Ports for which there was textual evidence that the vessel had in fact visited sometimes lacked consular endorsements, and in a few instances the agreement actually had no information on ports. Such agreements were excluded from the calculations, reducing the number of tables in this database to 800. The port of departure, the ports of call (along with the dates of arrival and departure) and the final destination are included. During the research every effort was made to ascertain the exact dates during which the vessel remained in each port. I checked the dates posted by the shipping officials against the dates of signing on

and off of crew members, and I made corrections wherever I found that the vessel remained in a particular port for periods extending before and/or beyond the official duration of the stay according to the official endorsements. When it was impossible to identify the exact duration of stay, the relevant fields in my records were left blank.

Destinations and cargoes have a close relationship. Tramp operators do not rely on a regular sailing schedule, and the practice of transporting goods between foreign destinations without ever visiting their port of registry was widespread. This created singular challenges for the researcher. The absence of company papers precludes any detailed analysis of customer contacts. We simply do not know the names of merchants or agents Burrell & Son were dealing with at any given destination. As a result, we cannot understand what cargoes they carried between ports or between the United Kingdom and overseas destinations, although sometimes we can make assumptions about the cargo. For example, if Middlesbrough or Swansea or South Shields were the port of departure, we can reasonably assume the cargo was coal. The majority of the port visits in the crew agreements reflect a typical late nineteenth- and early twentieth- century tramp pattern, namely the carriage of goods between foreign ports often without returning to the United Kingdom. During the 1890s many Burrell voyages originated and ended in continental ports, with Glasgow or Liverpool never being visited.

The London Customs A bills provide a solution to the problem of determining at least some of the cargoes. The series is held in microfilm by the Maritime History Archive. Knowing the date when a Burrell vessel arrived in London (or one of the other ports included in the A bills), it was possible to locate the relevant entry among the thousands of vessels included in the Bills. There were 107 entries of steamships operated

by the company into the ports included in the London A bills in the period under consideration (see Table 1.1).⁷³ The Customs bills of entry identified the cargo, the consignee (or consignors) and the quantity carried. This information was combined with what was known about the movements of the vessels involved and with data on freight rates in an attempt to fully understand the movement of goods by Burrell's fleet. The Mediterranean and the United States comprise about half of all the voyages traced. India, the Caribbean and Southeast Asia are also relatively well represented. The Pacific coasts of North and South America, as well as Australia, areas where Burrell was particularly active in the 1900s, are less well represented in the bills of entry since most of the company's vessels did not sail directly back to the United Kingdom. The data available provide some indications about the prevalent cargoes; for the Mediterranean and the United States we can identify with certainty the cargoes carried on the majority of voyages.

The last and biggest of my databases contains information on thousands of crew members taken from 819 individual crew agreements. Some of these entries refer to the same person being employed multiple times by the company. A small number of the documents were clearly incomplete in that they obviously did not include all crew members. Seamen from Africa, India, China and Japan were often not listed in the main crew agreement, but their names were registered in a separate document known as an

⁷³Two of these did not include a list of commodities carried, simply stating that the cargo remained on board for exportation. The analysis of cargoes is based on the remaining 105 entries.

“Asiatic Agreement.”⁷⁴ No such documents, however, were found among the Burrell & Son agreements. In many cases, the European agreements contained the names of Asian and African seafarers, and these crew members have been included in the analysis. But when a vessel appeared to be undermanned, it was assumed that the non-European crew members were not included and the agreement was not used.⁷⁵ Office personnel working ashore are also excluded, as we have no way of determining who they were.

Table 1.1
Burrell & Son Vessels Reported in the London Bills of Entry (by voyage origin), 1862-1929

	1862-1870	1871-1880	1881-1890	1891-1900	1906-1929
Algeria	-	2	2	-	-
Australia	-	-	1	1	-
Baltic	1	1	-	1	-
Black Sea	-	2	-	-	-
Canada	-	1	-	-	-
China	-	1	-	1	-
Demerara	-	-	1	-	-
France	-	1	1	-	-
Greece	-	2	3	-	-
India	-	8	-	4	-
Italy	-	1	-	-	-
Jamaica	-	-	11	-	-
Mexico	1	-	-	-	-
Netherlands	-	1	-	-	-
Portugal	1	9	-	-	-
South Africa	-	-	1	-	-
Southeast Asia	-	1	3	1	-
Spain	1	6	8	-	-
United States	-	1	11	10	4
Total	4	37	42	18	4

Source: London Customs bills of entry, 1862-1929.

⁷⁴Leo Barnes, *Evolution and Scope of Mercantile Marine Laws Relating to Seamen in India* (New Delhi: Maritime Law Association of India, 1983), 168-178.

⁷⁵When we have agreements from a vessel with about thirty-five crew members and we come across one with ten, it is clear that something is missing. The number of agreements not included is very small and there is no reason to believe that information has been lost along the way.

The data collected were extracted from the crew agreements.⁷⁶ For each crew member we have the age; place of birth; capacity; whether the crew member was employed in a vessel of the same company in the last voyage; date and place of signing on; date and place of leaving the vessel; the cause of discharge and wages (in pounds or in US dollars if so stated in the crew list). Finally it was noted whether the person was literate or not.⁷⁷ The fragmentary and incomplete nature of the primary source affected the data collected for each crew member. In some cases, certain details were missing, with place of birth being the most characteristic. Whenever it was not possible to identify the place of birth, either because of illegible handwriting or simply because it was not stated, an effort was made to arrive at a logical conclusion as to the country or region of origin based on the name of the person involved.⁷⁸ If doubts persisted, the relevant field was left blank. Burrell & Son did not employ significant numbers of apprentices, but in some cases we must deal with employees whose exact role is obscured by their generic capacity identification. A good example is numerous "labourers" who sometimes travelled with the ship between destinations. The name might imply casual labour

⁷⁶I initially considered whether it would be advisable to collect the actual name of each crew member but in the end decided that this would be unnecessary for this project. The fundamental reason for excluding individual names was analytical. Collecting such information would not have helped in answering the principal questions posed in the thesis. We are not interested in the personal lives or professional advancement of the crew members but to the company policies and managerial attitudes towards these men and women as part of a wider whole, namely the company itself. Data collected from the crew agreements offer insights in hiring policies, preferences for particular categories of employees, the impact of these men in the efficient running of the vessel, and the potential profitability of Burrell & Son. Their actions while at sea (desertion, rates of accidents or losses, whether they remained with the company at the end of the voyage) reflect upon company attitudes. Since it is the company (and not the individual crew member) which is the subject of this thesis, collecting names was not of utmost importance.

⁷⁷For a discussion of how literacy is defined, see the relevant section on literacy in this thesis.

⁷⁸I would like to thank the archivists at the Maritime History Archive for their generous help on this issue. They were always patient and helpful, and they guided me in the right direction on more than one occasion.

employed for specific purposes during a short period of time, but nothing more specific can be ascertained from the crew agreements.⁷⁹

1.3 Outline

After this introduction, the thesis presents a literature review (chapter 2). Even after maritime historians began distancing themselves in the past few decades from the parochial, sentimental and fairly non-analytical literature written in the nineteenth and early twentieth centuries, they still have covered a number of topics unevenly. Liner companies, offering voluminous records in organized collections, have (perhaps unavoidably) attracted more attention than tramp ship operators. The literature review is aimed at highlighting research developments in areas relevant to a better understanding of the operations of Burrell. In addition, it illustrates various methods employed by maritime historians to answer questions similar to those posed in this thesis.

The literature review is followed by an investigation of the fleet as physical capital in chapter 3.⁸⁰ The company entered the shipping business using small sailing

⁷⁹A critical issue involved my ability to identify locations and place-name since substantial analysis focused on this parameter, both for recreating the voyage patterns and identifying various employment strategies adopted by Burrell & Son. I was able to use a system created by the Atlantic Canada Shipping Project for identifying countries, towns and ports by assigning a unique six-digit code to every place. The first three digits are a number ranging from 000 to 999: this number is used to determine the country, with Canada being assigned numbers starting with zero, the United Kingdom with 1, France with 2, etc. Within a country, particular regions are also given a unique number with Scotland being assigned numbers beginning with 17, Wales with 15 and so on. The next three digits are letters that identify the actual place. Glasgow, for example, is given the number 170GLA, London is 101LON, Calcutta is 750CAL, etc. The efficiency of the system during the analysis allowed, for example, an easy grouping of all ports from the same country. Whenever a particular place did not have an identification number, one was created following the principles used in the Atlantic Canada Shipping Project. The vast majority of cases in this category refer to small towns and villages in Scotland and Ireland.

⁸⁰The term "physical capital" as I use it is employed routinely by economic and maritime economic historians. For a full discussion, see K.H. Hennings, "Capital as a Factor of Production," in John

vessels, but as technology improved and the areas of trade expanded, the company shifted to steam. For the first three decades, Burrell & Son demonstrated a cautious policy of incremental increases in fleet size, procured mostly through the purchase of larger (rather than more) steamships. Eventually, the firm determined its preferred size and propulsion, ushering in a decade of rapid expansion with the purchase of a certain type of vessel deemed appropriate for its needs. Even though we do not have as much information as we would like on the relations between Burrell & Son and the shipbuilding community, it appears that the company never relied on an exclusive relationship with any particular shipbuilding firm. Instead, its orders were spread among numerous shipyards, the main concern being rapid delivery of appropriate tonnage at an acceptable price. Losses at sea due to accidents occurred infrequently, but when they did they were concentrated disproportionately among second-hand vessels, a fact that likely explained the company's preference for newly built ships.

Chapter 4 takes a close look at the various trades in which Burrell & Son was involved. Tramp shipping has always been characterized by the wide variety of cargoes carried and the flexibility of shipowners in looking for new opportunities to employ their tonnage. Burrell & Son was no exception. In the early decades the company was engaged mostly in the Mediterranean fruit trade and in the transport of ore from Spain and North Africa, but by the second half of the 1880s there was a clear diversification into a variety of trades. The 1880s ushered in a decade of substantial involvement in the Caribbean, while towards the end of the century the centre of attention moved towards the North

Eatwell, Murray Milgate and Peter Newman (eds.), *The New Palgrave: A Dictionary of Economics* (New York: Palgrave Macmillan, 1987), 2136.

Atlantic, Australia, and the Pacific coasts of the Americas, areas where Burrell remained actively involved until the First World War.

The London "A" Bills reveal the wide variety of goods carried over the years: lemons and oranges from Italy, cowhides and jute from India, wool and frozen meat from Australia, tea from China, tin from Singapore, iron ore from Betts Cove, Newfoundland, wheat from Puget Sound, and mixed cargoes from New York. Turnaround time, an important consideration when attempting to maximize revenues, was (and is) a crucial parameter of shipping since with only a few minor exceptions, revenues were generated only when a ship was at sea. This is one factor, therefore, from which we can try to infer the potential for profitability. I calculated turnaround time for certain major ports in various regions of interest to Burrell & Son. The results of this analysis are contradictory, with turnaround times declining in some ports, while others demonstrated an opposite tendency. The same contradictory trends were evident in mean passage times, with Burrell clearly opting for slower passages on occasion. Freight rates also offer some glimpses into Burrell's operations. Despite limitations imposed by the methodologies used by some scholars in the construction of freight rate indices, the information available provides a rationale for certain decisions taken by Burrell & Son regarding fleet deployment and choice of cargoes.

Chapters 5 and 6 shift the reader's attention to the crew members. Using data collected from the crew agreements, these chapters investigate various aspects of crew provenance and their life at sea. Chapter 5 begins by examining the number of seamen of all occupational groups employed by Burrell & Son. In absolute numbers, the biggest increase occurred after the rapid fleet expansion in the 1890s. Yet long before that,

Burrell secured savings in the wage bill through a significant reduction in the man/ton ratio, a decrease which became particularly pronounced after 1870 as steamships started replacing the sailing vessels which comprised the company's fleet in the earliest period. The crew agreements also allow me to analyze the age and the region of birth (or sometimes the current residence) of the crew members. Organizing these employees into groups based on their occupation on board the vessel, we proceed with a presentation of their age and place of birth. In the context of the latter analysis, there is a detailed investigation of the role of foreign seamen, especially Asians. The so-called "lascars" formed a substantial percentage of liner company employees, but in the case of Burrell & Son the crew agreements revealed a preference for seamen from Asia. Their numbers increased dramatically in the last few years of the 1890s and remained exceptionally high (much higher in fact than the average for the British merchant marine as a whole) until the First World War.⁸¹ A discussion of literacy rates, determined by whether the employee was able to sign the agreement, rounds out the discussion in chapter 5. This is an important topic because, as David Alexander noted, although there was no particular technical reason why the master should be interested in whether the seamen were literate, there might be a connection between education and socialization. If that is true, then literacy might be related to behaviour and in that way related to a more or less satisfactory performance.⁸²

⁸¹Conrad Dixon, "Lascars: The Forgotten Seamen," in Rosemary Ommer and Gerald Panting (eds.), *Working Men Who Got Wet* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1980), 281.

⁸²David Alexander, "Literacy among Canadian and Foreign Seamen, 1863-1899," in Rosemary Ommer and Gerald Panting (eds.), *Working Men Who Got Wet* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1980), 1-33.

Chapter 6 explores three major topics of maritime life: turnover, desertion, and wages. Turnover may be a reflection of a number of things, including vessel deployment and the satisfaction that crew members have with conditions on board a vessel, at least for certain occupational groups. Masters, officers and engineers, professionals aiming at a career at sea, were less likely to abandon the company and the vessel unexpectedly. The same was not always true for able-bodied seamen (ABs), firemen or trimmers, for whom in some cases working on a tramp might have served as a paid passage to a new place of residence or a port where higher wages promised an economic windfall. Closely associated with this behavioural pattern is the question of desertion, and the analysis takes into consideration the age, occupation, and birthplace of the deserters. Particular attention is placed upon desertion in certain ports that were known throughout the maritime world either as gateways to the colonies of white settlement or as places where labour shortages resulted in higher wages. Finally, the thesis examines wages. A quantitative analysis of wages offers an excellent opportunity to construct series of wage data, especially for those occupational groups (such as ABs, firemen, and trimmers) that were especially well represented among Burrell's crews.

The thesis concludes by advancing an interpretation of two key decisions taken by Burrell & Son, namely the disinvestment during the Boer War and once again during the First World War. We are in a position to know that Burrell was able to reap a handsome profit in 1915-1917 through the sale of its fleet at inflated prices, but we are less certain about the first period of disinvestment. The Boer War resulted in an increased demand for tonnage which inflated the prices for vessels. In that climate, Burrell & Son had the opportunity to dispose of its assets profitably. Although we cannot know for certain that

this actually occurred, in the absence of capital generated through such sales it is difficult to envision how the company was able to place extensive orders for new tonnage only a few years later.

The second disinvestment in 1916 raises the question about whether George and William Burrell exhibited behaviour that many historians have identified as characteristic of British entrepreneurs in the late nineteenth and early twentieth centuries. The debate about tendencies among British entrepreneurs to abandon their businesses in pursuit of more "gentlemanly" pursuits, has produced some important insights in other studies, so it is worth posing the question whether the Burrells had motives other than wartime profits when they decided to sell their fleet during the First World War.

There are aspects of Burrell & Son we cannot study to the extent we might wish. Profitability is a crucial aspect of business, and shipping is no different. Neither the British Empire Agreements and Accounts of Crew nor the Customs bills of entry can offer much assistance in this area (except perhaps through illustrating trading areas and helping us to identify cargoes that might be associated with an improved potential for profit at a given point in time). This thesis does not attempt to establish levels of profit or loss, except in a circumstantial way wherever we have general freight information that may be corroborated with fragmentary details about cargoes carried by Burrell & Son. Nor does this thesis pretend to be a sociological analysis of life at sea for crew members on tramp ships. While considerable information relating to life at sea is presented in the relevant chapters, the focus remains squarely on the company. Levels of remuneration, rates of turnover, and instances of injury or death influence the overall experience of working on the high seas. The purpose of the analysis, though, is to establish managerial

competence and policies that determined the overall development of the company. The choice of a particular nationality of seamen (i.e., the Chinese) in the early twentieth century undoubtedly had an impact on the working experience aboard Burrell's steamships, both for the Chinese and the European crew members. But most importantly for this thesis, it clearly demonstrates the willingness of the company to take advantage of a cheap source of labour. We cannot know with certainty how well treated these men were. But we can be fairly confident that Asian labour was viewed as an essential element in Burrell's efforts to succeed in the business. The sources used may have determined the methodology employed, but they were chosen for their potential primarily to help to achieve the goal of understanding better an important tramp shipping company in a crucial transitional period for British shipping.

Chapter 2

The Literature

Maritime historians are faced with significant problems in trying to gain an understanding of merchant shipping in the nineteenth and twentieth centuries. Among the most intractable difficulties is the spotty and fragmentary nature of the relevant literature. The historical literature on merchant shipping has emphasized particular topics while ignoring others. What is true about merchant shipping in general is even more relevant in the field of tramp shipping. Despite the undeniable importance of this sector in the maritime universe of the nineteenth and twentieth centuries, historians for the most part have been unwilling to tackle the issues inherent in the analysis of tramp shipping.

Maritime history as an organized sub-discipline is a relatively recent phenomenon. While there are some important earlier works, it was in the 1950s and 1960s that scholars began to approach maritime history in a more rigorous way, distancing themselves from the antiquarian and parochial nature of earlier publications.

Frederick William Wallace's *Wooden Ships and Iron Men*, published in the 1920s, is a good example of this tendency to wax rhapsodic about the "golden age of sail." As the author wrote in his foreword:

The compilation of this record was undertaken as a labour of love and to save from oblivion the facts regarding an era of maritime effort and industry which is one of the most inspiring pages in Canadian history.¹

¹Frederick William Wallace, *Wooden Ships and Iron Men: The Story of the Square-rigged Merchant Marine of British North America, the Ships, Their Builders and Owners and the Men Who Sailed Them* (London: Hodder and Stoughton, 1924; reprint, Belleville, ON: Mika Publishing, 1976), xv.

It is hard to doubt Wallace's sincerity or to consider his study as anything but a "labour of love." The amount of minutiae is extraordinary, but as a serious historical approach to the development and evolution of the Atlantic Canadian shipping industry *Wooden Ships* was not terribly satisfactory. There was simply too much anecdotal and antiquarian material (and a lack of quantitative information) for this stuffy book to be considered an adequate approach to its subject matter.

Perhaps the first notable example of this new approach to the field was the seminal *The Rise of the English Shipping Industry in the Seventeenth and Eighteenth Centuries*,² which first appeared in 1962. Ralph Davis, a graduate of the London School of Economics, analyzed the rise of the shipping industry in England and identified the main factors that facilitated this process. His view encompassed the role of armed conflict (particularly with the Dutch, the pre-eminent maritime power of the seventeenth century); the importance of the coal trade and the fishery as a nursery of seamen and employer of large numbers of vessels; the development of colonial trade with the West Indies and the Baltic; and the slow appearance of merchants who would develop into the professional shipowners of the nineteenth century. The breadth of the analysis was breathtaking, not only because of the long view but also because of the comprehensive way he which he viewed maritime industry. Davis did not restrict himself to shipowners, their vessels and the trades comprising the maritime universe of seventeenth and eighteenth century Great Britain but also dedicated substantial parts of his study to the crews, shipbuilding and state policies aimed at removing obstacles to the development of shipping.

²Ralph Davis, *The Rise of the English Shipping Industry in the Seventeenth and Eighteenth Centuries* (London: Macmillan, 1962; reprint, Newton Abbot: David and Charles, 1972).

Davis' seminal work marked the dawn of a new era in the field of maritime history. Up until that point, the foci were on naval history, exploration and technology.³ The rise of the steamship and the subsequent decline of the sailing ship attracted attention from scholars and "gifted amateurs," with some lamenting the demise of sail and others heralding the arrival of a formidable new medium of transportation, a tool that facilitated the expansion of world-wide trade and the building of empires.⁴

At about the same time that Davis wrote, the Liverpool economic historian Francis Hyde produced *Blue Funnel: A History of Alfred Holt And Company of Liverpool from 1865 to 1914*.⁵ The importance of the book and its groundbreaking approach was not lost among his contemporaries. Cyril N. Parkinson heralded the publication by acknowledging its value and noting that "such a history was overdue."⁶ Hyde aimed at re-orienting maritime history away from the sentimental and often antiquarian approach of the past towards a more historical approach, firmly based upon surviving records. Although Alfred Holt's records suffered serious losses during the Second World War, what remained was sufficient for Hyde to present a well articulated history of one of Britain's pioneering steamship companies. Holt was rightfully famous for his early adoption of the compound engine, an engineering feat that allowed his vessels to take

³Ralph Davis, "Maritime History: Progress and Problems," in Sheila Marriner (ed.), *Business and Businessmen: Studies in Business, Economic and Accounting History* (Liverpool: Liverpool University Press, 1978), 169.

⁴*Ibid.*, 182-188.

⁵Francis E. Hyde, *Blue Funnel: A History of Alfred Holt and Company of Liverpool from 1865 to 1914* (Liverpool: Liverpool University Press, 1956).

⁶Cyril N. Parkinson, "Blue Funnel: A History of Alfred Holt and Company of Liverpool from 1865 to 1914," *English Historical Review*, 72 (1957), 764.

advantage of opportunities in Asian waters that were denied to less technically advanced competitors. But Hyde was not interested so much in these technical aspects of Holt's enterprises. Instead, his twin foci were the role of individuals in the management of a large shipping firm and the growth of British steamship trade in Southeast Asia and China. The company's success was not based solely on the compound engine (even though such an advantage certainly helped, at least before its general introduction in the British merchant fleet). Rather, he attributed most of the credit to the networks of agents and feeder lines that Holt created in Asia. The company invested capital and energy in establishing wharves, securing exclusive agreements and entering productive trades. Hyde was not interested in labour or social history. His analysis of Holt's rests securely on company records, financial statements and policy papers, placing economic and business history at the centre of the maritime experience.

This work inaugurated the so-called "Liverpool School" of maritime history, a type of historical writing that became popular in the 1960s and 1970s and which spawned a number of studies of shipping companies.⁷ Francis Hyde found worthy followers in two of the most important maritime historians to emerge from the Liverpool milieu. One was Sheila Marriner, who joined the Department of Economics in 1943 and assisted Hyde with his research for the book on Blue Funnel. Four years after the publication of Hyde's study, Marriner published her work on the Rathbones of Liverpool, a commercial firm deeply involved in the import of cotton and foodstuffs from the United States to Europe,

⁷Notable studies also written by Francis Hyde according to the principles employed in his analysis of Alfred Holt include *Cunard and the North Atlantic, 1840-1973: A History of Shipping and Financial Management* (London: Macmillan, 1975); and *Shipping Enterprise and Management, 1830-1939: Harrisons of Liverpool* (Liverpool: Liverpool University Press, 1967).

the import of Brazilian coffee and Chinese tea and silk, the carriage of commodities from India, Japan, and Egypt, and the shipping and merchant banking business in the United Kingdom. Loyal to Hyde's basic principles, Marriner's history of the Rathbones is a pure example of business history, with the financial and commercial organization of the enterprise being at the centre of the analysis. Since the accounting books of the firm had not survived, the author made extensive use of family papers and business records, mostly correspondence from the London, New York and China houses.⁸

Peter N. Davies was the second of these scholars. A student, and later a colleague, of Hyde, his area of interest was West Africa and the role played by the Liverpool-based firm of Elder Dempster in incorporating this area into the developing world trading networks of the late nineteenth century. Once again, his approach was business history. The basic sources for the analysis were company papers and oral interviews with surviving employees. The emphasis was on the establishment of trade networks and the development of West African trade in general. The familiar attention to conferences and their role in promoting (or hindering) the growth of trade was present, as was the close attention paid to the leading figures within the Elder Dempster organization. The extensive list of appendices at the end of the analysis was an amazingly accurate demonstration of the analytical possibilities (and accompanying restrictions) generated by the Liverpool School's choice of sources. The data referred to the company's fleet,

⁸Sheila Marriner, *Rathbones of Liverpool, 1845-73* (Liverpool: Liverpool University Press, 1961). Similar principles and sources were actually used in another important study co-authored with Francis Hyde, *The Senior John Samuel Swire, 1825-98: Management in Far Eastern Shipping Trades* (Liverpool: Liverpool University Press, 1967). Marriner used surviving company records and the personal correspondence of John Samuel Swire to recreate the company history and demonstrate the contributions of Swire in the establishment and operation of the Far Eastern Liner Conference.

properties, capital structure, accounts, earnings, directors, shareholders and subsidiaries. A discussion of labour history was conspicuously absent.⁹

The Liverpool School's approach to maritime history was characterized by a focus on liner companies, with the emphasis placed on managerial decisions and the effects of their actions upon profitability. Even though this body of scholarly work was clearly superior to the vast majority of early company histories¹⁰ (with the focus on individuals, ships and events, opting for a narrative approach devoid of analytical tools, refraining from placing the actions of individuals within a greater context), it neglected at least two major areas of interest: labour relations and tramp companies. Company records are indeed a valuable source of information, but a strict adherence to them to the exclusion of other potential sources runs the risk of creating a narrowly focused analysis that ignores important elements of the shipping world. The absence of contextualization is a recurring problem in works that followed the model of the Liverpool School. Most of them focus exclusively on a single shipping company, avoiding references to parallel developments elsewhere. Chronologically, the Liverpool School's historiography was narrowly

⁹Peter N. Davies, *The Trade Makers: Elder Dempster in West Africa, 1852-1972, 1973-1989* (London: George Allen and Unwin, 1973; expanded ed., St. John's: International Maritime Economic History Association, Research in Maritime History No. 19, 2000). See also Davies' book *Sir Alfred Jones: Shipping Entrepreneur par Excellence* (London: Europa Publications, 1978). Other notable members of the Liverpool School include David M. Williams, "The Function of the Merchant in Specific Liverpool Import Trades, 1820-1850" (unpublished MA thesis, University of Liverpool, 1963), Frank Neal, "Liverpool Shipping, 1815-1830" (unpublished MA thesis, University of Liverpool, 1962), and John R. Harris (ed.), *Liverpool and Merseyside: Essays in the Economic and Social History of the Port and Its Hinterland* (London: Cass, 1969).

¹⁰Edward W. Paget-Tomlison, *History of the Bibby Line* (Liverpool: Bibby Line, 1969), Boyd Cable, *A Hundred Year History of the P&O Line 1837-1937* (London: I. Nicholson and Waxman, 1937), Edward F. Stevens, *One Hundred Years of Houlders* (London: Mendip Press, 1950), Alastair Mactavish Dunnett, *The Donaldson Line* (Glasgow: Jackson Son and Co., 1960), Wilton J. Oldham, *The Ismay Line* (Liverpool: Journal of Commerce, 1961), and George Blake, *Gellatly's, 1862-1962* (Glasgow: Blackie, 1962).

concentrated in the second half of the nineteenth and the first half of the twentieth century, and there was no analysis of developments in the sailing ship sector. In addition, coastal shipping was all but ignored.¹¹

In this climate of new approaches to the field, maritime history was aided by the birth of the first periodical dedicated exclusively to the dissemination of scholarly work related to the history of the sea. What was particularly important about the journal *Maritime History* was the determination of Robin Craig, its editor, to appropriate the term "maritime history" and use it to embrace the study of merchant shipping, shipbuilding, and maritime labour. Naval history was artificially separated, and a new emphasis was placed upon the development of the merchant marine. Unfortunately the periodical had a relatively brief life, lasting for 1971 to 1975, reappearing once more in 1977. Nevertheless, it remained true to its editor's ambition to serve as a vehicle for the dissemination of scholarly work on merchant shipping.

The articles that appeared in its pages ranged widely in scope covering coastal shipping, the history of the early steamship and the problems and opportunities associated with the development of a new technology,¹² the British trans-Atlantic slave trade¹³ and ports,¹⁴ among many other topics. The most important contribution of this journal,

¹¹Davis, "Maritime History: Progress and Problems," 174-177.

¹²Stephen B. Martin and Norman McCord, "The Steamship *Bedlington*, 1841-1854," *Maritime History*, 1, 1 (1971), 46-64.

¹³David Eltis, "The British Trans-Atlantic Slave Trade after 1807," *Maritime History*, 4, 1 (1974), 1-11.

¹⁴Atle Thowsen, "Bergen - A Norwegian Seafaring Town," *Maritime History* 3, 1 (1973), 3-34; and Peter Barton, "The Port of Stockton-on-Tees and its Creeks, 1825-1861: A Problem in Port History," *Maritime History*, 1, 2 (1971), 121-157.

however, must be the series of articles on records useful for the study of merchant shipping and the facilities housing them. Beginning with the ship registry and the National Maritime Museum in the very first issue,¹⁵ Craig's journal became an indispensable tool for maritime historians searching for available sources. Edward Carson used the second issue of the journal to offer an introduction to one of the most useful sources in maritime history, especially for those interested in understanding the cargoes carried by vessels entering British ports.¹⁶ After a brief outline of the history of the introduction and development of the forms and the information chosen for inclusion, Carson presented some typical examples of bills of entry, allowing maritime historians to appreciate the potential of this source for understanding seaborne trade.

The demise of *Maritime History* deprived maritime historians of a dedicated venue for the presentation of their work. The arrival of Frank Broeze at the University of Western Australia in the late 1970s established Perth as a new centre of maritime history. Broeze aimed at filling the void left by *Maritime History* with the appearance in 1979 of his journal, *The Great Circle*.¹⁷ Despite its suggestive title, this journal failed to provide a

¹⁵See Rupert C. Jarvis, "Ship Registry - to 1707," *Maritime History*, 1, 1 (1971), 29-45; and Basil Greenhill, "The National Maritime Museum's Exhibition of the Paintings of Reuben Chappell," *Maritime History*, 1, 1 (1971), 103-105.

¹⁶Edward A. Carson, "Customs Bills of Entry," *Maritime History*, 1, 2 (1971), 176-189.

¹⁷During the early 1980s, maritime history articles were accommodated in *Business History*, the *Economic History Review*, the *Journal of Transport History*, and *Mariner's Mirror* (though the latter employed a rather antiquarian approach, while naval history occupied a more prominent role than did the merchant marine) *Sea Breezes* catered to the general public rather than the academic. In June 1989, the Maritime Economic History Group published the first issue of the *International Journal of Maritime History*, a publication that has become the quintessential journal of maritime history and continues to thrive into the twenty-first century (along with *The Northern Mariner/Le Marin du nord*, published for the first time in 1991 by the Canadian Nautical Research Society and focusing on issues in maritime history pertaining to the nations on the shores of the seas in the northern hemisphere - including inland waterways).

platform for a truly global approach to maritime history, narrowing its content to research pertinent to the Pacific region. It was not until 1989, when the *International Journal of Maritime History* began publishing, that maritime historians acquired an academic journal capable of satisfying the needs of the field. The editors' goals were to highlight the international dimension of maritime history, to focus on maritime social and economic history (without excluding what they called "other perspectives"), to encourage authors to place their work within the context of broader historical questions and to improve the quality of maritime writing.¹⁸ The editors dedicate ample space to book reviews and have instigated features such as "roundtables" and "forums" to allow researchers to discuss their research while encouraging discussions on methodology and common problems. Even though the quality of the writing may not always live up to the lofty goals established by the editors in the first issue, the journal has actively fostered an international dimension with contributors, editors and subjects from many countries.

In the early 1980s, as *Maritime History* was finishing its circle, maritime historians working at Memorial University of Newfoundland became involved in the Atlantic Canada Shipping Project (ACSP). The researchers involved with the project were able to publish numerous articles with the main focus on the sailing industry of Atlantic Canada during the time of rapid growth and subsequent collapse in the middle of the nineteenth century. Their perspective encompassed fundamental questions such as labour relations, crew compositions, desertion, and literacy. In various papers they sketched out interesting pictures of regional fleets and attempt to explain their creation, operation and

¹⁸Lewis R. Fischer and Helge W. Nordvik, "Editors Note," *International Journal of Maritime History*, 1, 1 (1989), vii-ix.

reasons for eventual demise.¹⁹ It should be noted though that most of the analysis associated with the Atlantic Canada Shipping Project was in article form and was preliminary in nature. In most cases, the researchers did not proceed further with their subject.

During the 1980s, historians began to tackle important issues that would later be associated with the attempt to study the operations of Burrell & Son. By the end of the decade studies appeared of the shipping history of different parts of the United Kingdom, particularly Scotland. Stephanie Jones, an archivist with Inchcape PLC, published a history of the establishment and development of an important global trading network. Originating in the Indian managing agency system, and taking advantage of an expanding communications network that linked manufacturers and shipping brokers with the markets of Southeast Asia, China and Australia, the Inchcape group developed into a worldwide trading company, establishing its own shipping companies, investing in river transportation, tea plantations and other activities that qualified as "informal

¹⁹The Atlantic Canada Shipping Project demonstrated in the most persuasive manner the ways in which the crew agreements can be used to analyze and explain very important issues in maritime history. In the late 1970s and early 1980s the members of the project published a number of very influential volumes covering different aspects of Canadian and international maritime history. See Keith Matthews and Gerald Panting (eds.), *Ships and Shipbuilding in the North Atlantic Region* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1978); Lewis R. Fischer and Eric W. Sager (eds.), *Enterprising Canadians: Entrepreneurs and Economic Development in Eastern Canada, 1820-1914* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1979); David Alexander and Rosemary Ommer (eds.), *Volumes Not Values: Canadian Sailing Ships and World Trades* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1979); Rosemary Ommer and Gerald Panting (eds.), *Working Men Who Got Wet* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1980); Lewis R. Fischer and Gerald E. Panting (eds.), *Merchant Shipping and Economic Development in Atlantic Canada* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1982); Lewis R. Fischer and Gerald E. Panting (eds.), *Change and Adaptation in Maritime History: The North Atlantic Fleets in the Nineteenth Century* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1985).

imperialism."²⁰ Vivian Vale used corporate and government records in Great Britain and the United States to detail the events surrounding the creation of the International Mercantile Marine. The attempt by J.P. Morgan to combine various shipping enterprises into the largest maritime company in the North Atlantic generated feelings of unease both among the general public and the British government. Concerns over the acquisition of well-known British shipping companies by American interests at a time of intensifying naval competition with Germany led the British government to take action. Vale offered a detailed analysis of the negotiations concerning the assistance provided to Cunard and the negotiations with Morgan that ensured the availability of IMM steamers in time of need.²¹

South and West Africa also continued to attract some attention. Peter Davies offered a valuable service to scholars interested in the region with the publication of *Trading in West Africa, 1840-1920*, a collection of papers and personal memoirs of six men, most of them Europeans, engaged in the trade between West Africa and Great Britain in the second half of the nineteenth century. Despite the lack of critique and a certain antiquarian feeling which pervaded the book, Davies was able to suggest the wealth of information and to highlight the underutilized sources available to the researcher. The memoirs offered a glimpse of trading conditions in West Africa in terms

²⁰Stephanie Jones, *Two Centuries of Overseas Trading: the Origins and Growth of the Inchcape Group* (London: Macmillan, 1986). For a history of another Scottish shipping company, see John Orbell with Edwin Green and Michael Moss, *From Cape to Cape: History of Lyles Shipping Company* (Edinburgh: Harris, 1978).

²¹Vivian Vale, *The American Peril: Challenge to Britain on the North Atlantic, 1901-1904* (Manchester: Manchester University Press, 1984). The maritime history of the United States was also the subject of Jeffrey J. Safford, "The Decline in the American Merchant Marine in Foreign Trade, 1800-1839," in Tsunehiko Yui and Keiichiro Nakagawa (eds.), *Business History of Shipping* (Tokyo: University of Tokyo Press, 1985).

of commodities, prices, credit arrangements, living conditions, diseases, political conditions and other factors that influenced the lives of traders active in the region.²²

In the late 1980s, John Bach endeavoured to write a comprehensive history of the multifaceted relationship of Australians with the sea. His focus was on the contributions of the European arrivals beginning in 1788. It was a general history, placing emphasis on the economic and political aspects of Australia's maritime connections with the rest of the world. He traced the development of overseas shipping, internal and coastal trade, the rise and fall of seaports and the multiple changes between the end of the Second World War and 1975. Conferences, tariff policies, shipbuilding and the effects of technological innovations were central to Bach's analysis. Perhaps in typical fashion given the relative ease of accessing relevant sources, Bach spent a disproportionate amount of time studying the operations of liners to the virtual exclusion of tramp shipping. It was only during the interwar period (1918-1939) that he turned his attention to the workings of the Tramp Shipping Administrative Committee. In general, his study was a good introduction to the role maritime trade and connections had in the arrival and prosperity of Europeans in Australia, but he failed to provide an in-depth analysis of any single issue.²³

The most notable improvements came in the area of social history, a topic previously neglected. Indeed, before the 1980s scholars had seldom tackled the issue of

²²Peter N. Davies, *Trading in West Africa, 1840-1920* (London: Croom Helm, 1976). See also Peter N. Davies, "The Impact of the Expatriate Shipping Lines on the Economic Development of British West Africa," *Business History*, 19, 1 (1977), 3-17; and David Hughes, *In South African Waters: Passenger Liners since 1930* (Oxford: Oxford University Press, 1977).

²³John Bach, *A Maritime History of Australia* (London: H. Hamilton, 1976). See also Jonathan King, *The First Fleet: the Convict Voyage that Founded Australia* (London: Secker & Warburg, 1982). See also Michael Stammers, *The Passage Makers: the History of the Black Ball Line of Australian Packets, 1852-1871* (Brighton: Tereido Books, 1978).

life at sea for merchant seamen or their communities ashore.²⁴ Tony Lane, a historical sociologist who had served in the British merchant marine in various capacities for nine years, wrote a nostalgic account of a way of life he witnessed disappearing with the advent of dramatic changes in world shipping. Containerization, the substitution of specially built facilities in place of the traditional port within city limits, the arrival of air travel and the demise of the ocean passenger liner were innovations that transformed what Lane called "the traditional way of life" for seamen. British merchant shipping lost its preeminent position as the centre of world shipowning moved away from Europe and the North Atlantic towards Southeast Asia, China and Japan.²⁵

Shipbuilders and shipbuilding also began to attract scholars. Clive Trebilock used one of the most extensive business archives in Great Britain to reconstruct the history of the Vickers Brothers. Beginning as a flourmill, Vickers developed into one of the largest armament factories in the world. The company acquired small competitors, invested heavily in the purchase of patents and licenses and by the outbreak of the First World War was in a position to provide a comprehensive catalogue of armaments to the interested buyers, ranging from small arms to complete battleships. Economic, military and political history, Trebilock's account places in the foreground of business history the importance of managerial structures. Vickers did not succeed based solely on the inherent abilities of its two founding brothers; rather, the great tenacity and endurance of the company during the lean years of the early twentieth century should be attributed to the employment of

²⁴Davis, "Maritime History: Progress and Problems," 188-191.

²⁵Tony Lane, *Grey Dawn Breaking: British Merchant Seafarers in the Late Twentieth Century* (Manchester: Manchester University Press, 1986).

specialist talent. Industrial scientists, competent salespersons with worldwide connections, and financial experts coordinated with Thomas and Albert Vickers to ensure the adaptability of the company to the changing circumstances of the pre-war years.²⁶ Other shore-related maritime areas, such as shipping agents, shipbrokers, dock operations, stevedores and marine insurance companies, which were relatively ignored in the past, have recently begun to receive some attention from scholars.²⁷ There have also been

²⁶Clive Trebilock, *The Vickers Brothers: Armaments and Enterprise, 1854-1914* (London: Europa Publications, 1977). Another scholarly analysis of an important Irish shipbuilding company is provided by Michael Moss and John R. Hume in *Shipbuilders to the World: 125 years of Harland and Wolff, Belfast 1861-1986* (Belfast: Blackstaff Press, 1986).

²⁷The most comprehensive presentation of these ancillary maritime activities is David J. Starkey and Hugh Murphy's (eds.), *Beyond Shipping and Shipbuilding: Britain's Ancillary Maritime Interests in the Twentieth Century* (Hull: Maritime Historical Studies Centre, 2008). Lewis R. Fischer has written extensively on the topic of shipbrokers. See Lewis R. Fischer and Helge W. Nordvik, "The Growth of Norwegian Shipbroking: The Practices of Fearnley and Eger as a Case Study, 1869-1914," in Lewis R. Fischer and Walter E. Minchinton (eds.), *People of the Northern Seas* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 3, 1992), 135-155; Fischer and Anders M. Fon, "The Making of a Maritime Firm: The Rise of Fearnley and Eger, 1869-1917," in Lewis R. Fischer (ed.), *From Wheel House to Counting House: Essays in Maritime Business History in Honour of Professor Peter Neville Davies* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 2, 1992), 303-322; Fischer, "A Bridge Across the Water: Liverpool Shipbrokers and the Transfer of Eastern Canadian Sailing Vessels, 1855-1880," *The Northern Mariner/Le Marin du nord*, 3, 3 (1993), 49-59; Fischer, "Profits and Stagnation: Fearnley and Eger and the Interwar Crises, 1919-1939," in Poul Holm, et al. (eds.), *Northern Seas Yearbook 1994* (Esbjerg, Denmark, 1994), 45-66; Fischer and Nordvik, "Economic Theory, Information and Management in Shipbroking: Fearnley and Eger as a Case Study, 1869-1972," in Simon P. Ville and David M. Williams (eds.), *Management, Finance and Industrial Relations in Maritime Industries: Essays in International Maritime and Business History* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 6, 1994), 1-29; and Fischer, "The Sale of the Century: British North American Sailing Ships, the Liverpool Market and Vessel Prices in 1854," *The Northern Mariner/Le Marin du nord*, 5, 2 (1995), 35-46. For ship agents, see Peter N. Davies, *Henry Tyser: A Liverpool Shipping Agent and His Enterprise, 1879-1979* (London: Croom Helm, 1979) and Michael B. Miller, "Ship Agents in the Twentieth Century," in Gordon Boyce and Richard Gorski (eds.), *Resources and Infrastructures in the Maritime Economy* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 22, 2002), 5-22; and Miller, "The Business Trip: Maritime Networks in the Twentieth Century," *Business History Review*, 77, 1 (2003), 1-32. For dock operations, see Adrian Jarvis, *Liverpool Central Docks, 1799-1905* (Stroud: Sutton Publishing, 1991); and Jarvis, *In Troubled Times: The Port of Liverpool, 1905-1938* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 26, 2003). For stevedores, see Gordon A. Phillips and Noel Whiteside, *Casual Labour: The Unemployment Question in the Port Transport Industry 1880-1970* (Oxford: Clarendon Press, 1985); Robert H. Babcock, "Saint John Longshoremen during the Rise of Canada's Winter Port, 1895-1922," *Labour/Le Travail*, 25 (1990), 15-46; Sam Davies, et al. (eds.), *Dock Workers: International Explorations in Comparative Labour History, 1790-1970* (2 vols., London: Ashgate, 2000); and James Reveley, *Registering Interest: Waterfront Labour Relations in New Zealand*,

major improvements in the quality of local studies and coastal shipping, thanks mostly to the work of John Armstrong.²⁸

Labour history finally found scholars willing and able to deal with the subject.²⁹ Marcus Rediker generated considerable discussions with his innovative approach to class formation in the Atlantic littoral in the eighteenth century. Dispossession created a labour surplus, inflating the numbers of sailors who discovered a communal experience and became the first collective labourers. Deprived of any craft skills, without any means of production and working among like-situated people, seamen developed their own information networks and became a militant presence in the Atlantic merchant world. The oppression by merchant capitalists gave rise to a wave of piracy which should be viewed

1953 to 2000 (St. John's: International Maritime Economic History Association, Research in Maritime History No. 25, 2003). For marine insurance, see Violet Barbour, "Marine Risks and Insurance in the Seventeenth Century," *Journal of Economic and Business History*, 1, 4 (1928-1929), 561-596; John G. Clark, "Marine Insurance in Eighteenth-Century La Rochelle," *French Historical Studies*, 10, 4 (1978), 572-598; Sarah Palmer, "The Indemnity in the London Marine Insurance Market, 1824-50," in Oliver M. Westall (ed.), *The Historian and the Business of Insurance* (Manchester: Manchester University Press, 1984), 74-94; Frank C. Spooner, *Risks at Sea: Amsterdam Insurance and Maritime Europe* (Cambridge: Cambridge University Press, 1983); and Christopher Kingston, "Marine Insurance in Britain and America, 1720-1844: A Comparative Institutional Analysis," *Journal of Economic History*, 67, 2 (2007), 379-409. For Lloyd's of London, perhaps the world's best known marine insurance company, see Godfrey Hodgson, *Lloyd's of London: The Risky Business, Colourful History, and Turbulent Future of the World's Most Famous Insurance Group* (London: Viking Adult, 1984).

²⁸For example see John Armstrong, *Coastal and Short Sea Shipping* (Aldershot: Scolar Press, 1996), "Coastal Shipping: The Neglected Sector of Nineteenth-Century British Transport History," *International Journal of Maritime History*, 6, 1 (1994), 175-188; reprinted in John Armstrong, *The Vital Spark: The British Coastal Trade, 1700-1930* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 40, 2009), 91-102; and "Late Nineteenth-Century Freight Rates Revisited: Some Evidence from the British Coastal Coal Trade," *International Journal of Maritime History*, 6, 2 (1994), 45-82; reprinted in John Armstrong, *The Vital Spark: The British Coastal Trade, 1700-1930* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 40, 2009), 149-179.

²⁹See, for example, Eric W. Sager, *Ships and Memories: Merchant Seafarers in Canada's Age of Steam* (Vancouver: University of British Columbia Press, 1993); Valerie C. Burton, "Apprenticeship Regulation and Maritime Labour in the Nineteenth Century British Merchant Marine," *International Journal of Maritime History*, 1, 1 (1989), 29-49; and Sarah R. Palmer, "Investors in London Shipping, 1820-50," *Maritime History*, 2, 1 (1972), 46-88.

as a "world turned upside down", an anti-authoritarian movement aiming at rectifying the wrongs suffered by sailors in their working environment.³⁰

The ethnologist Knut Weibust presents a slightly different analysis of working conditions at sea. The environment imposed limits to the extent of superior coercion. The possibility of undermanning precluded the imprisonment or debilitating punishment of crew members for long periods of time. Seamen also had a level of control over their fate, with a variety of options when they wished to express their disaffection with their lot. The least complicated reaction was a ritual protest (for example through satirical songs). Poor working practices and misuse of the ship's equipment was another method to apply pressure on those in charge. Seamen could induce "accidents" or could bide their time and exact revenge while on shore. Weibust offered a sociological analysis of the sea-going experience, recognizing three stages through which men became sailors: separation from landward norms, transition through learning aboard the vessel and incorporation into the world of the sea community.³¹

The Atlantic Canada Shipping Project provided the context for the publication of a seminal collection of essays on seafaring labour. *Working Men Who Got Wet* explored the labour conditions seamen faced in the Canadian and British merchant marines.³² The essays in this collection covered topics ranging from the composition and working

³⁰Marcus Rediker, *Between the Devil and the Deep Blue Sea: Merchant Seamen, Pirates and the Anglo-American Maritime World, 1700-1750* (Cambridge: Cambridge University Press, 1987).

³¹Knut Weibust, *Deep Sea Sailors: a Study in Maritime Ethnology* (Stockholm: Nordiska Museet, 1969).

³²Rosemary Ommer and Gerald Panting (eds.), *Working Men Who Got Wet* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1980).

conditions of maritime employees,³³ the changes that resulted from the introduction of steam,³⁴ and the life of seamen and labourers ashore.³⁵ David Alexander's essay on the literacy of Canadian and foreign seamen in the second half of the nineteenth century addressed the issue of who the men were who chose to work at sea.³⁶ He disputed the notion that men went to sea because of the absence of an alternative to a life considered brutal and degrading. Alexander considered literacy as a mark of social background and tested whether seamen represented a distinct and depressed sub-population. He concluded that seamen were no less educated than their counterparts employed in land industries and that employment at sea was not a distinctly inferior choice for the average working person in the Atlantic world of the second half of the nineteenth century. In other words, seamen for the most part were "working men who got wet."

Despite all these efforts in addressing individual topics in maritime history, certain residual problems lingered, with the most frustrating being the inadequate provisions for a

³³See for example Rosemary Ommer, "'Composed of All Nationalities': The Crews of Windsor Vessels, 1862-1899," in Ommer and Panting (eds.), *Working Men Who Got Wet*, *ibid.*, 191-228; Conrad Dixon, "Lascars: The Forgotten Seamen," *ibid.*, 263-282; Lewis R. Fischer, "A Dereliction of Duty: The Problem Of Desertion on Nineteenth Century Sailing Vessels," *ibid.*, 51-79; Keith Matthews, "Recruitment and Stability of Employment in the British Merchant Marine: The Case of C.T. Bowring and Company," *ibid.*, 77-104; and Eric W. Sager, "Labour Productivity in the Shipping Fleets of Halifax and Yarmouth, Nova Scotia, 1863-1900," *ibid.*, 155-184.

³⁴H.C. McMurray, "Technology and Social Change at Sea: The Status and Position on Board of the Ship's Engineer, Circa 1830-1860," in Ommer and Panting (eds.), *Working Men Who Got Wet*, *ibid.*, 35-50.

³⁵Ian McKay, "Class Struggle and Mercantile Capitalism: Craftsmen and Labourers on the Halifax Waterfront, 1850-1902," in Ommer and Panting (eds.), *Working Men Who Got Wet*, *ibid.*, 287-320; and Judith Fingard, "'Those Crimps of Hell and Goblins Damned': The Image and Reality of Quebec's Sailortown Bosses," *ibid.*, 321-334.

³⁶David Alexander, "Literacy Among Canadian and Foreign Seamen, 1863-1899," in Rosemary Ommer and Gerald Panting (eds.), *Working Men Who Got Wet* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1980), 1-34.

comprehensive, general study of the British merchant marine in the period of its greatest expansion and importance, namely the nineteenth and early twentieth centuries. The contribution of Ralph Davis in regards to the seventeenth and eighteenth centuries did not find worthy followers. The deficiency of the historiographical record has been highlighted on numerous occasions,³⁷ but sporadic attempts at remedying the situation have proved less than satisfactory. Over the last hundred years, numerous studies have been published, attempting to explain the reasons for the rise and decline of this paramount sector of the island economy. The first notable example was Adam Kirkaldy's *British Shipping: Its History, Organization and Importance*, published in 1914.³⁸ Despite its significance as an early and thoughtful synthesis, the book suffers from serious flaws, such as the frequently emotional nature of the analysis and lack of historical perspective.³⁹ Ronald Hope's book, *A New History of British Shipping*,⁴⁰ an attempt to create a much wider synthesis from the very beginnings of British shipping to the modern age does not satisfy the researcher either, particularly when dealing with the subject of tramp shipping. Based entirely on secondary sources, Hope presents an overview of British shipping from its

³⁷Davis, *Rise of the English Shipping Industry*, 169, Peter N. Davies and Sheila Marriner, "Recent Publications and Developments in the Study of Maritime Economic History," *Journal of Transport History*, Third Series, 9, 1 (1988), 95-98, David M. Williams, "The Progress of Maritime History, 1953-1993," *The Journal of Transport History*, 14, 2 (1993), 131; Lewis Johnman and Hugh Murphy, "Maritime and Business History in Britain: Past, Present and Future?" *International Journal of Maritime History*, 19, 1 (2007), 16-17.

³⁸Adam W. Kirkaldy, *British Shipping: Its History, Organization and Importance* (London: Kegan Paul, Trench, Trubner and Co., 1914; reprint, Newton Abbot: David and Charles, 1970).

³⁹For example, the author enters into unnecessary minutiae when describing the interior decorations of popular liners such as the *Ceramic* or the history of the *Great Eastern*. The book was published in 1914 thus contains no information on the transformative influence of the First World War and the subsequent dislocations in world trade for the British merchant marine and the role of the steamship in general.

⁴⁰Ronald Hope, *A New History of British Shipping* (London: John Murray, 1990).

beginnings (Hope claims that this was about 3000 BC) up to 1988, when this volume was produced. He presents the information chronologically, dividing the work into three distinctive periods: the beginning (3000 BC-1400 AD), the rise (1400-1890) and the decline (1890-1988). Key developments in shipping technology, the progress of navigational science, war and emigration and especially maritime commerce and society are subjects that are well covered for the whole period under study. More particular themes, though, such as tramp shipping, only get a brief mention here and there, in the context of the general trends of British maritime development. Between these two extremes, we have the analysis of British shipping industry after the First World War by Stanley Sturmeý.⁴¹ Despite the obvious interest of the subject, the book suffers from significant drawbacks. The focus is exclusively on British shipping and it fails to explain the complacency he identifies in the behaviour of British shipowners or the reasons for the Norwegian preference for diesel engines. Despite these works, N.A.M. Rodger pointed out the ever present need for "grand narratives" that will define and project the subject.⁴²

As mentioned in the introduction, tramp shipping has not received satisfactory attention from maritime historians. Due to the complex nature of tramping operations, the first notable scholarly debate has revolved around the exact definition of a tramp ship. The most widely accepted definition is based on sailing schedules and the low value of the cargoes. There are scholars, however, who have tried to isolate other factors that they

⁴¹Stanley G. Sturmeý, *British Shipping and World Competition* (London: Athlone Press, 1962; reprint, St. John's: International Maritime Economic History Association, Research in Maritime History No. 42, 2010).

⁴²Nicholas A.M. Rodger, "Britain," in John B. Hattendorf (ed.), *Ubi Sumus? The State of Naval and Maritime History* (Newport: Naval War College Press, 1994), 54-55.

believe to be essential for a proper definition of a tramp. A debate on the topic at a conference hosted by the Atlantic Canada Shipping Project (ACPS) is a case in point. In an essay in the book *Ships and Shipbuilders in the North Atlantic Region*, Robin Craig argued that the term ought to be reserved solely for iron or steel-hulled screw steamships built after about 1860. Nonetheless, he acknowledged that something quite similar to tramp shipping had existed for generations.⁴³ Niels Jannasch, in a comment on Craig's paper, did not dissent from the definition but did argue that sailing vessels before 1860 were almost all on more-or-less fixed runs and hence did not qualify as true tramps. Peter Davies muddied the waters further by pointing out that most early nineteenth-century vessels did not sail on scheduled dates; moreover, he believed that tramp shipping existed well before the middle of the nineteenth century. The discussion eventually led to the less than sound conclusion that whatever else sailing vessels might have been, they were for the most part not liners. Using a false dichotomy, they therefore must have been tramps.⁴⁴

Basil Metaxas, a shipping economist, thought it necessary to define the tramp in a more complex way. He contended that a tramp is any vessel of 4000 deadweight tons or above which in the long run (whatever that means) does not have a fixed itinerary and carries mainly dry cargoes in bulk over relatively long distances.⁴⁵ Such a definition, of course, automatically prevents the majority of nineteenth-century vessels from being classed as tramps, since few were large enough to meet Metaxas' criterion. In his defence,

⁴³Robin S. Craig, "Aspects of Tramp Shipping and Ownership" in Matthews and Panting (eds.), *Ships and Shipbuilding in the North Atlantic Region*, 229.

⁴⁴For the discussion on what a tramp is, see Matthews and Panting (eds.), *Ships and Shipbuilding*, 230.

⁴⁵Basil N. Metaxas, *The Economics of Tramp Shipping* (London: Athlone Press, 1971), 6.

however, Metaxas is not an historian and his book seldom adopts an historical perspective.⁴⁶

Definitional problems, however, do not provide a sufficient explanation for the lack of historical interest in tramp shipping. Perhaps the most important problem is the difficulty of collecting the necessary data. Shipping not only has a reputation of being a special industry that is difficult for a landlubber to comprehend but also is a very international business.⁴⁷ Shipping links different countries, economies and cultures. Ports and port cities are cradles of international exchanges, passenger movements and cosmopolitan thinking. Seafaring constitutes an international labour market. Navies are built primarily for use against external enemies.⁴⁸ Any international industry is more difficult to study than one that conducts its affairs solely in a single country.

But there is more. While maritime industries in general are well documented, if only because most nations have been interested historically in seafarers as a potential source of manpower for navies in times of crisis, it is important to note that the authorities

⁴⁶One aspect of tramp shipping that appears to be relatively well covered is the field of economics. B.N. Metaxas, *The Economics of Tramp Shipping* offers the reader a valuable insight into the working of the tramp shipping industry. The author begins with a brief description of what a tramp ship is and does and how it differs from other types of vessels (namely the cargo liner, the tanker and the bulk carrier) and goes on to discuss the nature of the tramp freight market together with the characteristics of shipping firms engaging in this market and the policies of flag discrimination. The relationship between demand and supply is analyzed, as is the interaction between markets which cause tramp ships to serve as cargo liners on fixed schedules or tankers to carry dry-bulk cargoes, such as grain. Finally, the author gives a detailed account of the cost of operations of tramps ships and examines the most important economic feature of the tramp shipping industry: the wide fluctuations in freight rates. Similar approaches have been adopted by Alfred G. Course, *The Deep Sea Tramp* (London: Hollis and Carter, 1960); and Hector Gripaios, *Tramp Shipping* (London: Thomas Nelson and Sons, 1959).

⁴⁷Yrjö Kaukiainen, *Sailing into Twilight: Finnish Shipping in an Age of Transport Revolution, 1860-1914* (Helsinki: Studia Historica, 1991), 19.

⁴⁸Frank Broeze (ed.), *Maritime History at the Crossroads: A Critical Review of Recent Historiography* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 9, 1995), x-xi.

in most countries failed to collect data on more than just the quantitative development of tonnage. Information on what was done with the ship, what income it generated and how it was used was almost impossible to collect for anything but domestic traffic. This is also complicated by the fact that unlike liner companies, tramp shipping firms have seldom left archives and their operations have often been shrouded in a veil of secrecy. Data collection is therefore neither easy nor rapid. Most of it must obviously be taken from national sources, since before the end of World War II there was no international agency or organization that possessed the relevant data.⁴⁹

The second major problem facing the maritime historian is this division of sources. Despite the international character of the subject, the very dependence on national sources poses insurmountable linguistic (and potentially financial) barriers to the researcher. As Frank Broeze has noted, even if it is true some maritime historians have been concerned with countries other than their own, the majority have been far more parochial. And even those with broader perspectives have too often used the bounds of national, rather than international history, for context.⁵⁰ Data, manuscript sources and the literature for leading maritime nations like Japan, Norway or Greece are written in languages not easily accessible to the majority of researchers, and the translation of even the most fundamental works is a solution fraught with obvious limitations.

Despite these difficulties, there have been some pioneering studies of the tramp industry. Robin Craig has been fundamental in the development of maritime history in the

⁴⁹Kaukiainen, *Sailing into Twilight*, 20.

⁵⁰Broeze (ed.), *Maritime History at the Crossroads*, xii.

English speaking world, bringing with him extensive first hand knowledge of available sources, his editorship of *Maritime History* and his role in the creation of the Maritime History Archive at Memorial University of Newfoundland.⁵¹ We have already mentioned Robin Craig's paper in *Ships and Shipbuilding in the North Atlantic Region*, an excellent introduction to the subject and an analysis of the role of tramp steamers in the development of the British shipping industry. He followed this study with *Steam Tramps and Cargo Liners, 1850-1950* in the National Maritime Museum series about the development of the ship from antiquity to the present era.⁵² As noted by the title, this book does not deal specifically with tramps and when it does the emphasis is on technological development rather than labour or business aspects. This problem was addressed in the collective edition of papers written by Craig, *British Tramp Shipping, 1750-1914*, published by the International Maritime Economic History Association in 2003.⁵³ It is a truly fascinating collection whose breadth covers individual shipping concerns, ports, trades and various other aspects of tramping. It provides interesting insights and allows for some comparisons with trends observable elsewhere but unfortunately it lacks a unifying core and it was never meant to be a history of tramp shipping in general.

Robin Craig's contributions stand in relative isolation. Despite the importance of tramp shipping for the British shipping industry, the available historiography is

⁵¹Gelina Harlaftis and Carmel Vassallo, *New Directions in Mediterranean Maritime History* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 28, 2004), 5-6.

⁵²Robin Craig, *The Ship: Steam Tramps and Cargo Liners 1850-1950* (London: HMSO, 1980).

⁵³Robin Craig, *British Tramp Shipping, 1750-1914* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 24, 2003).

unsatisfactory, with the emphasis on antiquarian details, chronological presentation of fleet histories and unwillingness to place the actions and developments of individual entrepreneurs and companies within the wider context of the maritime world of the nineteenth and twentieth centuries. A typical example of this approach to the subject is the fleet studies published under the aegis of the World Ship Society. Numerous tramp ship companies have been covered in the series but the material presented can not be considered as a scholarly analysis of the companies, fleets and individuals concerned. Most of these booklets comprise little more than a pictorial record of vessels, with information provided on the technical specifications of the ships and the incidental biographical and socioeconomic parameter. A typical example of this approach is K. O'Donoghue and H. Appleyard's *Hain of St. Ives*.⁵⁴ The study opens with a brief introduction to the Hain family and proceeds to a chronological presentation of the fleet development, interspersed with information regarding the ownership patterns and some details about eventful episodes (such as shipwrecks, hostile actions in wartime etc.). The greatest part of the book though is dedicated to a pictorial record of the company's fleet, with an encyclopaedic presentation of data pertaining to the specifications and history of individual vessels. The company operations are not placed into a wider context, nor are there any attempts at comparison with similar players in the shipping world of the period.⁵⁵

⁵⁴K. J. O'Donoghue and H. S. Appleyard, *Hain of St. Ives* (Kendal: World Ship Society, 1986).

⁵⁵Similar problems diminish the usefulness of all the books in the series. See for example T. Johannesson, *The History of Hillerstom's Helsingborg 1891-1976* (Kendal: World Ship Society, 1986).

The Jenkins Brothers of Cardiff have been better served in the historiography when David Jenkins wrote a history of the company, published by the National Museum of Wales.⁵⁶ Unlike the long lists of vessels and antiquarian information to be encountered in the World Ship Series, Jenkins's approach to the shipping company of Jenkins Brothers is more inclusive and diversified in the material covered. The apparently ubiquitous fleet list has been kept to a minimum, with the emphasis shifting to a narrative approach. The presentation of the information is rather conventional, with an initial chapter dedicated to the early years of the firm and the family history behind its owners and operators. The subsequent chapters follow the evolution of the firm, identifying distinct periods based on the changes of ownership patterns and organizations. In an obvious attempt to be something more than a simple glorified narrative of a local enterprise, Jenkins includes a chapter on the masters and crew members of the fleet, adding a sociological element to his analysis. Unfortunately, his approach lacks the validity of concrete quantitative data and remains, for the most part, faithful to a superficial investigation of life at sea for the crew members.⁵⁷ The actual operations of the fleet, the ways in which it was deployed, the cargoes carried and the destinations visited remain outside of the scope of the book, while financial transactions and ownership patterns receive the bulk of the scholar's attention.

The limitations of the British tramp shipping historiography are replicated in most national maritime histories. The example of Yrjö Kaukiainen, with his analysis of Finnish

⁵⁶David Jenkins, *Jenkins Brothers of Cardiff: A Ceredigion Family's Shipping Ventures* (Cardiff: National Museum of Wales, 1985).

⁵⁷*Ibid.*, 54-67.

shipping, reminds us of the potential for truly innovative work. *Sailing into Twilight* is an in-depth analysis of a peripheral economy, richly endowed with certain natural resources (mostly wood) whose merchant marine, never a dominant power in world shipping, was nonetheless extensively involved in cross-trading. Especially in the early years of rapid expansion, between the 1860s and 1870s, Finland had three times more tonnage than was necessary for the transportation of her normal export/import cargoes. It is not to be wondered that international cross-trading represented such a large share of the total occupation of its merchant fleet. Finnish vessels were to be encountered across Europe, the Mediterranean, the East Indies, North America, and Australia. The Finnish merchant marine was comprised mostly of sailing ships. Early Finnish steamer business was dominated by regular liner services. Finnish shipowners were not able to successfully deploy steamships in foreign tramp trades, the truly international shipping sector.⁵⁸ We have to look to the Mediterranean and the example of Greek shipping for a fleet truly comprised of tramps.

Gelina Harlaftis has provided an excellent history of the Greek-owned merchant marine in her study *A History of Greek-Owned Shipping: The Making of an International Tramp Fleet, 1830 to the Present Day*.⁵⁹ The purpose of Harlaftis's book, as stated in the subtitle and early on in the introduction, is to trace the development of an international

⁵⁸Yrjö Kaukiainen, *Sailing into Twilight: Finnish Shipping in an Age of Transport Revolution, 1860-1914* (Helsinki: Studia Historica, 1991). See also Yrjö Kaukiainen, *A History of Finnish Shipping* (London: Routledge, 1993).

⁵⁹Gelina Harlaftis, *A History of Greek-Owned Shipping: The Making of an International Tramp Fleet, 1830 to the Present Day* (London: Routledge, 1996). The importance of the book was recognized in 1997 when Gelina Harlaftis won the Runciman Award. This award is offered by the Anglo-Hellenic League for a work published in English dealing wholly or in part with the history of Greece or Hellenism. It is named in honour of professor Sir Steven Runciman, an eminent Byzantine scholar.

tramp fleet, namely the fleet owned by Greek shipowners. This is perhaps the first true scholarly history that was written with the objective of discussing problems and aspects of the tramp shipping industry exclusively. The author was probably helped by the fact that almost the entire Greek fleet was (and is) engaged in tramp operations. Greek shipowners were never really interested in entering the liner trade.

Harlaftis's choice of words in the title of the book is crucial. This is not a history of Greek shipping. Many historians in Greece have acknowledged the fact that Greek history in general cannot be understood as the history of the Greek state but as the history of the Greek people,⁶⁰ an important distinction given the fact that until the First World War the majority of Greeks (and among them the most entrepreneurial group) were living outside of the borders of the Greek state, scattered all over the eastern Mediterranean, the southern provinces of Russia and in the most important cities of Europe. Greek shipping therefore can only be conceived as the history of the actions of Greeks dispersed in numerous ports around the world. A considerable portion of Greek shipping was always registered under foreign flags but, as Harlaftis endeavours to prove, the success of the Greek shipowners was based on the retention of their so-called "Greekness" and their participation in an international commercial and maritime network with their compatriots.

The book follows a chronological division from the early nineteenth century to the present day. The emphasis is upon the quantitative development of Greek shipping and the importance of networks for the establishment of companies and profitability. Harlaftis identifies particular regions of Greece as being prone to generate successful shipowners, with an initial success fuelling further expansion, drawing capital and entrepreneurial

⁶⁰Nikos Svoronos, cited in Gelina Harlaftis, *History of Greek-Owned Shipping*, xx.

spirit into shipping. As such, the history of Greek shipping is viewed in terms of the success of individual shipowners who managed to create a network of support and trust. There is only one thematic chapter dedicated to the seamen themselves and the way they perceived their work and way of life from the 1830s to the 1910s. It is unfortunate that the author does not provide us with another chapter covering the twentieth century, and it could have been useful to investigate the perceptions of the large number of foreign seamen who worked on board Greek-owned ships during the final decades of the twentieth century.

Tramp shipping has been less well served in terms of using quantitative data (in this case crew agreements) to explore relevant themes. Malcolm Cooper identified the problem in an article he wrote in the late 1980s about the neglected possibilities inherent in the use of the crew agreements for the study of shipping enterprises, in particular tramp operators.⁶¹ He created a database for his project by extracting the crew agreements for thirty-one vessels owned by the West Hartlepool tramp firm of Robert Ropner & Co. for voyages spanning or beginning/ending closest to the turn of the twentieth century (31 December 1899-1 January 1900).

Cooper was well aware of the information contained within each crew agreement and decided clearly on what questions he was going to answer. Considering the dearth of concrete data relevant to tramp shipping and the crew members employed in these ships, his modest research effort had the potential to provide valuable clues. He was particularly interested in the age of the crew, their ethnicity and the dynamics of the employment

⁶¹Malcolm Cooper, "Maritime Labour and Crew List Analysis: Problems, Prospects and Methodologies," *Labour/Le Travail*, No. 23 (1989), 179 -194. It was in this article that Cooper observed that the Maritime History Archive was "almost completely ignored by labour historians," 179.

process (retention and desertion of sailors plus their wages). Unfortunately, Cooper's paper was preliminary, and he never followed up on these topics. His database was never used in any systematic way, remaining just a promise in an article. In the absence of his work (or any attempt to study tramp shipping through by taking advantage of the opportunities inherent in the treasure trove of crew agreements) it is very hard to provide a comparative context within which the actions of Burrell & Son can be judged.

This is perhaps the most distressing aspect of a practically non-existent literature. The difficulty of comparing the operations and activities of a single tramp shipowner (or company) with its contemporaries makes it hard to pass judgment on the extraordinary or mundane nature of the clues embedded in their material. Only recently, scholars lamented once more the absence of a general history of British shipping.⁶² The example set by Hyde and the Liverpool school regarding the analysis of maritime subjects served its purpose but can no longer satisfy newer generations of scholars and the interested public. Ownership patterns and changes in shareholding are important but as a subject matter they have been fairly well represented in the literature. What we need today, arguably more than anything else is a closer examination of areas like tramp shipping that have been almost totally neglected in the past. This thesis aims to begin the process of rectifying the scholarly neglect of tramp shipping.

⁶²Johnman and Murphy, "Maritime and Business History in Britain," 16-17.

Chapter 3

The Physical Capital

The first vessel owned by Burrell & Son was the 61.50-gross tons *Janet Houston*. Built by J. & R. Swan of Maryhill in 1862, she was a two-masted wooden schooner and remained with the company until 1873 when William Burrell sold all his shares in the vessel to outside investors.¹ The last vessel owned by Burrell & Son was the 4330-gross ton steamship *Strathlorne* built by A. McMillan & Son Ltd. of Dumbarton in 1909. This ship stayed with the company for twenty-one years until she was sold to Neill & Pandelis Ltd. from Oinoussai, Greece in 1930. The company therefore was in business during all the important technological advancements that transformed the shipping industry in the late nineteenth and early twentieth century, and these developments influenced the technical aspects of the fleet.² Burrell & Son owned and operated a total of ninety-five ships.³ From a small company operating sailing vessels, Burrell & Son evolved to become one of the largest operators of tramp steamships in the United Kingdom before being dissolved in the late 1920s.

¹There were sixty-four shares issued for *Janet Houston*. The two Burrell brothers, George and William, each owned thirty-two shares. On 31 December 1872, George sold his shares to his brother who proceeded to sell all the shares to three investors on 25 February 1873. All the new investors came from Whiting Bay in Arran.

²The most important technological shift was from sail to steam, and then eventually to triple- and quadruple-compound engines. Although the transition to diesel-powered motor ships also occurred during the life of the firm, Burrell never did invest in this technology.

³Burrell & Son also owned and operated a number of puffers between 1875 and 1898. For more information on these small craft, see R.A. Cage, *A Tramp Shipping Dynasty – Burrell & Son of Glasgow, 1850-1939* (Westport, CT: Greenwood Press, 1997). In the following pages, the phrase “company fleet” refers only to those vessels which were capable of making ocean-going voyages.

To study the evolution of the fleet, I created a gross investment database derived mostly from information available from vessel registrations in the Board of Trade (BT) 99 and 100 series held at the British National Archives (TNA/PRO) at Kew. The database contains details on a variety of matters, including the technological features of all Burrell-owned vessels (size and carrying capacity, propulsion, type of machinery, material of construction, etc.), year of acquisition and disposal (or loss), information about the shipbuilder and engine-builder, if the vessel was a steamer (name of the shipbuilder and engine-builder, location and year of construction), and some fragmentary data on financial transactions associated with the construction of new tonnage.⁴ This database provides the basis for the tables and figures in this chapter. Particular trends become clear early on. For example, Burrell & Son consistently demonstrated a preference for new, rather than second-hand, vessels. Only in periods where losses at sea were exceptionally high did they turn to the second-hand market. They did so reluctantly, however, because their experiences with these older vessels were not positive, thus reinforcing their belief that for the company to succeed they needed to invest in new vessels that were built to meet their standards.

Burrell & Son entered the shipping industry with a few small sailing vessels. After a steady increase in the number of ships in the 1860s, the company deployed a relatively constant number of assets between 1871 and 1893, replacing older vessels with slightly larger, newly-built steam tonnage (the firm disposed of its last sailing vessel in 1877).

⁴The analysis in this thesis is based solely on material contained in the original registries. Many subsequent details were contained in a set of transactions which were filed separately. Since the transactions proved extremely difficult to locate in the archives, however, I decided to restrict the analysis solely to evidence on the original registry forms. The database includes both newly built and second-hand tonnage.

The trend towards numerical stability coupled with incremental expansion of tonnage is unmistakable. The big change came in 1894 when Burrell & Son embarked on an ambitious purchasing program, dramatically expanding the size of its fleet to correspond to new opportunities. Unlike many liner companies, Burrell & Son did not develop close or exclusive business relationships with any single shipbuilder, although shipyards in Scotland and the North East of England received the bulk of orders for new tonnage. In the early years, the company managers depended to a certain extent upon acquaintances for arranging the purchase of tonnage, and the shipbuilder frequently took back shares in the vessels. Gradually, however, the firm signed contracts based upon its demands and expectations for the best products. Although certain shipbuilders received numerous orders, none became an exclusive partner. Financing was an important factor influencing decisions about when and where to contract for new tonnage. Information on financing tonnage construction is scant, but in a few cases we can catch a glimpse of the agreements between shipowner and shipbuilder that facilitated the expansion of merchant fleets across the United Kingdom.

Like many other shipowners of the time, Burrell & Son took advantage of new technological advances. But the company seldom behaved as a pioneer, preferring instead to wait until the new features had been perfected.⁵ The firm began with the relatively simple, single-expansion steam engine and eventually tried the quadruple-expansion, four-cylinder engines that became increasingly common in the period leading to the First

⁵The most obvious exception to this generalization was the firm's pioneering effort in operating refrigerated tonnage to be discussed in chapter 4.

World War.⁶ Mirroring the behaviour of many other British shipowners, however, the company exhibited a glaring indifference to new technologies in the 1920s when oil became a viable alternative to coal as a fuel for modern ships.

3.1 Patterns of Investment

There were two distinct periods of tonnage development for Burrell & Son. The first began in 1862, when Burrell purchased its first ocean-going vessel, and ended in 1900 when it temporarily disinvested from shipping. The second period extended from 1906, when Burrell once more began to buy steamships, until 1930 when its final ship was sold. Each period was marked by distinct patterns of investment corresponding to the different circumstances the company encountered.

In 1862 Burrell & Son was a new entrant to the world of British shipping. As a result, the company started with a few small sailing vessels. Investment in sailing ships was theoretically a sound economic decision, even in the 1860s and especially for newcomers. Wind was a proven system of propulsion which had been employed for centuries, while steam had only recently been used in ocean-going merchant shipping. There were significant disadvantages to the employment of steamships, since fuel and capital costs were significantly higher than for sail, and the inefficiency of marine engines

⁶Burrell only purchased one vessel equipped with a quadruple-expansion engine, *Tenasserim*, in 1894. Dissatisfied with its performance, the firm sold the ship the next year.

restricted the range of steamships.⁷ Each shipowner had to consider the needs and state of the trades in which he (or she) was involved and the state of freight markets before deciding on whether to replace sail with steam.⁸ Most entered the business through the purchase of a few inexpensive sailing vessels, advancing to steam, if at all, only after accumulating the necessary capital.⁹

Burrell's first three vessels were all propelled by sail: *Janet Houston*, *Jeanie Marshall* and *Suffolk*. The first two were small schooners, although *Suffolk*, a barque of 231 gross tons, was considerably larger. These initial purchases were followed by a number of relatively small steamships, ideally suited to the company's trading requirements at this early stage. It was not until 1871 that Burrell decided to invest in a ship of more than 1000 gross tons (*Strathclyde*), and a second vessel of this size (*Strathleven*) was not procured until 1876.

⁷Yrjö Kaukiainen, "Coal and Canvas: Aspects of the Competition between Steam and Sail, c. 1870-1914," *International Journal of Maritime History*, 4, 2 (1992), 175-191; and Kaukiainen, *Sailing into Twilight: Finnish Shipping in an Age of Transport Revolution, 1860-1914* (Helsinki: Studia Historica, 1991). See also C.K. Harley, "Aspects of the Economics of Shipping, 1850-1913," in Lewis R. Fischer and Gerald E. Panting (eds.), *Change and Adaptation in Maritime History: The North Atlantic Fleets in the Nineteenth Century* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1985), 167-186; and Harley, "On the Persistence of Old Techniques: The Case of North American Wooden Shipbuilding," *Journal of Economic History*, 33, 2 (1973), 372-398.

⁸P. L. Cottrell, "The Steamship on the Mersey, 1815-1880: Investment and Ownership," in P. L. Cottrell and Derek H. Aldcroft (eds.), *Shipping, Trade and Commerce: Essays in Memory of Ralph Davis* (Leicester: Leicester University Press, 1981), 143.

⁹Gordon Boyce, *Information, Mediation and Institutional Development: The Rise of Large-Scale Enterprise in British Shipping, 1870-1919* (Manchester: Manchester University Press, 1995), 40.

Table 3.1
Burrell & Son's Fleet Size, 1862-1930 (Gross Tonnage)

1862	61.5	1885	13930	1908	92233
1863	126.5	1886	13930	1909	118225
1864	357.8	1887	13930	1910	126987
1865	357.8	1888	18695	1911	126987
1866	663.8	1889	30501	1912	135671
1867	663.8	1890	31495	1913	135671
1868	1621.8	1891	25866	1914	126848
1869	1661.82	1892	21824	1915	118096
1870	2527.42	1893	27548	1916	83117
1871	5407.14	1894	88606	1917	4330
1872	5546.24	1895	90061	1918	4330
1873	5832.84	1896	89606	1919	4330
1874	5363.63	1897	93865	1920	4330
1875	5287.34	1898	89492	1921	4330
1876	5772.62	1899	40072	1922	4330
1877	6675.02	1900	2252	1923	4330
1878	5374.02	1901	-	1924	4330
1879	8163	1902	-	1925	4330
1880	10569	1903	-	1926	4330
1881	10569	1904	-	1927	4330
1882	10765.71	1905	-	1928	4330
1883	11926	1906	35125	1929	4330
1884	12527	1907	92233	1930	4330

Source: Burrell & Son Investment Database.

The fleet then exploded to 31,495 gross tons by 1890. This was followed by a two-year period of fleet reduction before a renewed era of rapid expansion that lasted until 1897 took the fleet size to 93,865 gross tons. Disinvestment then followed, and over the next three years the entire fleet was sold off. By the turn of the century Burrell & Son appeared to have exited the shipping sector completely (See Table 3.1).

But in 1906 Burrell & Son made a dynamic re-entrance to the shipping world with the purchase of eight brand new steamships with a total carrying capacity of 35,125 gross tons. The next year this tonnage almost tripled, reaching 92,233 gross tons. It kept rising until it peaked at 135,671 gross tons just before the First World War. Shortly after the

beginning of hostilities, though, Burrell & Son began to disinvest for a second time. Soon almost the entire fleet had been sold off, with only a single vessel, the 4330-ton *Strathlorne*, remaining on register until 1930.

Table 3.2
Burrell & Son Annual Number of Vessels, 1862-1930

1862	1	1885	10	1908	21
1863	2	1886	10	1909	27
1864	3	1887	10	1910	29
1865	3	1888	11	1911	29
1866	4	1889	14	1912	31
1867	4	1890	13	1913	31
1868	6	1891	11	1914	29
1869	7	1892	9	1915	27
1870	8	1893	12	1916	19
1871	10	1894	29	1917	1
1872	10	1895	29	1918	1
1873	11	1896	28	1919	1
1874	9	1897	29	1920	1
1875	9	1898	27	1921	1
1876	9	1899	12	1922	1
1877	9	1900	1	1923	1
1878	6	1901	-	1924	1
1879	7	1902	-	1925	1
1880	9	1903	-	1926	1
1881	9	1904	-	1927	1
1882	9	1905	-	1928	1
1883	9	1906	8	1929	1
1884	9	1907	21	1930	1

Source: See Table 3.1.

The actual number of vessels owned by the company (Table 3.2) indicates the emphasis Burrell placed upon the increase in tonnage as opposed to growth in the number of ships as the optimum way of satisfying its operational needs. A steady increase in the number of ships owned by Burrell during the first decade of the company's activity was followed by almost two decades of relative stability: between 1872 and 1893 the annual number of ships employed in all the company's trades hovered narrowly around ten

although the gross tonnage of these vessels increased almost six-fold over the same period.

A watershed year for Burrell & Son was 1894. An aggressive program of ship purchases resulted in a substantial increase of both tonnage and number of vessels, and this increased fleet size was maintained until the end of the first period of active involvement in shipping. When the company decided to re-enter the business, it did so in a dynamic way, purchasing and maintaining a large number of ships (and a substantial carrying capacity) for every year until the First World War when once more it sold off the majority of its vessels. The company's managers did not deem any more purchases necessary, and Burrell & Son retained only one vessel and conducted only a limited shipping business until it sold off the last remnant of its fleet in 1930.

These patterns of investment will be explained in chapter 7. But here we can make a very general set of observations. Until at least the early 1890s, a desire to maintain a nucleus of vessels was the guiding principle behind the purchase or disposal of assets; when one vessel was withdrawn or sold, it was replaced by another, usually of a slightly larger size. This explains the relatively stable number of vessels but the growing carrying capacity of the fleet. This suggests that profits from the operation of the fleet also funded its growth. The same explanation likely holds true for the rapid expansion in the 1890s when both the number of vessels and the tonnage of the fleet grew exponentially. But it contrasts sharply with the experience of the period after 1906, which was all the more remarkable for not being based on the existence of a fleet that could have supported the new acquisitions through operational profits. This suggests that contacts and networks from earlier operations most likely had been maintained (or even widened), instilling

confidence in Burrell that profitable employment would be found for them right from the outset. Without pre-existing facilities and a basic organization upon which to re-build its operations, this heightened level of investment would have been foolish, particularly when we take into consideration the difficult trading conditions prevailing in the early years of the twentieth century. The period 1901-1911 was severely depressed due to generally low freight rates, especially in the North Atlantic where many of Burrell's voyages took place (see chapter 4).¹⁰ If Burrell re-entered the shipping industry on the basis of a set of careful calculations (and such a massive level of investment in new steamships implies that this was so), the firm must have been able to count on merchants and employees who would provide the cargoes and levels of information necessary for a successful employment of the company's investment.

3.2 The Age of the Fleet

To understand Burrell's fleet, the first factor that needs to be determined is the age of the vessels. A new fleet is easier to maintain, more flexible and responsive to the current needs of trade than older ships. Trying to keep up-to-date with technology during periods of rapid evolution could result in high costs, reduced experience in handling and operating the fleet and a need to dispose of obsolete vessels. The reverse is true for a fleet of old (or relatively so) ships where the technology is well understood. With an older fleet, there is a great stock of experience and, very often, workable matches of resources

¹⁰See Derek H. Aldcroft, "The Depression in British Shipping, 1901-1911," *Journal of Transport History*, Second series, 7, 1 (1965), 14-23.

and needs in the conduct of everyday operations. On the negative side, maintenance costs can be very high, depending on the age and previous attention paid to the assets, and a diversification to take advantage of new opportunities may not be possible for lack of appropriate technologies.¹¹

To ascertain the age of Burrell & Son's fleet, I have employed two different methods, each with its own advantages and disadvantages. The first is to calculate the age of the fleet every ten years. For reasons having to do with the particular patterns of investment in Burrell's fleet, I have decided to take years ending in "7" for each decade through the 1890s.¹² But this approach was rather impractical for the period after 1906 when Burrell re-entered the business. Choosing 1907 would bias the calculations since the majority of vessels were actually purchased in that year or the previous year. At the same time we would be unable to extract any meaningful conclusions by comparing 1907 with 1917 since by that time there were only two vessels left in the company's ownership, *Strathearn* and *Strathlorne*. It is clear therefore that none of these two years could be compared with each other or even with the earlier period. To remedy these problems I decided instead to calculate the average age for the year 1911 which was at the mid-point

¹¹A good example of this is the special requirements of the meat trade that developed in the end of the nineteenth century. The carriage of frozen or refrigerated meat necessitated the introduction of new technologies in the form of cooling machinery, insulation, loading and unloading of cargo and high speeds since the cargo was particularly perishable. It was not enough to simply divert a general-trade cargo ship to this particular trade. New, specialized tonnage had to be acquired by the shipowner who was interested in entering this market. See Robert Greenhill, "Shipping and the Refrigerated Meat Trade from the River Plate, 1900-1930," *International Journal of Maritime History*, 4, 1 (1992), 72-73. For the meat trade in general, see Richard Perren, "The Meat and Livestock Trade in Britain, 1850-1870," *Economic History Review*, 28, 3 (1975), 385-400.

¹²The decision was based primarily on the need to accommodate the peculiar conditions of the 1890s when at the end of the decade Burrell sold all its vessels. It was therefore important to choose a year during which the company was fully operational and not in the process of pulling out of the industry.

between the beginning and the effective end of Burrell's operations. As such it will allow a meaningful comparison with the previous periods.

Table 3.3
Burrell & Son Average Vessel Age (selected years)

Year	Number of Vessels	Average Age All	Average Age New
1867	13	3.3	3.3
1877	8	5.9	5.9
1887	10	8.5	8.1
1897	28	7.7	5.3
1911	30	3.7	3.7

Source: See Table 3.1.

Table 3.3 shows the results of these calculations. "Number of Vessels" refers to the actual number of ships owned by Burrell & Son on the first day of each year. "Average Age All" depicts the mean age for all these vessels without distinguishing between new and second-hand tonnage. This parameter is taken into consideration in the last column, "Average Age New," where the old tonnage has been deducted and the calculations are based solely on newly built ships purchased by Burrell. It is clear that in the first three decades there was a rise in the average age of the ships owned by Burrell but there was no sizable difference in the mean age between all vessels and those purchased new. In the 1860s the mean age for both categories was 3.3 years, rising slightly in the 1870s to 5.9. This is a result of a small number of second-hand craft acquired during these decades. During the 1880s Burrell operated a comparatively older fleet, with the average age reaching 8.5 years for the entire fleet and 8.1 years excluding second-hand tonnage. The small difference in the mean reflects Burrell's decision to purchase some second-hand tonnage, presumably that could fit relatively easily into its

mode of operations. Even then, however, the firm did not employ extremely old ships, opting instead for tonnage as new as possible.

The noticeable drop in the mean age for the entire fleet in 1897 is explained by the large number of new ships purchased in 1894. This was also the first year there was a significant difference in the mean ages in the last two columns, since early in the decade Burrell purchased a number of second-hand ships to replace some losses. The mean age of the entire fleet was lower than ten years earlier, but the true magnitude of this renewal can only be appreciated when we exclude second-hand tonnage from the calculations. When we do this the average age drops from 7.7 to 5.3 years. It is therefore clear that Burrell was able to expand its operations based mainly on new ships without the high costs associated with maintaining old vessels. The number of second-hand vessels remained small and was concentrated in the early years of the decade. Finally, in 1911 the mean age for the entire fleet was extremely low (3.7 years) and once again there was no difference between that figure and the average for new tonnage since in the twentieth century the company came to rely on new tonnage, most of which was built within the five or six years of this date.

Another method of establishing the average age of Burrell & Son's fleet is to examine the age at which the vessels were sold. Logically, the results will be markedly different than in the previous analysis since in the first case we were looking at a snapshot of the company at a particular point in time while in Table 3.4 we are basing our calculations solely on when the vessel was no longer necessary.¹³ "Average Age All at

¹³This analysis excludes vessels lost due to marine disasters of various kinds since such losses were involuntary and tell us nothing about the company's strategy for disposing of older assets.

Time of Disposal” depicts the average age of all vessels when sold, while “Average Age of Tonnage Purchase New at Time of Disposal” shows how long Burrell kept the average replacement vessel.

Table 3.4
Burrell & Son Average Vessel Age at Time of Sale

Decade	Number of Vessels Sold	Average Age All at Time of Disposal	Average Age of Tonnage Purchased New at Time of Disposal
1860s	-	-	-
1870s	7	9.0	9.0
1880s	12	9.2	7.0
1890s	27	9.8	7.5
1910s	25	9.3	9.3

Source: See Table 3.1.

No vessels were sold in the 1860s, so it was not necessary to calculate the means. But in the 1870s, 1880s and 1890s there was a small rise in the average age of vessels sold, although there was a five percent decline in the 1910s.¹⁴ The most interesting finding, however, is the more than two-year differences in the means in the 1880s and 1890s. This suggests that second-hand tonnage played a relatively more prominent role in Burrell’s operations during these years. In the 1910s, however, the company did not acquire second-hand tonnage and hence the means were once again identical.

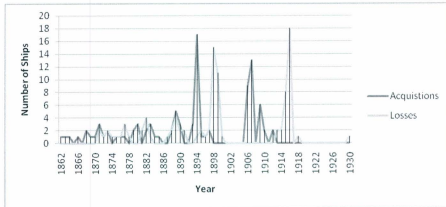
Both tables 3.3 and 3.4 prove that the company operated a relatively young fleet.¹⁵ The average age never exceeded ten years, and for significant parts of the period it was closer to five years, particularly after years marked by large-scale purchases (the period

¹⁴Note that there are no calculations for the period 1906-1910. As in the 1860s, there were no sales of Burrell & Son ships during this time of substantial tonnage acquisitions.

¹⁵For comparison, see Keith Matthews and Gerald Panting (eds.), *Ships and Shipbuilding in the North Atlantic Region* (St. John’s: Maritime History Group, Memorial University of Newfoundland, 1978); and Eric W. Sager with Gerald E. Panting, *Maritime Capital: The Shipping Industry in Atlantic Canada, 1820-1914* (Montréal: McGill-Queen’s University Press, 1990).

after 1894 and particularly after 1905). The tables also remind us that second-hand vessels were significant in only a couple of decades.

Figure 3.1
Burrell & Son Fleet Development (Acquisitions and Losses), 1862-1930



Source: See Table 3.1.

The next question we should ask is how Burrell & Son went about ensuring the renewal of its fleet and the replacement of vessels that were either lost at sea or sold. Figure 3.1 depicts the vessels bought and lost (including those sold) each year from 1862 to 1930. The first thing to note is the two peaks of acquisitions (1894 and 1906-1910) and the apexes of losses (1898-1899 and 1915-1916). The peaks in losses closely follow one another, a result of Burrell selling (or losing) ships that were relatively recently acquired. Equally interesting is the similar movement of the two series for the years leading to the peak of 1894. There was a fine balance of purchases and losses, with neither one allowed to push the company higher or lower in terms of the number of vessels available. Burrell

seemed determined to maintain a steady fleet size, at least as far as the actual number of vessels were concerned. This implies that the scope of operations and quality of the tonnage available to service them changed only gradually. Still, during the first thirty-five years of its existence, the company purchased at least one vessel in twenty-seven years and lost at least one ship in twenty-three years. The change in numbers, as we have already seen, was therefore always small. Only in 1894 did Burrell decide to drastically expand the size of the fleet, and soon thereafter the company decided to reduce it sharply.

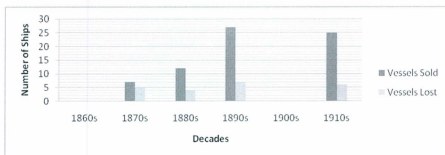
In the twentieth century, however, this pattern changed. All the ships were acquired between 1906 and 1912 and almost all were lost (through war or sale) between 1913 and 1918. But this apparent shift may only be a result of the more limited time frame that did not allow the company to pursue the same strategy as in the nineteenth century. The First World War was in many ways a historical watershed and it is not surprising that Burrell was affected by this global conflict. Between 1919 and 1929 there were no purchases or sales, and the company only operated a single ship before selling its last vessel in 1930.

It is important, though, to distinguish between vessels sold and those lost due to marine disasters. The reasons the company had to replace its tonnage can explain many operational and investment decisions and can also shed light on the company's management.

The majority of the vessels leaving the company's books were sold to other shipowners. Figure 3.2 presents a breakdown of vessels sold and lost by decade. In the 1860s and the first decade of the twentieth century, periods when the company began or resumed its operations, there were no losses and no sales. From 1870 to 1900, however,

there was a continual rise in the number of ships sold as Burrell replaced older tonnage with new steamships. The very high number of vessels sold in the 1890s (twenty-eight) is explained by the decision to disinvest and the massive sale of tonnage that occurred after 1898. This is also the reason for the high numbers in the 1910s, when twenty-five ships were sold.

Figure 3.2
Burrell & Son Vessels Sold and Lost, 1862-1930



Source: See Table 3.1.

The “Vessels Lost” series, however, describes a more complicated picture and less definitive trends. In the 1870s, marine disasters accounted for a significant part (41.7 percent) of all the vessels that left the company’s books. In the following decades there was a significant drop in this percentage, with losses due to marine disasters declining to twenty-five percent in the 1880s and twenty percent in the 1890s (even though in absolute numbers shipwrecks increased to a high of seven in the last decade). This level was maintained in the 1910s, but in this case it can be argued that the percentage (19.4 percent) was distorted by the unique circumstances of the world war. This naturally

resulted in a higher number of shipping losses than would have been expected during peace. The conclusion is that Burrell was not reacting to a negative situation when it proceeded with tonnage purchases. With the exception of the 1870s, losses from natural causes were reasonably consistent, stabilizing at about one-fifth of all vessels removed from the company's fleet. The planned removal and replacement of obsolete, old or unwanted tonnage was the main company strategy for fleet renewal.

Burrell & Son lost five ships in the 1870s. This was the highest decadal loss rate (20.3 percent) in its history. The four ships lost in the next decade were a much lighter burden for the company, representing only 15.4 percent of the vessels owned. In the 1890s the losses almost doubled to seven steamships (twenty percent of the fleet). All the losses in the 1910s occurred during the war years, but fortunately for Burrell most of the company's vessels survived long enough to be sold off; a mere 19.4 percent (six steamships) were lost to enemy action.

All the losses due to hostilities occurred in the twentieth century. But why were Burrell's steamships lost in the nineteenth century? Table 3.5 summarizes the reasons for the loss of the steamships in the nineteenth century.¹⁶

The gross investment database shows that most steamships were lost as a result of poor navigation and inclement weather. "Wrecked" or "stranded" were the main cause, accounting for forty-four percent of the losses. Collisions were indicated as the cause in twenty-five percent of the incidents. In two cases (*Budapest* in 1889 and *Strathearn* in 1890) the records are silent on what transpired. Most of the losses were clustered closely

¹⁶No sailing ships operated by Burrell were wrecked; all were disposed of through sale.

together temporally, with five occurring between 1873 and 1877 and six in the four-year period 1888-1891.

Table 3.5
Burrell & Son Vessel Losses, 1862-1898

Ship	Year Lost	Purchase Condition	Cause
<i>Grange</i>	1873	Second-Hand	Wreck at the mouth of the Loire
<i>Fitzjames</i>	1874	New	Stranded in the Mediterranean
<i>Strathclyde</i>	1875	New	Collision with German steamer
<i>Dunluce Castle</i>	1876	Second-Hand	Collision
<i>Jeanie Marshal</i>	1877	New	Stranded
<i>Fitzmaurice</i>	1888	New	Sunk off the Terrell
<i>Budapest</i>	1889	New	Cause Unknown
<i>Strathearn</i>	1890	New	Cause Unknown
<i>Strathblane</i>	1890	New	Went ashore
<i>Rio Bueno</i>	1891	New	Went ashore near Antigua
<i>Strathendrick</i>	1891	New	Sunk by another steamship
<i>Deak</i>	1894	New	Went ashore
<i>Wallachia</i>	1895	Second-Hand	Collided with Norwegian steamship
<i>Oakfield</i>	1897	Second-Hand	Wreck at St. Michaels
<i>Rhodora</i>	1897	Second-Hand	Sunk near Cape Race
<i>Rhosina</i>	1898	Second-Hand	Sunk in North Atlantic

Source: See Table 3.1.

Six of the vessels lost in Table 3.5 were purchased second-hand. The decision whether to purchase new or old tonnage had important implications for the operations of a shipping company. New tonnage is more expensive and supply may not correspond to demand, causing delays and raising costs. It takes months for a shipyard to construct a new steamship, and in that time frame the opportunities and circumstances that led to the decision to acquire the tonnage may have evaporated. Buying a vessel in the second-hand market can help the shipowner meet extraordinary demands at a lower purchase cost. On the other hand, this type of vessel will likely have higher maintenance costs.

Over its life as a shipping company, sixteen of the firm's ninety-five vessels were acquired second-hand, all of them in the period 1862-1900. This means that used tonnage comprised more than a quarter of the fleet during that period (25.4 percent). Table 3.6 presents details of these second-hand vessels.

Table 3.6
Burrell & Son Second-Hand Tonnage, 1862-1900

Vessel	Gross Tons	Age	Year Bought	Bought From
<i>Grange</i>	408	12	1868	John Edmond Swan, metal broker
<i>Dunluce Castle</i>	203	1	1873	Montgomery Paterson, Glasgow, manufacturing chemist
<i>Behera</i>	1383	18	1882	William Tilburn, Lockerbie, engineer
<i>Fitzclarence</i>	917	8	1882	Robert Donaldson, Glasgow, iron merchant
<i>Strathmore</i>	2138	5	1883	Robert Donaldson, Glasgow, iron merchant
<i>Daylesford</i>	1403	3	1885	R. Thompson & Sons
<i>Barden Tower</i>	2252	12	1893	Whimster & Watson, Glasgow
<i>Oakfield</i>	1748	10	1893	Joseph Brown & Son, Liverpool
<i>Wallachia</i>	1724	10	1893	Taylor, Cameron & Co., Liverpool
<i>Rhosina</i>	2623	12	1894	Edwards, Robertson & Co., Cardiff
<i>Rhodora</i>	2625	13	1894	Edwards, Robertson & Co., Cardiff
<i>Tenasserim</i>	2802	19	1894	British and Burmese Steam Navigation Co. Ltd., Glasgow
<i>Castledale</i>	2358	12	1894	Castledale Steam Ship Co., Liverpool
<i>Auretta</i>	2634	11	1894	Oriental Steam Ship Co. (Ltd.), London
<i>Kirby Hall</i>	2691	13	1895	Kirby Steam Ship Co. (Ltd.), Glasgow
<i>Hindoustan</i>	2916	16	1897	Cia. Nationale de Navigation, Marseilles

Note: The "Age" column refers to the age of the vessel in years when purchased by Burrell & Son.

Source: See Table 3.1.

Burrell & Son was forced to look into the second-hand market for steamships in two distinct periods, the first in the years 1882-1885 (when four ships were bought) and the second one in the years 1893-1894 (when eight ships were acquired). Different reasons account for the purchases of the two periods, at least from what we can infer from the available information. In the early 1880s Burrell went through a period of considerable expansion. The total tonnage in the fleet rose from 10,765 in 1882 to 13,930

gross tons in 1885, an increase of 29.4 percent. Second-hand tonnage might have been the solution to the need for extra ships at a time of rapid expansion when shipyards could not deliver new vessels fast enough. In the early 1890s, on the other hand, Burrell suffered through a period of heavy losses. Between 1890 and 1892 total tonnage fell from 31,495 to 21,824, a drop of 30.8 percent. This was due to the sinking of four vessels and must have caused some dislocations in the company's operations. Second-hand ships were once more necessary to fill the gap since shipyards could not respond adequately or in a timely fashion to the extraordinary demand for tonnage.

The notion that Burrell used second-hand tonnage as a convenient substitute in times of need (as opposed to a deliberate acquisition policy) is reinforced by the fact that the age of these ships was significantly higher than for the fleet in general, averaging about 10.9 years. It should be clear by now that Burrell preferred new tonnage and was willing to invest considerable capital in its acquisition. On a more circumstantial level, Burrell did not change the name of most of these ships by affixing the words "strath" or "fitz" at the beginning, further highlighting the separate status of the second-hand tonnage from the rest of the fleet.¹⁷

Until 1885 Burrell seems to have depended on personal connections in its search for tonnage. Almost all the ships were purchased from individuals familiar to William Burrell. Two of them in particular appear to be intimately connected with the company, having shares or receiving mortgages on a number of ships. Montgomery Paterson's

¹⁷With the exceptions of *Fitzclarence* and *Strathmore* all vessels maintained their previous names. There is a close business connection between Robert Donaldson, the iron merchant who sold these ships to Burrell and the latter's company. It is possible that these ships were initially built for Burrell but for unknown reasons their ownership and operation might have been assigned to Donaldson before their eventual return to Burrell & Son.

name appears in the list of shareholders of four steamships from the late 1860s to the late 1880s. Robert Donaldson was even more involved with Burrell & Son, having vested interests in at least six steamships, including one of the vessels he initially sold to Burrell (*Strathmore*). His connection was also long lived, starting in the late 1860s with the holding of twenty-one shares in *Grange* and ending with his death on 17 November 1885, a time when he owned twenty-one shares in *Strathmore*.¹⁸ The case of *Daylesford* is the only one from this period that demands a little more attention. Burrell purchased this vessel from R. Thompson & Sons, shipbuilders from Sunderland. It would appear she was a steamship built on speculation, or perhaps the previous owners defaulted on their payments since Thompson completed the building in 1882. This was the only transaction between the two parties, and Burrell never ordered any new tonnage from this particular shipyard. From 1893 Burrell always acquired second-hand tonnage from shipping companies rather than individuals. There was no preference for Scottish companies, with London, Liverpool and Cardiff shipowners selling vessels to the firm. These were ports in which Burrell was active and from where his vessels made numerous departures. Unlike earlier cases where there was a clear personal connection between seller and buyer, the owners of these ships do not appear to have been intimately associated with Burrell. We cannot exclude underlying connections between shareholders and managers, but the available information does not allow us to be more specific on the procedure that brought the two parties together.

The purchase of old tonnage was never a popular strategy for Burrell. When the company decided to re-enter the shipping industry in 1906, it chose to build brand new

¹⁸The information on the shareholders comes from Cage, *Tramp Shipping Dynasty*, 39-70.

ships rather than begin operations with vessels bought from other shipowners. The debate about the relevant merits and drawbacks of new and second-hand tonnage is pertinent at this point and can explain the choice made by William and George Burrell. The depressed state of world shipping at the time was also a major factor since it likely led to a lowering of costs for building new vessels in shipyards that were ardently looking for customers. Their return to the shipping business was probably well planned, allowing them plenty of time to allocate orders to various shipbuilders who could deliver the promised tonnage at the appropriate time. Burrell was not pressured by operational needs, a crucial factor whenever the company decided to purchase second-hand tonnage. This was also undoubtedly reinforced by the significantly higher percentage of second-hand ships lost in the previous period when compared with new vessels. In the years 1862-1900,¹⁹ out of sixteen used vessels, six sunk (37.5 percent), while out of sixty-three new ones, only ten were lost at sea (15.9 percent). In fact, of the seven ships bought in the cluster 1893-1894, more than half had sank within five years. Burrell did not have a good experience with used tonnage and hence made a conscious decision to avoid this type of vessel when it began its operations again in 1906.

¹⁹The calculations are based only on the years 1862-1900, not only because Burrell did not own any second-hand tonnage after 1906 but also in an effort to avoid the distortions in the number of ships lost brought about by the abnormal losses of the First World War. It is significant that the company did not lose any vessels as a result of enemy action in the nineteenth century, despite the high requirements in tonnage brought about by the Boer War.

3.3 Technological Improvements

The second half of the nineteenth century was marked by a series of rapid technological developments in the construction of merchant ships. The most critical of these was the advent of steam on the high seas and the displacement of sail from its former pre-eminent position as the exclusive carrier of goods across the oceans. Within the context of scholarly debate, until the mid-1950s the arrival and eventual domination of the steamship over sail was regarded as unavoidable, straightforward and even inevitable. Steam ensured a relatively dependable sailing schedule, increased speed and heightened versatility, while sail was often condemned as obsolete, slow and easily affected by the forces of nature. In a seminal article in 1956, Gerald S. Graham challenged this stereotype and changed prevailing ideas about the relevant position and capabilities of the steamship and the sailing vessel in the late nineteenth century.²⁰ His main argument was persuasive. Rather than sounding the death knell of the sailing ship, the arrival of steam ushered in the heyday of sail. The technology of the early steamship could not provide an efficient and steady performance. High costs associated with building and maintaining the engines and the uneconomical use of coal (which reduced the available cargo space and made long voyages impractical) were factors ensuring that the sailing vessel was in a position to compete successfully for cargoes until the 1880s. Even the opening of the Suez Canal in 1869 (with the drastic reductions in sailing time from Europe to India, South East Asia

²⁰See Gerald S. Graham, "The Ascendancy of the Sailing Ship 1850-1885," *The Economic History Review*, Second series, 9, 1 (1956), 74-88. See also Basil Greenhill, *The Life and Death of the Merchant Sailing Ship* (London: HMSO, 1980).

and China) was not enough to threaten the relative position of the sailing vessel.²¹ As Knick Harley noted, what determined the proportion of trade carried by steam and sail were the relative costs of the two for the type of cargo carried.²² For bulk cargoes, the lower-cost method (sail) was preferred.

Changes in steam technology were slow in the first part of the nineteenth century. In 1838, *Sirius* became the first steamship to cross the North Atlantic without using sails, powered by a single-expansion engine. By that time, steamships held a prominent position in riverine and coastal trade, and over the next few years its range of operations slowly expanded to include cross-sea trades and voyages to the Baltic and the Mediterranean. In most cases, though, steamships concentrated on high-value, low-bulk cargoes and the carrying of passengers. The steam engine at the time was simply not able to deliver the fuel economy required for longer voyages or for the transport of bulk goods.

The breakthrough was achieved through the efforts of two Scottish engineers, John Elder and Charles Randolph, who designed the first compound engine and installed it in the steamship *Brandon* in 1854. The economy of fuel achieved (thirty to forty percent) was significant but could not be guaranteed because of poor boiler construction. The introduction of steel boilers that could withstand significantly higher pressures allowed for the widespread adoption of the compound principle in the 1860s and 1870s. From that point on it was only a matter of time before further improvements in marine

²¹For the importance of the Suez Canal for British shipping, see Graham, "Ascendancy of the Sailing Ship," 74-88; Max E. Fletcher, "The Suez Canal and World Shipping, 1869-1914," *Journal of Economic History*, 18, 4 (1958), 556-573; and Anthony Gorst and Lewis Johnman, *The Suez Crisis* (London: Routledge, 1997).

²²C.K. Harley, "The Shift from Sailing Ships to Steamships, 1850-1890: A Study in Technological Change and its Diffusion," in Donald N. McCloskey (ed.), *Essays on a Mature Economy: Britain after 1840* (Princeton: Princeton University Press, 1971), 216.

technology allowed for even greater fuel efficiency and further adoption of the steam engine as a viable alternative to sail. The triple-expansion engine arrived in 1880 and became popular within three or four years. The quadruple-expansion engine was installed in a number of vessels, mostly German ocean liners, in the years 1898-1902.²³

In the adoption of each successive step of engine improvements, Burrell & Son proved to be cautious and conservative shipowners. The efforts of Alfred Holt, an engineer and shipowner whose 1864 design cut the coal consumption of the compound engine by almost forty percent through trial and error on his own vessels, have drawn a lot of well-deserved attention from maritime historians.²⁴ William and George Burrell were content to use well-proven technologies in their fleet; as a result, their adoption of each new technology lagged a few years behind its advent. Table 3.7 is a presentation of when new technologies were introduced in the Burrell fleet.

Table 3.7
Burrell & Son Technological Changes

TYPE OF ENGINE	FIRST INTRODUCED IN BURRELL & SON	LAST USED
Sail	1862	1877
Single Expansion	1866	1873
Compound	1871	1898
Triple Expansion	1888	1930
Quadruple Expansion	1894	1895

Source: See Table 3.1.

²³For a more detailed analysis of the introduction and adoption of these technological improvements, see Robin Craig, *The Ship: Steam Tramps and Cargo Liners, 1850-1950* (London: HMSO, 1980), 11-17.

²⁴See *ibid.*, 11-13. For a slightly different perspective on Holt's role, see Francis E. Hyde, *Blue Funnel: A History of Alfred Holt and Company of Liverpool from 1865 to 1914* (Liverpool: Liverpool University Press, 1956).

Burrell was not ambivalent about the use of sail. Their first three vessels in its fleet were sailing ships, but soon after the company became (and remained for the rest of its history) a steamship enterprise. The single-expansion engine, uneconomical and cumbersome, was soon abandoned for better options. In 1871, the 1950-gross ton steamer *Strathclyde* was equipped with a compound engine, and in 1888, the 2814-gross ton steamship *Strathearn* was powered by a triple-expansion engine. In both cases, the engines had been widely adopted for a number of years and had proven their efficiency. Burrell was not walking into *terra incognita* when it purchased these vessels. The reasons for this relatively slow acceptance of new technologies on the part of Burrell and other British shipowners were best analyzed by Robin Craig:

The vast generality of cargo ships were content with a slower speed in the interest of economy in coal consumption, which was of the utmost importance to the tramp shipowner. There were other necessary qualities as well, including uncomplicated engine construction, reliability, ease of maintenance, and, not least, simplicity in day-to-day operation. Elaborate, complex marine engines proved exceptionally costly to maintain. The requirement of an endless supply of spare parts could prove expensive in the mundane exigencies of tramp ship operation in which delays were costly. Good engine-room staff was at a premium.²⁵

These were important considerations and could drastically affect the productivity of a particular ship or a company. Burrell chose reliability over innovation, but once a technology had proven its seaworthiness and economic efficiency, the company had no qualms about moving on. Between 1871 and 1885, all twenty-one vessels bought and operated by Burrell were equipped with compound engines. All sailing ships and single-expansion steamers had been disposed of before the end of the first decade of the

²⁵Craig, *Steam Tramps and Cargo Liners*, 16.

company's existence. From 1888 all the ships acquired were triple-expansion steamers with the exception of nine vessels with compound engines bought second-hand between 1893 and 1898 when Burrell needed extra tonnage that could not be purchased new at short notice and was forced to acquire what was available. This temporary shift to compound rather than triple-expansion engines does not reflect the company policy. Indeed, when the firm re-entered the business in 1906, all its ships were triple-expansion steamers.²⁶ According to Robin Craig, the quadruple-expansion engine never became popular with tramp shipowners, and Burrell was no exception. There was no real need for the speed that this particular type of technology could provide, while the gain in coal consumption was mitigated by the sacrifice of carrying capacity to accommodate the larger engine room. The installation cost was higher than for a conventional engine, and there were relatively few engineers able to operate the new technology. Finally, the maintenance costs were also quite high.²⁷ The company purchased one quadruple-expansion steamship, *Tenasserim*, but sold her less than a year after her purchase to the Nippon Yusen Kabuskiki Kwaisha (NYK) of Tokyo in 1895.²⁸

²⁶In total, the company operated fifty-six triple expansion steamers from 1888 to 1930; thirty compound engine steamers from 1871 to 1898; five single expansion ships from 1866 to 1870; and three sailing ships from 1862 to 1877.

²⁷Robin Craig, "William Gray & Company: A West Hartlepool Shipbuilding Enterprise, 1864-1913," in P. L. Cottrell and Derek H. Aldcroft (eds.), *Shipping, Trade and Commerce: Essays in Memory of Ralph Davis* (Leicester: Leicester University Press, 1981), 179.

²⁸It appears that this was a highly speculative transaction. *Tenasserim* was bought second hand on 30 April 1894 from the British and Burmese Steam Navigation Co. Ltd. for £8000. According to the surviving crew agreements at the Maritime History Archive at Memorial University, the vessel was employed three times by Burrell, once on a voyage to Rangoon and twice on voyages to the Caribbean. On 14 February 1895 Burrell & Son empowered George Syne Thomson, a Yokohama shipbroker, to sell the ship in Japan within three months. The asking price was £12,000, and the vessel was sold on 29 April 1895. For information on this transaction see Cage, *Tramp Shipping Dynasty*, 93. When Burrell decided to sell the ship, Japan was embroiled in the First Sino-Japanese War, and the national demands for shipping were

A brief reference should also be made about Burrell's failure to adopt diesel engines. The substitution of oil for coal in shipping became a viable option in the years immediately following the end of the First World War. British shipowners in general proved unwilling to adopt the new technology. Steamships were efficient, reliable and economical, qualities tramp shipping owners valued above all else. But British shipowners were also hindered by the inheritance of the recent past. Vessels lost due to acts of war were replaced as fast as possible in an effort to take advantage of the post-war boom in freight rates. Shipyards were not in a position to meet market demands for new tonnage on such short notice so shipowners turned to what was readily available: ships built for the government during the war, German tonnage acquired as war reparations and any used tonnage that foreign owners were willing to put into the market. Even when a British shipyard was able to deliver new tonnage, in most cases it was a coal-burning steamer: as with the average shipowner, British shipyards were best in steam rather than diesel, and this was what they were able to deliver. In addition, oil was not readily available domestically, unlike coal where the United Kingdom possessed an enviable lead in production and supply. British shipowners were reluctant to become dependent on

high. The NYK was the main beneficiary of these extraordinary conditions. High government subsidies, combined with a general growth of the textile industry, provided the funds for rapid expansion with the establishment of a European line in 1896. The war illustrated the inadequacies of the Japanese and company merchant marine, and the NYK proceeded with emergency purchases of foreign vessels. Although most of these vessels were old and of moderate size, the fleet nonetheless doubled from 64,000 to 128,000 tons. It is within this context of rapid expansion that Burrell & Son appear to benefit by selling unwanted tonnage. For a general history of the Japanese merchant marine, see Tomohei Chida and Peter N. Davies, *The Japanese Shipping and Shipbuilding Industries: A History of their Modern Growth* (London: Athlone Press, 1990). The best history of the NYK is William W. Wray, *Mitsubishi and the N.Y.K., 1870-1914: Business Strategy in the Japanese Shipping Industry* (Cambridge, MA: Harvard University Press, 1984).

foreigners or to abandon a world-wide bunkering system that had proved adequate for more than forty years.²⁹

Burrell & Son was mostly inactive in the years when British shipowners failed to make the transition from steam to diesel. After the end of the war, there was only one steamship left in the company's employment, and Burrell had decided not to re-enter the business for a third time. We do not know what thoughts the company managers entertained about this technological change, but given their previous "wait-and-see" attitude, it is quite possible they would have remained faithful to the proven reliability of coal and the triple-expansion engine until such a time came when the merits of diesel would have been demonstrated conclusively by other shipowners.

3.4 Relationships with Shipyards

All of Burrell & Son's ships were general cargo steamers (with the exception of three sailing ships built in the early 1860s). Tramp shipping does not place special demands on the shipbuilder and in most instances does not require a highly differentiated final product. Unlike passenger liners or specialized cargo carriers such as refrigerated vessels, the most common carrier in the British merchant marine in the nineteenth century was the general cargo steamship, which was easy to build, economical to operate and versatile in its ability to transport a wide variety of cargoes. In 1914, about sixty percent of British-

²⁹For a discussion of the transition from coal to oil and the reluctance of the British shipowner to replace steam with diesel, see Max E. Fletcher, "From Coal to Oil in British Shipping," *Journal of Transport History*, 3, 1 (1975), 1-19.

registered vessels were tramps, and the British shipbuilder had acquired a justified reputation for producing quality steamships at competitive prices.³⁰

Information regarding the technical aspects of the sailing ships and steamers operated by Burrell & Son is relatively voluminous compared with data pertaining to other aspects of the company's history. Richard Cage has created an extensive catalogue of the vessels owned by Burrell & Son, providing information on size, engine room equipment, name of the shipbuilder, and date of construction. In some cases, there are some approximate costs of construction and associated data such as letters between the shipbuilder and the shipowner.³¹ Despite the inconsistent nature of the data, it is possible to provide some evidence about construction procedures, problems and opportunities. The connections between liner companies and shipbuilders have attracted considerable attention in the maritime literature, aided by the well-organized nature of some shipbuilder and liner company archives. Tramp companies once more prove more elusive and under-studied. Was Burrell a typical tramp company in its relations with shipbuilders? In the absence of comparative studies we cannot be certain, but wherever possible I have made an effort to furnish some perspective by placing Burrell's efforts in the general context of British tramp ownership in the nineteenth and early twentieth century.

³⁰For numbers and percentages of tramps and liners in the British merchant marine see Sarah Palmer, "British Shipping Industry, 1850-1914," in Lewis R. Fischer and Gerald E. Panting (eds.), *Change and Adaptation in Maritime History*, 108; and Ralph Davis, "Maritime History: Progress and Problems," in Sheila Marriner (ed.), *Business and Businessmen: Studies in Business, Economic and Accounting History* (Liverpool: Liverpool University Press, 1978), 177. For a discussion of the movement between liners and tramps see G. Boyce, "Edward Bates and Sons, 1897-1915: Tramping Operations in Recession and Recovery," *International Journal of Maritime History*, 23, 1 (2011), 12-50.

³¹Cage, *Tramp Shipping Dynasty*.

Table 3.8
Tonnage Classes of Burrell & Son Vessels

A: Tonnage Classes, 1862-1930

<i>TONNAGE CLASS</i>	<i>TOTAL TONNAGE</i>	<i>NUMBER OF VESSELS</i>	<i>AVERAGE TONNAGE</i>
500 or less	2113	8	264
501-1000	4498	6	750
1001-2000	20452	14	1461
2001-3000	47898	19	2521
3001-4000	16826	5	3365
4001-5000	173208	40	4330
>5000	5023	1	5023

B: Tonnage Classes, 1862-1900

<i>TONNAGE CLASS</i>	<i>TOTAL TONNAGE</i>	<i>NUMBER OF VESSELS</i>	<i>AVERAGE TONNAGE</i>
500 or less	2113	8	264
501-1000	4498	6	750
1001-2000	20452	14	1461
2001-3000	47898	19	2521
3001-4000	16826	5	3365
4001-5000	37537	9	4171
>5000	5023	1	5023

C: Tonnage Classes, 1906-1930

<i>TONNAGE CLASS</i>	<i>TOTAL TONNAGE</i>	<i>NUMBER OF VESSELS</i>	<i>AVERAGE TONNAGE</i>
500 or less	0	0	0
501-1000	0	0	0
1001-2000	0	0	0
2001-3000	0	0	0
3001-4000	0	0	0
4001-5000	135671	31	4376
> 5000	0	0	0

Source: See Table 3.1.

Table 3.8 breaks down the tonnage bought by Burrell into seven classes for the entire period and then distinguishing the period 1862 to 1900 from post-1900. Some distinct patterns are immediately visible. Between 1862 and 1900 the company operated vessels of a great variety of sizes, ranging from small schooners to comparatively large steamships. This is hardly surprising. Burrell started operations with small sailing ships

and, as the business expanded, acquired larger steamships to service the trades in which it became involved.

Over the period as a whole, Burrell clearly owned vessels of almost every conceivable size, ranging from schooners of well under 100 tons to one vessel of over 5000 tons. There were reasonable numbers of vessels in the 1001-2000 and 2001-3000 ton classes, but the largest concentration was in vessels of between 4001 and 5000 tons. But Table 3.8A masks as much as it reveals, since the proportions of vessels in each tonnage class varied over time, a phenomenon that makes Tables 3.8B and C more useful. As a cautious shipowner who demanded efficiency and versatility, the shift over time from smaller to larger vessels, which is evident in Tables 3.8A and B was logical. In the earlier years, as we shall see later, Burrell concentrated on relatively short-distance trades which, in turn, required only fairly small vessels. The nature and volume of the cargoes did not demand large volumes of tonnage, and Burrell still lacked the networks and trading connections to venture into trades that demanded larger vessels. But the gradual expansion into the bulk trades necessitated larger ships. Burrell was disinclined to increase the absolute number of vessels it operated until the 1890s and opted instead for larger steamships.

This was reflected in the progressive replacement of smaller vessels by larger ones. The first steamship above 1000 gross tons was purchased in 1871, but it was mostly after 1877 that vessels of this size began to replace smaller steamships. The move into vessels with carrying capacities between 2001 and 3000 gross tons began in 1887, and it was this size vessel that dominated the fleet until 1894, when the company embarked upon its program of rapid expansion with the purchase of larger steamships above 3001

gross tons. By that date the firm has disposed of most of its smaller vessels which were unable to satisfy the requirements imposed by the expansion of Burrell's increasingly global network of trade routes into North America and Southeast Asia. As tonnage sizes increased, the company required fewer vessels, but the reduction in numbers did not represent less carrying capacity. Instead, it indicated a reorientation towards larger individual units.

The second period of operations, between 1906 and 1930, presents a distinctly different picture. All the vessels belonged to the same tonnage class (4001-5000 tons) and averaged approximately 4400 gross tons. Most were purchased at the same time, during 1906 and 1907, which would explain the standardization evident in Table 3.8C. But even ships bought in 1910 and 1912 were of roughly the same size, a likely indication that the firm believed it had found the perfect size to fit its operations. Burrell appears to have re-entered the business with a plan of what it wanted to achieve and how to go about it. By ensuring that all vessels were of similar design, Burrell was permitted the greatest degree of flexibility. Standard demands for equipment, victualling, crews, berthing, insurance, and cargo space facilitated the daily operations and reduced costs. Burrell heeded the lessons learned in the closing years of the nineteenth century. It surely was no coincidence that all nine vessels of the same tonnage class (4001-5000 gross tons) that Burrell owned before 1900 were purchased after 1894. After almost three decades of operating different kinds of vessels, William and George Burrell appear to have finally found the type of vessel best suited to the company's needs.

The geographical location of the shipyards from which Burrell ordered its new tonnage shows a clear preference for Scotland and the North East of England.³² Only one ship was purchased from outside these areas, *Suffolk*, a three-masted barque acquired from Québec in 1864. Further specialization in the ordering of new vessels was also evident: all the ships ordered in Scotland came from shipyards on the Clyde, while the majority of orders in the North East were placed with companies on Tyneside and Teeside. Table 3.9 depicts the location of the shipyards used by Burrell and the tonnage purchased from each.³³

Table 3.9
Regional Distribution of Shipbuilding Purchases, Burrell & Son, 1862-1930

GEOGRAPHICAL AREA	GROSS TONNAGE BUILT		
	TOTAL	1862-1900	1906-1930
SCOTLAND	190410	63562	126848
<i>Of which</i> MARYHILL	408	408	0
GLASGOW	14816	6079	8737
PORT GLASGOW	71760	19330	52430
GREENOCK	78512	30254	48258
DUMBARTON	23740	6317	17423
PAISLEY	1175	1175	0
NORTHEAST	50848	42025	8823
<i>Of which</i> NEWCASTLE	23731	23731	0
WEST HARTLEPOOL	16156	16156	0
MIDDLESBOROUGH	10961	2138	8823
QUEBEC	231.3	231.3	0

Source: See Table 3.1.

³²In defining these areas I have chosen the system employed by Simon Ville and his contributors in *Shipbuilding in the United Kingdom in the Nineteenth Century: A Regional Approach* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 4, 1993). The Northeast is comprised of the eastern counties north of the Wash.

³³The tonnage in the table does not include vessels bought second-hand by Burrell. It is possible that the company took into consideration the provenance of the vessel before they purchased it but without evidence from company sources it is best not to include them in the calculations.

The Clyde was one of the most important shipbuilding centres not only in the United Kingdom but also in the world from the middle of the nineteenth century. Its leading position in both tonnage output and technological innovation created an attractive environment for prospective shipowners. By the mid-1850s wood was almost totally abandoned as a shipbuilding material, replaced first by iron and then by steel after 1884. Considerable savings in space and weight, in association with the general superiority of steel, convinced Clyde shipbuilders to emphasize it, creating high-quality and high-speed vessels. The Clyde was also an important workshop for marine engines and new hull designs, and Scotland led the way in the adoption of steam, the improvement in boiler technology and the development of the compound engine.³⁴

Considering the central position of Scottish shipbuilders in the complex network of British shipping, it is not surprising that Burrell placed a large number of orders on the Clyde. Moreover, since Burrell was a Scottish firm, it made sense for the company to place the bulk of its orders with local shipbuilders. Greenock was the leading shipbuilding centre, launching 30,254 gross tons for Burrell between 1862 and 1900. Port Glasgow, also on the Clyde and close to Burrell's centre of operations in Glasgow, was second with 19,330 gross tons. Dumbarton and Glasgow itself provided 6317 and 6079 gross tons, respectively. The North East was the only other shipbuilding region to attract substantial orders from Burrell in the years 1862-1900, especially Newcastle and West Hartlepool with 23,731 and 16,156 gross tons, respectively. Shipbuilding in this area was heavily

³⁴For an analysis of Scottish shipbuilding see Anthony Slaven, "Shipbuilding in Nineteenth Century Scotland," in Ville (ed.), *Shipbuilding*, 153-176.

biased towards tramps and expanded both absolutely and relatively after mid-century. The two most important centres were Newcastle and Sunderland. As Simon Ville has shown, the former produced an aggregate of 1.8 million tons in the second half of the nineteenth century.³⁵ Middlesbrough was another important shipbuilding centre, while West Hartlepool became famous for the “well-decked” cargo vessel pioneered by local shipbuilders. Blessed with inexpensive supplies of iron and coal and a good transportation infrastructure, the North East was a good alternative for shipowners unable to procure the vessels they wanted from Clyde shipbuilders.³⁶

After 1905 Burrell & Son seems to have turned its back on the North East, ordering only two steamships. The lack of company records makes it difficult to explain this change, especially when we consider that the region’s share of total British shipbuilding grew to an impressive fifty-two percent by 1911-1913. One possible reason for Burrell to ignore the North East might be the region’s increased emphasis on specialized tonnage (tankers, ore carriers, liners, warships, tugs, trawlers and drifters).³⁷ Burrell was interested in general cargo steamers, and the Clyde was in an excellent position to satisfy this demand.

The only ship ever purchased overseas was a wooden barque built in Québec in 1863. Endowed with abundant supplies of timber, British North America was famous for building wooden sailing vessels, but steamship construction never took hold. Hence, the

³⁵ Simon Ville, “Shipbuilding in the Northeast of England in the Nineteenth Century,” in *ibid.*, 4.

³⁶ *Ibid.*, 1-43.

³⁷ *Ibid.*, 1 and 10-11.

area was unsuitable as a place of orders from Burrell, a company firmly wedded to iron and steel steamers.³⁸

A close association between shipbuilders and shipowners was not uncommon. Liner companies developed tight bonds with particular yards, thus ensuring low costs, prompt delivery and transactional trust. The relationship between the White Star Line and Harland & Wolf in Belfast is well documented, but it was far from unique.³⁹ The Donaldsons, who wanted to enter into the refrigerated meat trade, developed strong bonds with yards that were familiar with the company's specific requirements: "There are distinct advantages in having vessels built by one firm, one of which is that the builders become familiar with the special type of vessel required for our services."⁴⁰

Tramp shipowners were not averse to making similar arrangements. E.H. Hain from St. Ives, for example, had a close relationship with the shipbuilding yard of John Readhead & Co. at South Shields. The shipbuilder delivered a total of eighty-seven vessels to Hain, fifty of them between 1878 and 1907.⁴¹ Some tramp owners, however, were less inclined to rely too much on a single source of tonnage. The Hogarths, a Scottish family which operated tramp ships from Ardrossan and Glasgow in the second half of the nineteenth century, were more willing to keep their options open, searching the

³⁸For an account of wooden shipbuilding in Québec see Eileen R. Marcil, *The Charley-Man: A History of Wooden Shipbuilding at Québec, 1763-1893* (Kingston: McGill-Queen's University Press, 1995); and Harley, "On the Persistence of Old Techniques," 372-398.

³⁹Michael S. Moss, "Shipbuilding in Ireland in the Nineteenth Century," in Ville (ed.), *Shipbuilding*, 177-195.

⁴⁰J. Forbes Munro and Tony Slaven, "Networks and Markets in Clyde Shipping: The Donaldsons and the Hogarths, 1870-1939," *Business History*, 43, 2 (2001), 38.

⁴¹K. J. O'Donoghue and H. S. Appleyard, *Hain of St. Ives* (Kendal: World Ship Society, 1986).

market for the best offers and relying on well-developed information networks for news of the latest technological advances.⁴² They did not depend on a specific shipbuilder, dividing their orders between yards. Whenever particular shipbuilders received multiple orders, it was for standardized designs of general cargo steamers, and there is nothing in these transactions to imply the close connections that often existed between liner companies and shipbuilders.⁴³

Burrell & Son did not develop an exclusive business relationship with any particular shipbuilder. Despite heavy dependence on individual shipyards for brief periods, the main motivation behind its contacts with shipbuilders was the timely delivery of the desired tonnage. Price might have been an additional factor, but information on this is sketchy. Throughout its history Burrell ordered vessels from eighteen different shipbuilders, none of whom provided more than fifteen percent of its ships. As Burrell & Son grew it shifted orders for new tonnage from shipyard to shipyard, with the only common factor being that the builder was located in either Scotland or the North East.

The first company vessels came from the shipyards of J. & R. Swan and Blackwood & Gordon. Both were Clyde shipbuilders, the former based in Maryhill and the latter in Port Glasgow. Between them they built fifteen of the first twenty ships which Burrell owned, dominating the company's orders from 1862 until 1880. Swan provided small sailing ships and steamers (six orders for a total of 1240 gross tons), while Blackwood & Gordon was the main supplier of steamships of approximately 1400 gross tons (nine orders for a total tonnage of 12,629 gross tons). At this early stage, Burrell

⁴²For more information on the Hogarths, see Munro and Slaven, "Networks," 24-25.

⁴³Munro and Slaven, "Networks and Markets," 41.

appeared to believe that local builders were the best option. Further, we cannot exclude the possibility that Burrell had business or social relationships with these builders.

There is also evidence that shipbuilders invested in some of these early vessels. Although John Edmond Swan does not appear to have owned shares in Burrell ships, he was the owner of *Grange*, a 408-gross ton schooner that Burrell bought second-hand in 1868.⁴⁴ Thomas Blackwood, on the other hand, was rather more extensively involved with Burrell. For instance, he owned half of Burrell's steamer *Galata*, which his yard built in 1870, and had a number of shares (usually ranging between four and six) in seven of the eight steamships he built for Burrell.⁴⁵ It is unclear whether there was any personal relationship which would explain Blackwood's willingness to invest in Burrell's vessels or if this was a standard shipyard policy. But if it was, the practice was fairly common in Britain. Taking shares in the vessels they built could be a means of helping the shipowner to finance the purchase of new tonnage or an attempt by a shipbuilder to diversify his operations. William Denny & Brothers found itself associated with at least nineteen companies between 1844 and 1914, and the firm often operated vessels in its own right. Paul Robertson discovered that the partners in the firm owned shares in numerous vessels and invested substantial funds in shipping companies.⁴⁶

Burrell & Son also operated shipyards in Dumbarton and Hamilton Hill. Available information is scarce, but it appears that the main function of the latter was to build puffers for other shipowners. The first launch took place around 1875, and the last puffer

⁴⁴Cage, *Tramp Shipping Dynasty*, 49

⁴⁵*Ibid.*, 51-64.

⁴⁶Paul L. Robertson, "Shipping and Shipbuilding: the Case of William Denny and Brothers," *Business History*, 16, 1 (1974), 36.

was built in 1898. In 1883 and 1884 the Dumbarton yard received orders from Burrell & Son for three steamships: *Deak* (1236 gross tons), *Budapest* (1678 gross tons) and *Rio Bueno* (1706 gross tons). These were the only steamships from its own yards ever operated by Burrell & Son.⁴⁷ While we do not know why Burrell failed to place more orders with its shipyards, it is possible that neither had the capacity to accommodate large orders. It is also conceivable that the quality of the final product might have been poor, especially considering the fates of the three vessels mentioned above. *Budapest* disappeared without trace on her way to Las Palmas in 1890, and *Deak* and *Rio Bueno* were both wrecked.

Still, it was not uncommon for shipowners to expand their business interests by acquiring shipyards. Gordon Boyce attributes this policy to the shipowner's wish to "defend or extend existing information channels and client specific investment."⁴⁸ Robert Ropner was one of the best known shipowners to enter shipbuilding with cost-specific aims. He bought a shipyard in 1888, twenty years after purchasing his first vessel, with the principal goal of reducing costs by eliminating the middlemen. An additional motivation was provided by his wish to find useful employment for his sons. Unlike Burrell, Ropner made extensive use of his Stockton shipyard, ordering sixty-five steamers by 1914, nine of them between 1895 and 1897.⁴⁹

⁴⁷According to data provided in Cage, *Tramp Shipping Dynasty*, 185-186, the Dumbarton yard built six steamships between 1882 and 1884 that were promptly sold to other shipowners.

⁴⁸Boyce, *Information, Mediation*, 188.

⁴⁹Ian Dear, *The Ropner Story* (London: Hutchinson Benham, 1986), 24-30.

The largest volume of tonnage that Burrell bought was in the 1890s. The company diversified its orders by allocating them to three separate shipyards. Perhaps not surprisingly, the main beneficiary of this expansion policy was Russell & Co. Since its founding in 1874, Russell & Co. had developed into the largest producer of cargo tonnage by volume in all of Scotland. Its original fame rested on building standardized sailing ships with interchangeable parts and stock designs, improving quality and reducing costs through repetition. In the 1880s it shifted to building economical, steam-powered tramp ships,⁵⁰ and this attribute likely enticed Burrell to place ten orders with Russell. Between 1888 and 1894 the company built 32,595 gross tons of steamships for Burrell, being by far the biggest single supplier of new tonnage in the period 1862-1900.

When James and Henry Lithgow took over Russell & Co., the firm frequently bought shares in the vessels they built as a way of soliciting orders.⁵¹ Burrell & Son was no exception: in six of the ten ships that Russell & Co. built for Burrell, the brothers held between two and thirty-two shares. It seems reasonable to assume that in the majority of these cases Russell & Co. purchased shares to help Burrell finance the ship. From Table 3.10 we can see that the shipyard financed a substantial part of the vessels through mortgages ranging between fifty-six and ninety-four percent of the cost.

⁵⁰Michael S. Moss describes this shifting of emphasis as occurring "almost overnight" at the turn of the nineteenth century, as sail was giving way to steam from tramp ships. See Moss, "Lagan and Clyde Shipbuilding," in Gordon Jackson and David M. Williams (eds.), *Shipping, Technology and Imperialism* (Aldershot: Scholar Press, 1996), 177-188. For a history of Russell & Co., see Lewis Johnman and Hugh Murphy, *Scott Lithgow: Déjà vu All Over Again! The Rise and Fall of a Shipbuilding Company* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 30, 2005), 29-80.

⁵¹Johnman and Murphy, *Scott Lithgow*, 32.

Table 3.10
Russell & Co. and Burrell & Son Financing

Vessel	Gross Tonnage	Year Built	Prime Cost	Mortgage A	Mortgage B	Mortgages as a % of Prime Cost
<i>Strathblane</i>	2341	1888	22255	£9900 + 5%	£7400 + 5 1/2 %	77.7%
<i>Strathendrick</i>	2336	1889	23738	£9427 10s. + 5%	£7070 12s. 6d. + 5%	94.3% ³²
<i>Strathlyon</i>	2340	1889	24871	£9550 + 5%	£7216 13s 4d. + 5%	67.4%
<i>Strathesk</i>	2271	1890	25301	£11250 + 5%	£3000 + 5%	56.3%
<i>Strathallan</i>	2336	1890	26954	£11000 + 5%	£5000 + 5%	59.4%
<i>Strathavon</i>	2672	1890	28892	£11568 15s. + 5%	£6568 15s. + 5%	62.8%

Source: R.A. Cage, *A Tramp Shipping Dynasty – Burrell & Son of Glasgow, 1850-1939* (Westport, CT: Greenwood Press, 1997), 73-89.

An analysis of the construction information for the ten vessels built by Russell & Co. for Burrell reveals some interesting points about the company's policies in contracting for new tonnage. There are two important dates: 20 August 1888, when Burrell ordered three steamships, and 1 June 1893 when it ordered four additional steamers. The ships were almost identical in size and technical specifications. In fact, Burrell explicitly requested Russell to build "duplicates" and referred to the first ship purchased on 9 August 1888 as the template which Russell should use for subsequent orders:

We now confirm the agreement made with you today, viz., that in addition to our having bought the steamer you are now building, viz., no. 220...and contracted with you to build for us a duplicate of our Tyne steamers...we have besides contracted with you to build for us a duplicate of the "Strathlyon" in every respect with these exceptions, that steamer is to be pined decked over the

³²*Strathendrick* was a special case. It was the only vessel for which Burrell actually issued four mortgages. The first one was unrelated with Russell & Co. and has not been included in the calculations for the total value of mortgages as a percent of prime cost. The fourth one was for £5892 3s. 10d. +5 percent and has been included in the calculations. The reasons for this exception are not clear from the available evidence.

Officers quarters & is to have [unknown] top masts, machinery and boilers by Messrs Jas. Howden & Co.⁵³

This was not the only time Burrell & Son ordered duplicate vessels from the same shipyard. Of the six vessels ordered from Tyne Iron Shipbuilding Co. Ltd. between 1894 and 1897, each pair was almost identical. In 1906-1907 Burrell ordered two similar steamships from R. Duncan & Co. and in 1909-1910 did the same with A. McMillan & Son Ltd. of Dumbarton. All eight vessels ordered from W. Hamilton & Co. Ltd. in 1906-1907 were similar. Unfortunately, we do not have specific information on any of these cases but in the light of the letter to Russell & Co. it would seem reasonable to assume that Burrell was seriously interested in a standard design for its fleet and ordered vessels in pairs to accomplish that purpose. Only when the company required tonnage urgently did it stray from this policy, which was strongly reminiscent of Hogarths, another shipping enterprise that assigned multiple orders to specific shipyards for standardized designs.⁵⁴

The available correspondence between Burrell and Russell also highlights the financial arrangements to pay for the ships ordered. In a letter to the shipbuilders, Burrell informed them that Russell would take "an interest of 6/64th shares in No. 220 and 6/64ths in the 'Strathlyons' [sic] duplicate on same terms as formerly. Payments same as 'Strathblane' with exception that instead of having facilities over one half, as in her case, the facilities are not to exceed 24/64ths of each steamer."⁵⁵ Burrell thus offered the

⁵³University of Glasgow Archives, Business Record Centre, GD.320/8/1/145, Burrell & Son to Russell & Co., as cited in Cage, *Tramp Shipping Dynasty*, 84.

⁵⁴Munro and Slaven, "Networks and Markets," 41.

⁵⁵Cage, *Tramp Shipping Dynasty*, 84.

shipbuilder shares in the new vessels as a way of paying for part of them. Russell & Co was happy to comply. Indeed, Russell ended up holding thirty-two shares in *Strathblane* and twenty-four in *Strathesk*. Such agreements facilitated transactions and protected both parties from serious financial strains.

The Tyne Iron Shipbuilding Co. (Ltd.) was the second largest supplier of tonnage in the 1890s, with six vessels of 20,525 gross tons. Once more, the shipbuilder took back mortgages for various numbers of shares to compensate for part of the amount due (Table 3.11). Because the cost of the vessels is unknown, we cannot calculate the percentage of the mortgage in relation to the total cost. Given the similar size and engine specifications of the vessels built in Newcastle and those constructed on the Clyde, and the proximity of the dates, we can assume that the price would have been similar. To calculate the percentage, we can use the mean gross tonnage and the mean price for the vessels in Table 3.10 and compare them with the findings in Table 3.11.

Table 3.11
Tyne Iron Shipbuilding Co. (Ltd.) and Burrell & Son Financial Transactions

Vessel	Gross Tonnage	Year Built	Mortgage A	Mortgage B
<i>Strathdee</i>	2625	1889	£10823 13s. 2d. + 5%	-
<i>Strathdon</i>	2643	1889	£4705 18s. 4d.	£3705 18s. 4d.
<i>Fitzpatrick</i>	4071	1896	£10923 8s. 9d.	-

Source: See Table 3.1.

The average tonnage for the Clyde-built steamers was 2383 gross tons and the mean cost was £25,335. Under these conditions, the mortgage for *Strathdee* would have covered 42.2 percent of the prime cost and 33.2 percent for *Strathdon*. Even if we

compare these two ships with the prime cost of *Strathavon*, which was the closest in terms of size to the Newcastle-built vessels, the mortgage only covered 37.4 percent and 29.1 percent, respectively. Tyne Iron Shipbuilding was not willing to offer as generous financial terms as Russell & Co.⁵⁶ After the early 1890s, Burrell had a mortgage only for *Fitzpatrick*, while three other vessels were built without recourse to this method of financing.

The third shipbuilding company was William Gray & Co. The last two decades of the nineteenth century were golden years for Gray, as its tonnage constructed ranked it among the five most important yards in Britain, and on six occasions the yard built more tonnage than any other shipyard in the world. The shipyard specialized in economical steamships designed for the bulk tramping trades, but it also built liners. Its success was founded on product standardization and fuel economy, combined with a large carrying capacity relative to the registered tonnage. These were attributes Burrell was looking for and could have formed the basis for a lasting relationship between the two parties.

This did not occur, however. Burrell employed Gray's yard only in 1894 when the company ordered four steamships with a total capacity of 16,156 gross tons. Robin Craig has illustrated the generous financial terms Gray was willing to offer to good customers to retain their business. In most cases Gray took a substantial number of shares in the vessels he built until the loans had been repaid. These generous terms did not materialize in the case of Burrell which by 1894 was no longer interested in these sorts of financial

⁵⁶*Fitzpatrick* had no similar ship among the Clyde-built tonnage with which to make a comparison.

arrangements. William Gray held only three shares in each of the four vessels the company built for Burrell, and there were no mortgages attached to these ships.⁵⁷

Cost might be the explanation for the brief business relationship between the two parties. The year 1894 was not particularly good for William Gray. In terms of both number of ships and gross tonnage delivered (sixteen and 47,921, respectively), the shipyard's output fell considerably from the previous year, when Gray delivered twenty ships of 56,082 gross tons, and was also noticeably lower than the next (when Gray delivered twenty-three ships of 63,047 gross tons). It was the worst performance of the decade and was reflected in the average price of steamships. According to Craig, the price per gross ton in 1894 was only £9.50, the lowest ever for the yard and a sharp fall from a high of £13.05 per ton in 1890.⁵⁸ Burrell was probably responding to a good opportunity to acquire tonnage at heavily discounted prices when it opted to contract with Gray for four new ships. The subsequent price recovery annulled a good reason for employing the West Hartlepool shipyard.

Grangemouth and Greenock Dockyard Co. was Burrell's single most important supplier of tonnage in the twentieth century providing twelve steamships of 48,258 gross tons from 1905 to 1912, all of them very similar in their specifications: triple-expansion, three-cylinder engines, two-decked steel steamships of approximately 4400 gross tons. Table 3.12 illustrates the extent of the shipbuilder's involvement in the process. Between 1905 and 1907, when the first of the steamers was delivered, Grangemouth and Greenock Dockyard Co. held between thirty-two and thirty-nine shares, with thirty-five to thirty-

⁵⁷See Craig, "William Gray & Company," 165-191.

⁵⁸*Ibid.*, 185.

seven being the usual number. In 1909, when Burrell ordered more steamships, the shipyard agreed to take sixty-four shares per vessel, thus controlling both *Strathmore* and *Strathcarron*.

Table 3.12
Grangemouth and Greenock Dockyard Co and Burrell & Son Financial Transactions

Name of Vessel	Tonnage	Capital (£)	No. Shares Issued by Burrell	No. Shares Held by Builder	% Held by Builder
<i>Strathearn</i>	4106	23,000	230	35	15.2
<i>Strathay</i>	4428	23,000	230	36	15.7
<i>Strathyre</i>	4416	23,000	230	36	15.7
<i>Strathspey</i>	4432	23,000	230	36	15.7
<i>Strathord</i>	4417	23,000	230	37	16.1
<i>Strathclyde</i>	4417	23,000	230	37	16.1
<i>Strathavon</i>	4403	24,000	240	32	13.3
<i>Strathallan</i>	4404	24,000	240	39	16.3
<i>Strathesk</i>	4336	21,500	215	64	29.8
<i>Strathdene</i>	4321	21,500	21500	-	-
<i>Strathmore</i>	4337	12,000	120	64	53.3
<i>Strathcarron</i>	4347	10,000	100	64	64.0

Source: See Table 3.1.

Similar agreements marked the purchase of the remainder of Burrell's steamships. In the case of the other shipbuilders, though, Burrell was forced to offer slightly more shares for vessels with the same specifications as those launched by Grangemouth and Greenock Dockyard Co. This was especially true after 1909. Most of these agreements were similar, regardless of the shipbuilder (See Table 3.13).

Table 3.13
Twentieth Century Shipyards and Burrell & Son Financial Transactions

Name of Vessel	Tonnage	Capital (£)	Shares	Shares Held By Shipbuilder	% Held by Builder
<i>Fitzclarence</i>	4407	24000	240	38	15.8
<i>Fitzpatrick</i>	4416	24000	240	38	15.8
<i>Strathairly</i>	4326	23000	230	39	17.0
<i>Strathairn</i>	4336	23000	230	39	17.0
<i>Strathalbyn</i>	4331	21500	215	40	18.6
<i>Strathan</i>	4385	21500	215	40	18.6
<i>Strathardle</i>	4377	21500	215	40	18.6
<i>Strathbeg</i>	4338	21500	215	40	18.6
<i>Strathblane</i>	4358	24000	240	39	16.3
<i>Strathdee</i>	4409	24000	240	39	16.3
<i>Strathdon</i>	4398	24000	240	39	16.3
<i>Strathendrick</i>	4379	24000	240	39	16.3
<i>Strathfillan</i>	4353	23000	230	36	15.7
<i>Strathgarry</i>	4398	24000	240	39	16.3
<i>Strathgyle</i>	4386	24000	240	39	16.3
<i>Strathleven</i>	4396	24000	240	39	16.3
<i>Strathlorne</i>	4330	21500	215	40	18.6
<i>Strathlyon</i>	4400	24000	240	39	16.3
<i>Strathness</i>	4354	23000	230	39	17.0
<i>Strathroy</i>	4336	21500	215	40	18.6

Source: See Table 3.1.

W. Hamilton & Co. Ltd., A. Rodger & Co., R. Craggs & Sons Ltd., A. McMillan & Son Ltd. and Napier & Miller Ltd. were the other recipients of orders from Burrell & Son. Hamilton and McMillan were the most important, building 34,973 and 17,423 gross tons respectively, but Burrell conformed to the general trend of the late nineteenth century by concentrating orders among four (or even fewer) builders. Shipowners with a large demand for new ships could take advantage of specialized knowledge; ensure that shipyards could deliver orders on time, locate appropriate facilities depending on vessel size and particular specifications and minimize risks from associating too closely with individual shipyards. Discussing the national pattern, Gordon Boyce showed that seventy-one percent of orders from large shipowners in the second half of the nineteenth century

were directed to four yards or less, with thirty-eight percent of ships ordered from a "lead builder."⁵⁹ In Burrell's case, the principal builder, Grangemouth and Greenock Dockyard Co., provided 37.5 percent of the company's steamships after 1905. Most orders in the early twentieth century were placed with four yards, with the rest used only when needed. All Burrell vessels were of the same general design and specifications. Over a span of five years Burrell placed more than thirty orders for steamships, and a single yard would have been hard pressed to deliver this number of vessels. The use of multiple yards therefore made a good deal of sense in this case.

Timely deliveries were important for both shipowners and shipbuilders. The former required tonnage as soon as possible since long delays could have negative impact on their ability to honour agreements or even take advantage of opportunities available at the time of contracting for new ships. Conversely, builders could suffer penalties for late deliveries. Even worse, they could risk losing future business. Certain shipowners followed long-term, planned fleet renewal policies. Harrisons of Liverpool, for example, ordered two new ships per year during the 1890s, raising the number to three per year in the 1900s. Such a firm would have been unable to take advantage of fluctuations in shipbuilding costs, but this type of consistency did allow for a steady increase in carrying

⁵⁹Boyce, *Information, Mediation*, 179. Evan Thomas Radcliffe, another tramp shipowner, ordered his vessels as follows: from 1882 to 1900, he ordered twelve vessels from Palmers Shipbuilding & Iron Co. From 1882 to 1910 he ordered nine vessels from Ropner Shipbuilding & Repair Co. Eight vessels came from Craig, Taylor & Co. from 1911 to 1915 and eleven ships were delivered from Richardson, Duck & Co. between 1891 and 1910. In the period 1882-1910, seven additional shipyards delivered eleven vessels. See J. Geraint Jenkins, *Evan Thomas Radcliffe: A Cardiff Shipowning Company* (Cardiff: National Museum of Wales, 1982), 22-23.

capacity to meet trade estimates.⁶⁰ This policy also facilitated contacts with shipbuilders who could depend on a minimum of new orders each year, while Harrisons could expect to find the necessary building capacity, avoiding the risks and costs of searching for available berths. On the other hand, due to the unpredictable nature of its ordering policy, with peaks of intense activity followed by long periods when the company ordered few vessels, Burrell tried to ensure prompt delivery by contracting with multiple yards during times of heavy investment (for example, 1894-1895, 1905-1907 and 1909).

Table 3.14
Burrell & Son Fleet Average Delivery Time

	1860s	1870s	1880s	1890s	1900s
Average Vessel Delivery Time (Months)	11	7.3	7.5	6.4	6.0

Source: See Table 3.1.

Cage generated data on the average delivery time for seventy-two vessels. Table 3.14 illustrates the considerable savings in delivery time achieved as a result of the firm's policy of contracting for tonnage with multiple shipyards. In the 1860s we know the delivery time (eleven months) for only a single vessel. During the 1870s, when Burrell contracted with two suppliers, J. & R. Swan and Gordon & Blackwood, the average delivery time was 7.3 months. In the 1880s this increased slightly to 7.5 months, probably due to bottleneck conditions after 1888 when Burrell ordered seven steamships from Russell & Co., A. Stephen & Sons and Tyne Iron Shipbuilding Co. Ltd. Burrell also ordered three steamers from the shipyard in Hamilton Hill. The average waiting period

⁶⁰Francis E. Hyde, *Shipping Enterprise and Management 1830-1939: Harrisons of Liverpool* (Liverpool: Liverpool University Press, 1967), 101. See also Graeme Cubbin, *Harrisons of Liverpool: A Chronicle of Ships and Men, 1830-2002* (Gravesend: World Ship Society, 2003).

was 6.7 months. Two vessels were delivered in four and five months, respectively, but the third was delayed for eleven months.⁶¹

The policy of dividing orders among multiple yards appears to have been more efficient in the 1890s and 1900s. Both decades were characterized by large numbers of orders on short notice. In the 1890s Burrell ordered seventeen new steamships from five different shipyards. The average delivery time of 6.4 months was significantly lower than in the previous decade. Savings in time became more pronounced after 1905 when the average dropped to 6.0 months. We do not know the delivery times for the vessels ordered in 1909.

Data on shipbuilding costs and prices are fragmentary and heavily weighted towards financial data from Russell & Co.⁶² Table 3.15 presents information for sixteen steamships, ten of them built by Russell & Co., two by R. Duncan & Co. and the others by various shipbuilders. Eleven were launched in the nineteenth century, mostly between 1888 and 1894. All vessels (except for *Fiume*) were equipped with triple-expansion engines. In terms of size they can be divided into two categories: steamships with an average size of about 2300 gross tons and substantially larger vessels ranging from 4000 to 5000 gross tons, with the mode being about 4300 gross tons.

The cost of building a late nineteenth-century general cargo carrier has not been widely studied and the information provided here is far from complete.⁶³ But Table 3.15

⁶¹These calculations were based on information in Cage, *Tramp Shipping Dynasty*, 47-172.

⁶²Cage, *ibid.*, 47-172.

⁶³Gordon Boyce, "64thrs, Syndicates, and Stock Promotions: Information Flows and Fund-raising Techniques of British Shipowners Before 1914," *Journal of Economic History*, 52, 1 (1992), 189, claims

suggests that the cost for a 2300-ton tramp steamer in the early 1890s was between £22,000 and £29,000. For a steamer of more than 4000 gross tons the average cost was between £40,000 and £44,000. These prices appear to have been constant in the early twentieth century – or at least Burrell was able to negotiate similar contract prices after 1905 as it did ten years earlier.

Table 3.15
Burrell & Son Shipbuilding Costs, 1862-1930 (selected examples)

Ship	Tonnage (gross tons)	Builder	Year	Contract Cost	Total Cost	Difference in Favour of Burrell	Cost per Ton
<i>Fiume</i>	1175	H. McIntyre & Co.	1881	£12,000	-	-	
<i>Strathblane</i>	2341	Russell & Co.	1888	£23,000	£22,255	£745	£9.5
<i>Strathendrick</i>	2336	Russell & Co.	1889	£25,140	£23,738	£1402	£10.1
<i>Strathlyon</i>	2340	Russell & Co.	1889	£27,200	£24,871	£2329	£10.6
<i>Strathesk</i>	2271	Russell & Co.	1890	£30,000	£25,301	£4699	£11.1
<i>Strathallan</i>	2336	Russell & Co.	1890	£29,250	£26,954	£2296	£11.5
<i>Strathavon</i>	2672	Russell & Co.	1890	£31,100	£28,892	£2208	£10.8
<i>Strathay</i>	4142	Russell & Co.	1894	-	£40,164	-	£9.7
<i>Strathairly</i>	4142	Russell & Co.	1894	-	£39,860	-	£9.6
<i>Strathgarry</i>	4992	Russell & Co.	1894	-	£43,687	-	£8.8
<i>Strathgyle</i>	5023	Russell & Co.	1894	-	£43,797	-	£8.7
<i>Strathairly</i>	4326	R. Duncan & Co.	1906	£39,980	£39,887	£93	£9.2
<i>Strathdee</i>	4409	R. Duncan & Co.	1907	£42,500	£41,825	£675	£9.5
<i>Strathesk</i>	4336	G. & G.	1909	£40,000	-	-	-
<i>Strathbeg</i>	4338	W. Hamilton & Co.	1909	£39,500	-	-	-
<i>Strathalbyn</i>	4331	A. McMillan & Son	1909	£39,800	-	-	-

Notes: The "Cost per Ton" column refers to total cost per ton. G. & G. denotes the Grangemouth & Greenock Dockyard Co.

Source: See Table 3.1.

that the average price of a 1000-ton general cargo steamship between 1880 and 1890 was £8400, significantly cheaper than Burrell's cost.

The total cost per ton demonstrates the effect of economies of scale: namely that a larger vessel was proportionately cheaper to build than a smaller one. We do not have enough data to chart long-term price movements, but from what we know about the late 1880s and early 1890s Burrell was able to take advantage of an eighteen percent drop in the average cost per gross ton when the mean vessel size increased from 2300 to anything between 4000 and 5000 gross tons. For example, the 2271-ton *Strathesk* cost £11.1 per gross ton while the 2672-ton *Strathavon* was slightly cheaper at £10.8 per gross ton. The 4142-ton *Strathairly*, however, was significantly less expensive at £9.6 per gross ton, while the 5023-ton *Strathgyle* cost only £8.7 per gross ton. In the twentieth century there were even bigger savings. While we do not have perfectly comparable vessels, since the two steamships for which we have information on total costs in 1906 and 1907 were slightly larger than the average size of those built in 1894, there are still savings to be observed. The 4326-ton *Strathairly* and the 4409-ton *Strathdee* cost £9.2 and £9.5 per ton, making them more economical than smaller vessels of this approximate size ten years earlier.⁶⁴

There were three main components affecting the final cost: materials, wages and machinery. Scattered cost data for building Burrell vessels from Russell & Co. and R. Duncan & Co. enable us to analyze the importance of each of these three factors (See Table 3.16). In the last decade of the nineteenth century vessel size did not affect the relative contributions of the various factors. Materials were the single greatest expense,

⁶⁴Compare these prices with those available for liner steamships built for Cunard: in 1888, the average cost per gross ton was £11.7, rising to £12.1 in 1889 and £12.3 in 1890. In 1894 the cost was down to £10. The twentieth century brought much lower prices. In 1906 the cost per gross ton was £9.4 and in 1907 Cunard was paying only £7.9 per ton. See Francis E. Hyde, *Cunard and the North Atlantic 1840-1973: A History of Shipping and Financial Management* (London: Macmillan, 1975), 126. The cost per ton is calculated by the author based on material found in Cage, *Tramp Shipping Dynasty*, 47-172.

always accounting for forty-four percent of total cost. Machinery was the second most costly component, comprising thirty-one percent of total costs for smaller vessels and thirty-two percent for steamers of more than 4000 gross tons. Wages contributed twenty-five percent to the cost of vessels around 2300 gross tons and twenty-four percent for those of more than 4000 gross tons.

Table 3.16
Relative Building Costs, Russell & Co. and R. Duncan & Co.
(Percent of Total Cost)

	1890s – Steamships 2300 gross tons (Russell)	1890s – Steamships 4000+ gross tons (Russell)	1906-1907– Steamships 4000+ gross tons (Duncan)
Materials	44.0	44.0	47.0
Wages	25.0	24.0	24.5
Machinery	31.0	32.0	28.5

Source: Cage, *Tramp Shipping Dynasty*, 73-172.

The relative importance of each of these three factors appeared to change in the twentieth century, but since we do not have completely comparable data (and the population size is extremely small) we must be very careful in interpreting the information. The two vessels for which we have detailed prime costs analysis were built by R. Duncan & Co. Here, materials comprised forty-seven percent of total cost. Whether this was due to circumstances particular to the Duncan yard or whether it reflected a general increase in the cost of materials across the industry cannot be established at this point. But since both Duncan and Russell were Scottish yards, if materials did become more expensive this would likely affect both yards equally. In any case, the relative increase in the cost of materials was counterbalanced by lower machinery costs, which fell to 28.5 percent. Wages, however, remained unchanged. Clearly, it was the relative

decline in expenditures on machinery that enabled shipbuilders to offer Burrell similar prices for comparable products despite the ten-year difference between vessels built by Russell and Duncan.

The final cost component for which we have some limited information is the commission charged Burrell & Son for arranging the shipbuilding contracts. Table 3.15 includes three vessels for which we have this additional cost information. *Strathesk*, *Strathbeg* and *Strathalbyn* were built in 1909 for £40,000, £39,500 £39,800, respectively. In each case the contract was arranged through an agent, J. Hardie & Co. We do not know why Burrell used an agent in these cases, nor do we know whether the use of a middleman was a typical practice of the firm. What we do know is that in each case the agent's commission was £166 13s. 4d.

The cornerstone of Burrell & Son's success was the company's fleet. The principles that governed the firm's decision making were simple and followed consistently. At the core was a belief in using proven technologies. Unlike the pioneering behaviour with steam engines exhibited by Alfred Holt at Blue Funnel, Burrell opted for a more cautious and incremental approach. Most new technologies were eventually incorporated into the company's vessels, but there was always a time lag involved.

Beyond the strictly technical aspects of its operations, Burrell maintained a steady fleet size for most of its history. The absolute number of vessels increased in the 1860s before stabilizing. When losses occurred, the company opted for newly-built substitutes, often with greater carrying capacities. The growth of the fleet before the early 1890s was therefore achieved largely through increasing tonnage rather than numbers of vessels.

Since its experience with second-hand vessels was not good, new tonnage, fairly similar in size and design, was generally preferred.

The relationship between Burrell & Son and the shipbuilders was also significant. The information presented in this chapter suggests the firm's unwillingness to become too dependent on a single shipbuilder. Shipyards in Scotland and the North East received the bulk of orders, and a few were used for the construction of numerous vessels over relatively short periods. Yet none became as closely associated with Burrell & Son as, for example, the White Star Line did with Harland & Wolff. When Burrell began to expand in the early 1890s (and again in the first decade of the twentieth century), the need for the timely delivery of large numbers of vessels built to a more-or-less standardized design pushed the firm to divide its orders among various shipyards.

Chapter 4

Of Ports and Cargoes

The purpose of any shipping company is the transportation of goods and people. Liners frequent the same ports over a period of time, carrying mixed (but broadly similar) cargoes; they also carry the bulk of passengers. Tramp ships, on the other hand, carry few passengers and have to follow the cargoes wherever they may be available; their operations therefore lack the regularity or conformity characteristic of liners.¹ Burrell & Son was a tramp company fitting the orthodox description. The ever-changing nature of the company's operations, with the shifting emphasis among different trading regions, led to calls at ports all over the world. Burrell employed its vessels in some of the most important tramp trade routes: the Mediterranean, the Black Sea, the Caribbean, the Atlantic seaboard, the Pacific coast of South America, the west coast of the United States and Canada, India, China, Japan and Australia.

Voyages carrying fruit from the Mediterranean comprised the largest portion of voyages in the 1860s, 1870s and early 1880s. These were relatively short voyages to a region which was among the earliest to have coaling stations, so Burrell could employ its steamships with little concern about the availability of fuel. As the company grew, so did its carrying capacity and the experience of its managers. In the 1870s its vessels were using the new Suez Canal to make long-distance voyages to India and Asia. By the 1880s

¹For a convenient introduction to the differences between the two sectors, see Peter N. Davies, "The Development of the Liner Trades," in Keith Matthews and Gerald Panting (eds.), *Ships and Shipbuilding in the North Atlantic Region* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1978), 173-206; and Robin Craig, "Aspects of Tramp Shipping and Ownership," in *ibid.*, 207-228; reprinted in Craig, *British Tramp Shipping, 1750-1914* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 24, 2003), 15-39.

Burrell's steamers were tackling the competitive Atlantic trades, and in the 1890s the company's vessels ventured further into the Pacific. By the end of the century Burrell's ships serviced a broad range of destinations, carrying bulk cargoes not only back to the United Kingdom but also in the cross-trades between overseas ports.

The primary sources for the reconstruction of voyages in this thesis are the British Empire crew agreements discussed in its introduction. All vessels had to fill out such an agreement and to deposit it with the Registrar General of Shipping and Seamen at the end of the voyage. Among other things, the crew agreements list the place where a voyage began and ended. But they also tell us about where the vessel went. Under British maritime law, vessels entering a foreign port had to deposit their agreements with the shipping master or consular official within forty-eight hours of arrival; when the ship was ready to sail, the official stamped the agreement and returned it to the master of the vessel.

This means, at least in theory, that we can use the crew agreements, when they have survived, to trace voyages with a fair degree of precision. In reality, however, the process of reconstructing a voyage is not always so neat. Our technique works best for sailing vessels, which often spent long periods in port loading and unloading; this gave the port authorities an adequate amount of time to endorse the agreement. This was not always the case with steamships, however, which sometimes entered and cleared a port in less than forty-eight hours. When this happened, of course, the law did not require the master to deposit the agreement and hence there often are no endorsements. In practice, however, there are good reasons to believe that most intermediate ports of call generated endorsements, but the reader needs to bear this potential problem in mind.

Despite these limitations, data in the crew agreements for vessels owned by Burrell & Son enabled the creation of a database of ports for the period 1865-1930.² Each document provided the name of the port where the voyage began and ended, while the consular endorsements enabled the reconstruction of the intermediate ports of call. For those cases where a consular endorsement might be missing, information within the document, such as the place where a new crew member joined the vessel or a deserter left it, and the like have been used to determine that the vessel called at a port. This data set is the basis for this chapter.

The crew lists are silent, however, on the cargo carried by a vessel. To circumvent this problem, at least for vessels that returned to a British port, I employ a second source: the Customs bills of entry. These bills, which list in detail the cargoes of all vessels entering selected British ports, allow us to discover the cargoes carried by Burrell vessels. Each inward bill listed the vessel, tonnage, master, port from whence it came, and a full list of commodities carried. Using these bills I have created a data set on cargoes for a portion of Burrell's vessels.

4.1 Ports of Departure and Final Destinations

An analysis of voyage patterns for the Burrell fleet must begin with the ports of departure (where the majority of the crew was recruited) and final destination (where most of the crew was discharged). Liner companies are famously connected with their home ports.

²No agreement was found dating to the first three years of the company's operations, from 1862 to 1864.

For example, for most of its life Cunard based its operations in Liverpool, and its history was closely connected with Merseyside.³ The Peninsular and Oriental Steam Navigation Company (P&O), a firm that Freda Harcourt called the “flagship of imperialism,” created a worldwide network of operations radiating from the very centre of the empire, London.⁴ Tramp ship operations, on the other hand, lack the glamour of liner companies and are seldom associated directly with any one particular port, at least in the sense of returning to it with any regularity. This point notwithstanding, tramp companies also need a home port from where they conduct their business.

Burrell & Son’s offices were in Glasgow.⁵ For the first three decades or so of the company’s existence, the city on the Clyde was the hub from where Burrell’s ships departed for various destinations and returned at the end of the voyage. A new company needs close supervision of assets and employees when experience is still lacking. It is also possible that at such an early stage, Burrell did not have the networks and connections that would allow the company to operate from multiple ports. Glasgow was both the starting point and the final destination for the majority of voyages until the 1890s, with the use of Clydeside declining slowly over time as the company grew.⁶

³On Cunard, see Francis E. Hyde, *Cunard and the North Atlantic 1840-1973: A History of Shipping and Financial Management* (London: Macmillan, 1975).

⁴Freda Harcourt, *Flagships of Imperialism: The P&O Company and the Politics of Empire from Its Origins to 1867* (Manchester: Manchester University Press, 2006).

⁵William Burrell used Liverpool as his address on four occasions when the vessel *Strathleven* (official number 73811) sailed for Bombay in 1876 and 1877. Otherwise, all Burrell & Son vessels managed by a member of the Burrell family were operated from Glasgow.

⁶As a percentage of sailings, Glasgow’s share of Burrell vessel’s departures declined from a high of seventy-eight percent in the 1860s to sixty-eight percent in the 1880s. The percentage for arrivals went from seventy-one percent to sixty-seven percent over the same period.

The cargoes carried to Glasgow by the Burrell ships are difficult to ascertain with certainty because they were not included in the London A bills, which is the source that I used. Nonetheless, we can create a likely list of goods carried based on the general import trends identified by historians of the Scottish port.⁷ Raw materials and foodstuffs dominated Glasgow's imports, both of which were vital to support the city's expanding industry and to feed its burgeoning industrial workforce that produced goods for sale in overseas markets. Fruit from the Mediterranean, a trade in which Burrell was actively involved, became important after 1870 due to rapidly rising demand.⁸ Sugar and tea were also in demand, and Burrell's ships carried the former from the West Indies and the latter from India.

Bulk products such as grain and rice were also imported into Glasgow in large quantities. The United States and Canada became the most prominent export areas from the middle of the 1880s, but Burrell appears to become active in this trade only towards the end of the nineteenth century. The company's vessels also brought rice from Southeast Asia into the United Kingdom, but it is not possible to tell whether any of the ships carried it to Glasgow. Frozen meat from Australia was also imported, and Burrell was one of the pioneers in this trade. The enthusiasm with which Glasgow shipowners embraced the frozen meat trade from Australia and South America was impressive, but

⁷Gordon Jackson and Charles Munn, "Trade, Commerce and Finance," in W. Hamish Fraser and Irene Maver (eds.), *Glasgow, Vol. II: 1830 to 1912* (Manchester: Manchester University Press, 1996), 52-77, particularly 63-70.

⁸Participation in the Mediterranean fruit trade was a fairly typical way for Glasgow shipping firms to enter the business. For an example, see George Henry Preble, *Notes for a History of Steam Navigation* (Philadelphia: J.B. Lippincott, 1881; reprint, Whitefish, MT: Kessinger Publishing, 2008), 201 ff.

unfortunately we can not tell with certainty whether Burrell maintained an interest in refrigeration after the voyage of *Strathleven* (see below).

Cotton was an important import into Glasgow in the second half of the nineteenth and the early twentieth century. We know that Burrell sent its vessels into cotton ports in the Gulf of Mexico, and we know that the company carried cotton to London and other English ports, but we cannot say with certainty that it also brought cotton to Glasgow. Jute, flax and hemp from India grew in significance in the late nineteenth century, but the most notable change came with the increasing volumes of copper, zinc, lead, iron ore and other metallurgical commodities being imported through Glasgow. This is indeed an area where we know that Burrell was deeply involved, and we can be confident that many of their steamships which returned to Scotland from Spain and Portugal between 1865 and 1895 were laden with copper and iron ore.⁹

Paralleling the decline of Glasgow as a location for the beginning and end of Burrell voyages was the rise of the Welsh coal ports.¹⁰ This development first became noticeable in the 1880s when coal ports accounted for more than ten percent of Burrell departures and arrivals. Cardiff, because of its location by the river Taft, was ideally suited to the rising coal trade.¹¹ The English port of Bristol was also of some importance in the first half of the 1880s but was replaced thereafter by Penarth, across the Bristol

⁹It should be noted that manufactured goods never constituted a considerable part of imports in Glasgow. The Scottish city was known as the "workshop of the Empire" and what was mostly needed were primary goods to support the local industries. Their products, along with coal, constituted the largest part of exports.

¹⁰The most frequently visited coal ports in the 1880s were Cardiff, Bristol and Penarth; Barry, Swansea and South Shields (in the North East) topped the list in the 1890s and 1900s.

¹¹James Bird, *The Major Seaports of the United Kingdom* (London: Hutchinson, 1963), 218-220.

Channel in Wales. The move may be associated with the extension of Penarth Dock, completed in 1884, which greatly facilitated the handling of more than three million tons of coal annually in the 1890s.¹²

Barry, closer to the sea and less congested than Cardiff, rose to prominence in the 1890s. The town was originally a fishing port, but its major period of growth came when it was developed as a coal port in the 1880s. The coal trade was growing faster than the facilities at Tiger Bay in Cardiff could handle, so a group of colliery owners formed the Barry Railway Company and built the dock at Barry. Work commenced in 1884, and the first dock basin was opened in 1889; this was followed by two other docks and extensive port infrastructure. The Barry Railway brought coal down from the valleys to the new docks. Trade expanded from one million tons in 1889 to over nine million tons by 1903. The port soon was crowded with ships and was served by repair yards, cold stores, flour mills and an ice factory. By 1913, Barry was the largest coal exporting port in the world.¹³ Coal at this time was an important outward cargo for British steamers, and Burrell's ships were no exception.

European ports featured more prominently in Burrell's activities in the 1890s, particularly Hamburg and Antwerp. Hamburg accounted for approximately thirteen percent of the ports of departure and arrival for Burrell's vessels between 1895 and 1900. Burrell, in common with other tramp operators, could derive considerable benefits from carrying cargoes into continental ports in the Hamburg-Le Havre range. Its status as a free

¹²Gordon Jackson, *The History and Archaeology of Ports* (Tadworth: World's Work, 1983), 128-130.

¹³*Ibid.*; and Bird, *Major Seaports*, 220-221.

port meant there were no duties to be paid on goods arriving. Its location and excellent inland connections with other parts of northern European made Hamburg ideal for re-exports, while it was well known for the rapid, frictionless discharging of ships day and night.¹⁴ Antwerp, which accounted for about three percent of the terminal points for Burrell's voyages, offered adequate quay space, attracting large numbers of liners and tramps carrying grain, raw materials (hides and fertilizers), mineral fuels and ore.¹⁵ A few of Burrell's ships also utilized the German port of Bremerhaven and French ports like Dunkirk, Dieppe and Le Havre.¹⁶

¹⁴Edwin Clapp, *The Port of Hamburg* (New Haven: Yale University Press, 1911), 48-51. For a slightly later period, see Frank Broeze, "The Political Economy of a Port City in Distress: Hamburg and National Socialism, 1933-1939," *International Journal of Maritime History*, 14, 2 (2002), 1-42.

¹⁵Karel Veraghtert, "The Growth of the Antwerp Port Traffic, 1850-1900," in Wolfram Fischer, R. Marvin McNinn and Jürgen Schneider (eds.), *The Emergence of a World Economy 1500-1914* (Wiesbaden: F. Steiner, 1986), 125-127; The best overview of the development of the port of Antwerp is F. Suykens, *et al.*, *Antwerp: A Port for All Seasons* (Antwerp: Ortelius, 1986). The most recent study of the port, which places it in an international perspective, is Reginald Loyer, Erik Buyst and Grete Devos (eds.), *Struggling for Leadership: Antwerp-Rotterdam Port Competition between 1870 and 2000* (Heidelberg: Physica Verlag, 2002).

¹⁶On the history of competition in the so-called "Hamburg-Le Havre range," see Lewis R. Fischer, "Maritime Infrastructure: The Response in Western European Ports to the Demands of Coastal Shipping, 1850-1914," in John Armstrong and Andreas Kunz (eds.), *Coastal Shipping and the European Economy, 1750-1980* (Mainz: Verlag Philipp von Zabern, 2002), 197-210; and Fischer, "Port Policies: Seaport Planning around the North Atlantic, 1850-1939," in Lewis R. Fischer and Adrian Jarvis (eds.), *Harbours and Havens: Essays in Port History in Honour of Gordon Jackson* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 16, 1999), 229-244. On Bremerhaven, see Hermann Kellenbenz, "Shipping and Trade Between Hamburg - Bremen and the Indian Ocean," *Journal of Southeast Asian Studies*, 13, 2 (1982), 349-386; Dirk Hoerder, "The Traffic of Emigration via Bremen/Bremerhaven: Merchants' Interests, Protective Legislation, and Migrants' Experiences," *Journal of American Ethnic History*, 1, 1 (1993), 48-67; Robert Lee, "Configuring the Region: Maritime Trade and Port-Hinterland Relations in Bremen, 1815-1914," *Urban History*, 32, 2 (2005), 247-287; Lars U. Scholl, "New York's German Suburb: The Creation of the Port of Bremerhaven, 1827-1918," in Fischer and Jarvis (eds.), *Harbours and Havens*, 191-211; and Scholl, "The Container Terminals in Bremerhaven and Bremen," in Poul Holm and John Edwards (eds.), *North Sea Ports and Harbours: Adaption to Change* (Esbjerg: Fiskeri- og Søfartsmuseet, 1992), 159-183. For Dunkirk, see Christian Pfister, "Les Archives du Pilotage de Dunkerque," *Gazette des Archives*, 98 (1977), 137-143; Pfister, "Dunkerque et l'Atlantique: un système paradoxal," in H. Pietschmann (ed.), *Atlantic History: History of the Atlantic System, 1580-1880. Papers presented at an International Conference, held 28 August-1 September 1999 in Hamburg* (Göttingen, 2002), 293-300; and Pfister, "De la Citadelle Au Projet Neptune: Les Métamorphoses Du Quartier Portuaire De Dunkerque," in Michèle Collin (ed.), *Ville et Port, XVIIIe-XXe Siècles* (Paris:

The ports from which the vessel began its voyage present some challenges to the researcher. Lewis Fischer has noted that “the starting port...may have had little real significance in an economic sense.”¹⁷ First, given the nature of nineteenth- and early twentieth-century British trade, it was common for a steamship to leave a port in the United Kingdom in ballast; if a cargo was carried, it was often loaded at a second British port, especially at coal ports in Wales.¹⁸ In the absence of coastal crew agreements or cargo manifests, it is difficult to follow the domestic sailing schedule of Burrell’s ships to determine if and where they might have loaded any outbound cargo. In some cases calls at domestic ports appear in the crew agreements, especially when the master signed on (or lost) crew members, but it is not clear how often such visits were unrecorded.

It was also the case that a Burrell vessel might have discharged its return cargo at a port outside the United Kingdom, returning home empty. The significant number of crew agreements indicating a coal port as the final destination raises questions about potential cargoes carried there. Since it is unlikely that bulky cargoes would have been unloaded in such ports, Burrell must have been sending its steamships to them at the end of a voyage in preparation for a subsequent sailing. Cardiff, South Shields and Swansea could provide adequate numbers of men and, even more importantly, outward cargoes in

Editions L'Harmattan, 1994), 51-72. For Le Havre, see J. L. Maillard, “Capitaux et Révolution Industrielle Au Havre,” *Annales de Normandie*, 31, 2 (1981), 147-164.

¹⁷Fischer, “Great Mud Hole Fleet,” 123.

¹⁸The importance of the Welsh coal ports to the British fleet has been highlighted in Sarah Palmer, “The British Coal Export Trade, 1850-1913,” in Alexander and Ommer (eds.), *Volumes Not Value*, 331-354. Since there was often a disjunction between the volume of cargoes leaving Britain and those on offer overseas, the availability of coal was especially significant, even if the freight rates were often low. For a more in-depth discussion of this problem, see C. Knick Harley, “Issues on the Demand for Shipping Services, 1870-1913: Derived Demand and Problems of Joint Production,” in Lewis R. Fischer and Eric W. Sager (eds.), *Merchant Shipping and Economic Development in Atlantic Canada* (St. John’s: Maritime History Group, Memorial University of Newfoundland, 1982), 65-86.

the form of coal, the main (but barely profitable for a tramp owner) export of Great Britain in the late nineteenth century.

In short, Burrell & Son required a base of operations from which to operate. It would also need facilities for fleet maintenance and a place from which to recruit seamen. Glasgow served these purposes until the 1880s, but as the company grew and new opportunities emerged, other ports became more important. Since coal was a staple outbound cargo for large numbers of British tramps, it was logical for Burrell to use coal ports more frequently. The importance of Hamburg at the end of the nineteenth century was likely due to the demand for tonnage to carry in-bound cargoes destined for northern Europe.

4.2 The Limits of Technology

The destinations served by Burrell & Son's ships varied over time, but in general there were few areas around the world where the firm was not active at some point in its history. An analysis of the surviving crew agreements yields visits to more than 6000 ports by company ships in a total of 800 voyages.¹⁹ The data for the 1860s are problematic since the first surviving crew agreement dates from 1865, three years after Burrell began operations. The forty-one voyages recorded therefore cover only the second

¹⁹To be precise, there are 6060 ports listed in the 800 crew agreements that are included in the "Voyages" file. This is by no means a complete list. It is almost certain that many stops in various ports around the world were never properly documented, either because the ship stayed in port only briefly or perhaps because of negligence on the part of officials. Jamaica appears to be a prime example of the latter. The vast majority of port visits at this island are incomplete, with dates of arrival or departure missing as a matter of routine. This situation was unique and restricted to Jamaica, implying a relaxed attitude of the officials on that particular destination.

half of the decade. We are on much firmer ground for the subsequent decades. As the company acquired more vessels and expanded its operations, the number of voyages for which we have records multiplied almost five-fold to 204 in the 1870s and increased even further in the 1880s, the decade with the maximum number of voyages (254). There was a small reduction to 245 in the 1890s, but we must bear in mind that these voyages were performed by increasingly larger ships, able to carry much more cargo over longer distances. The opening years of the twentieth century ushered in a pattern of more distant voyages, requiring more time and reducing the actual number of passages. Once again, though, we must remember that these steamers were considerably larger than those the company had owned in the nineteenth century and could carry much more cargo. In the years before the outbreak of the First World War (1906-1910), Burrell vessels made fifty-nine crossings that we can document, with seven more following the end of hostilities.²⁰

The absolute number of port visits is of course of little significance to the shipowners. What really matters is the optimal use of their investment, which in terms of tramp shipping translates to less time in port and more time spent transporting goods between destinations. Since a vessel does not earn revenue sitting idle in a port, the steamship, with its larger capital outlay compared with sailing vessels, required a faster turnaround if the shipowner were to recoup his investment and make a profit.²¹ The ideal

²⁰There is no available information covering the war years among the crew agreements relating to Burrell & Son held at the Maritime History Archive of Memorial University. Any surviving documents are held at the National Archives in London, England. These voyages took place between 1914 and 1916 since by the latter year almost all Burrell vessels had been sold to various buyers. *Strathlorne*, the only surviving steamship remaining in the control of the company, was responsible for all voyages in the 1920s.

²¹Ian McKay, "Class Struggle and Mercantile Capitalism: Craftsmen and Labourers on the Halifax Waterfront 1850-1902," in Rosemary Ommer and Gerald Panting (eds.), *Working Men Who Got Wet* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1980), 294.

situation for a shipowner was for his vessel to maximize the number of voyages while minimizing the time spent in port.²² A decline in the average port time may reflect more efficient port operations with rapid loading and unloading, or it might indicate greater availability of cargo. Either way, however, it certainly suggests the possibility that the shipowner's asset can spend more time in profitable employment.

The mean number of days spent at sea is another indicator of potential profitability but in this case the interpretations are more ambivalent. Speedier passages may result from a higher demand for tonnage and can therefore indicate better profit potential. But slower passages can also influence profitability since tramp shipping does not normally place a premium on speed.²³ The majority of the cargoes carried were low-value, bulky products, with no need for a fast passage. Economies in the transportation of goods was more important than immediate delivery. Increased speed would almost certainly result in higher costs and there would have to be some tangible benefit to encourage shipowners to supplant low cost-slow passages with the opposite.²⁴

Burrell's experience was remarkably consistent throughout its history. Approximately two-thirds of the voyage (defined as the period of time between leaving the home port and returning to a terminal port) was spent sailing between destinations,

²²If a vessel was chartered, of course, the contract might well call for the payment of demurrage to cover extra time spent in ports. See Hugo Tiberg, *The Law of Demurrage* (London: Sweet and Maxwell, 1995), 1-3. The problem in discussing Burrell's ships is that in the absence of charter parties, we have no idea whether most of the vessels were chartered or if the agreements included demurrage.

²³Saif I. Shah Mohammed and Jeffrey G. Williamson, "Freight Rates and Productivity Gains in British Tramp Shipping, 1869-1950," *Explorations in Economic History*, 41, 2 (2004), 197.

²⁴It may also reflect to a certain extent the proclivity of some shipowners to treat sailing vessels as "floating warehouses" due to the relatively low commitment of capital to such assets. On this use of sailing vessels, see Eric W. Sager and Lewis R. Fischer, "Atlantic Canada and the Age of Sail Revisited," *Canadian Historical Review*, 63, 2 (1982), 97-117, reprinted in *The Northern Mariner/Le Marin du nord*, 17, 3 (2007), 2-3.

while one-third was spent in port. It is difficult to assess with certainty average times for individual ports or passages because of limitations inherent in the crew agreements. The general trend in Burrell's case was a reduction in the average port time until the 1880s and a subsequent rise until the First World War (see Table 4.1). Passage times fluctuated by region but circumstantial evidence suggests there was a marked decline in some key routes.

Table 4.1
Mean Port Time in Days, 1865-1911 (selected regions, steamers only)

Period	World	South Spain	North Europe	India	USA Gulf Coast	Japan	Jamaica	Australia
1865-69	7.1	7.8	-	-	-	-	-	-
1870-74	4.7	6.1	-	-	-	-	-	-
1875-79	4.5	4.9	-	13.8	-	-	-	-
1880-84	4.3	5.0	-	-	-	8.4	-	-
1885-89	5.8	5.7	-	18.8	9.1	7.0	2.6	-
1890-94	8.5	-	9.3	15.9	10.2	5.1	7.3	-
1895-99	9.0	-	9.5	21.4	8.5	7.0	6.0	10.4
1906-10	9.6	-	9.7	11.3	8.3	5.9	-	11.1

Source: Memorial University of Newfoundland, Maritime History Archive (MHA), Board of Trade (BT) 99, British Empire Agreements and Accounts of Crew, 1862-1929 (hereafter referred to as Voyage Database).

South Spain (especially Huelva) registered a small increase in port turnaround time from 4.9 days between 1875 and 1879 to 5.0 days in the following quinquennium and to 5.7 days in 1885-1889, at which point Burrell stopped sending vessels to the port. On the other hand, Bombay and Calcutta, which comprise the category "India," enjoyed a fifteen percent drop in the mean time spend in port between 1885 and 1894. A similar trend developed in Japanese ports, with the mean falling from 8.4 days in 1880-1884 to 5.1 days in 1890-1894, before rising again to seven days at the end of the nineteenth century. The average for Jamaica, the most frequented island of the Caribbean, was only

2.6 days in 1885-1889. But Jamaica was a special case. Trade conditions on the island required a number of short visits to multiple ports. Steamships often entered a port and departed in less than forty-eight hours; as a result, these visits were not necessarily recorded on the crew agreements. This pattern was particularly persistent in the five-year period from 1885 to 1889, but it occurred far less frequently in the 1890s. As a result, the average port stay after 1890 increased significantly, approaching the mean for all regions in which Burrell was active. The mean port time for the Gulf coast ports in the southern United States increased from nine days in 1885-1889 to 10.2 days in the following quinquennium before stabilizing at approximately eight days for the two subsequent periods.

Towards the end of the nineteenth century the bulk of the company's business was re-oriented towards the North Atlantic and the Pacific. New York, Philadelphia and Baltimore, the key ports on the eastern seaboard of the United States, attracted large volumes of tonnage and between 1895 and 1899 Burrell's experience in these ports was fairly similar to those in Northern Europe and the Gulf Coast, with a mean time of around nine days for New York and Philadelphia and five days for the port of Baltimore. But when the company re-entered the shipping business in 1906 these ports became troublesome. The mean time spent in New York rose by eighty-eight percent, in Philadelphia it went up by eighty-five percent and even Baltimore experienced an increase of fifty-four percent. Australia, another key destination, witnessed a six percent increase in mean port time compared with the end of the nineteenth century, while the Pacific Northwest and the San Francisco area had mean port times of ten days, higher than what was encountered on the other side of the Pacific (for example in Japan). The

only two regions where there was a marked improvement was the Indian subcontinent, where the mean almost halved, and South American guano ports with a low mean of 7.9 days.²⁵

A number of factors affected the amount of time a vessel spent in port. The state of infrastructure and the organization of port activities was a crucial factor. The most difficult problem was not the provision of loading and unloading facilities but the "disposition of vessels between voyages," a problem of idle ships congesting the port and causing significant delays to essential operations and movements in the harbour.²⁶ Geography also affected operations. Certain ports that lacked proper berthing facilities required the use of lighters to load and unload cargoes; others were located far from the sea, necessitating long and arduous journeys upriver that often caused significant

²⁵Unfortunately, these ports were not frequented in earlier periods so we cannot compare their means. The later years of Burrell's history were marked by an increase in the mean port time, but the size of the population was very small and so this has little analytical or statistical significance. The relatively fast turnaround time in South American guano ports reflected the decline of Peruvian ports and the rise of Chilean nitrate ports at the end of the nineteenth century. On Peru, see Lewis R. Fischer, "From Barques to Barges: The Shipping Industry of Saint John, New Brunswick, 1820-1914" (unpublished paper presented to the Atlantic Canada Studies Conference, University of New Brunswick, April 1978); W.M. Mathew, "Peru and the British Guano Market, 1840-1870," *Economic History Review*, New series, 23, 1 (1970), 112-128; Mathew, "A Primitive Export Sector: Guano Production in Mid-Nineteenth-Century Peru," *Journal of Latin American Studies*, 9, 1 (1977), 35-57; Mathew, *The House of Gibbs and the Peruvian Guano Monopoly* (London: Royal Historical Society, Studies in History Series No. 25, 1981); and Shane Hunt, "Growth and Guano in Nineteenth-Century Peru," in Roberto Cortés Conde and Shane Hunt (eds.), *Latin American Economies: Growth and the Export Sector, 1880-1930* (New York: Holmes and Meier, 1985), 258-269. On the rise of Chilean nitrate ports, see J.R. Brown, "Nitrate Crises, Combinations and the Chilean Government in the Nitrate Age," *Hispanic American Historical Review*, 43, 2 (1963), 230-246; and Marc Badia-Miró, "The Ports of Northern Chile: A Mining History in Long-Run Perspective, 1880-2002," in Tapio Bergholm, Lewis R. Fischer and M. Elisabetta Tonizzi (eds.), *Making Global and Local Connections: Historical Perspectives on Ports* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 35, 2007), 153-169.

²⁶Gordon Jackson, *The History and Archaeology of Ports* (Tadworth: World's Work, 1983), 43; and Graeme J. Milne, "Specialised Port Infrastructure on Trial: Liverpool's Albert Dock in the Mid-19th Century," in Adrian Jarvis and Kenneth Smith (eds.), *Albert Dock: Trade and Technology* (Liverpool: National Museums and Galleries on Merseyside, 1999), 17-24; Francis E. Hyde, *Liverpool and the Mersey: An Economic History of a Port, 1700-1970* (Newton Abbot: David and Charles, 1971); and Adrian Jarvis, *Liverpool Central Docks, 1799-1905* (Liverpool: Sutton Publishing, 1991), especially chapter 9.

delays.²⁷ While these factors were important, they were outside the shipowner's control. If the cargo had to be delivered to such a port, Burrell had to cope with the ensuing delays, congestion or other problem associated with that particular port. Securing cargoes in time for an expeditious dispatch of the vessel was something different, and an efficient organization on the part of the shipowner could make significant contributions to reducing the time spent in port.

The analysis of average passage time is hampered by the few cases of comparable direct passages between two ports. Eric Sager discovered significant savings in total voyage time between the 1860s and the 1880s for passages between New York and Baltimore and European and British ports. The average crossing of the Atlantic took twelve percent less time in the 1880s than it did twenty years earlier.²⁸ Burrell was able to benefit from a drop of 7.6 percent in the average passage time between the United Kingdom and the east coast of the United States between 1890 and 1915 (on the return leg of the voyage the reduction was 7.3 percent). There was a similar trend on the Glasgow-Huelva route, where the mean passage time dropped by about twenty percent between the 1860s and the 1880s. The route from the United Kingdom to India through the Suez Canal, on the other hand, witnessed an increase of approximately twenty percent

²⁷For example, Hamburg was eighty-five miles up the River Elbe and required constant effort by the local authorities to maintain the depth of the canals that allowed larger vessels to approach the port. See Edwin J. Clapp, *The Port of Hamburg* (New Haven: Yale University Press, 1911), 30-42; and Walter Kresse, *Von armen Seefahrern und den Schifferalten zu Hamburg* (Hamburg: Christians, 1981), 27. The main ports in the US Pacific Northwest also posed serious problems to ships wishing to approach. Portland, for example, is 110 miles upriver, while Seattle is 144 miles east and south of the open ocean. See Giles T. Brown, *Ships That Sail No More: Marine Transportation from San Diego to Puget Sound, 1910-1940* (Lexington: University of Kentucky Press, 1966), 4-6.

²⁸Eric W. Sager, "Sources of Productivity Change in the Halifax Ocean Fleet, 1863-1900," in David Alexander and Rosemary Ommer (eds.), *Volumes Not Values: Canadian Sailing Ships and World Trades* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1979), 108-109.

in the average passage time between the 1870s and the 1890s. During this period, Burrell moved from the compound to the triple-expansion engine and fuel costs must have contributed to the decision to slow down.

Table 4.2
Trade Routes on which Sail and Steam became Competitive for Bulk Cargoes, 1855-1895

Date (approximate)	Voyage	Distance
1855	Northern Europe (short sea)	500 miles
1865	Mediterranean Fruit and Cotton	up to 3000 miles
1870	North Atlantic Grain Trade	3000 miles
	Bombay via Canal	6200 miles
1875	New Orleans Cotton	5000 miles
1880	Calcutta via Canal	8200 miles
1895	West Coast of America Grain and Ore	13500 miles to San Francisco

Source: C.K. Harley, "Aspects of the Economics of Shipping, 1850-1913," in Lewis R. Fischer and Gerald E. Panton (eds.), *Change and Adaptation in Maritime History: The North Atlantic Fleets in the Nineteenth Century* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1985), 177.²⁹

Changes in steam technology exercised considerable influence on the development of Burrell & Son. As previously mentioned the early company vessels were relatively small sailing vessels and steamships with uneconomical single-expansion engines. Size and cost limited the range of operations of the latter, a common problem among early steamship operators. The compound engine revolutionized sea transport and permitted the carriage of more voluminous cargoes from distant areas in a fraction of the cost. The dissemination and demonstration of the effectiveness of these new engines made it possible for Burrell's vessels to carry more cargo from greater distances at a

²⁹In addition, see C.K. Harley, "The Shift from Sailing Ships to Steamships, 1850-1890: A Study in Technological Change and its Diffusion," in Donald N. McCloskey (ed.), *Essays on a Mature Economy: Britain after 1840* (Princeton: Princeton University Press, 1971), 215-237.

theoretically lower cost. As new trade areas became accessible by steamship, the company expanded its range of operations, infiltrating regions previously untapped.

C.K. Harley has identified the dates by which different voyages became competitive for steamers (see Table 4.2). Northern Europe and the Mediterranean were the first overseas regions to become accessible by steam about the time Burrell & Son entered shipping. For Burrell, new in the business and owner of relatively small vessels, these two destinations offered the best prospects of success. They were relatively close (at least in global terms), were familiar to the average British shipowner and had supplies of coal that could be procured with relative ease.³⁰ The majority of its fleet was therefore engaged in carrying fruits and ore from Mediterranean ports back to Great Britain.

The Suez Canal created new possibilities for European and British shipowners.³¹ The distance between Great Britain and India was cut almost in half (from 11,500 miles via the Cape of Good Hope down to 6200 miles for the route to Bombay) making the steamship a viable alternative to the sailing ship which, up to this point, had monopolized the trades between Southeast Asia and Europe. Burrell & Son took immediate advantage of the new opportunities. The earliest recorded visit by a company vessel to Bombay was on 19 May 1871 and to Calcutta on 18 November 1871, in both cases by the 1950-gross tons steamer *Strathclyde* and for the next ten years Burrell's steamships traded in the region regularly. The attractiveness of India increased considerably in the 1880s, when the triple expansion engine reduced coal consumption to such an extent that even the

³⁰Although indigenous coal supplies were deficient in the Mediterranean, by the 1860s the British had established a regular bunkering supply to the region.

³¹The significance of the Suez Canal is best highlighted in Max E. Fletcher, "The Suez Canal and World Shipping, 1869-1914," *Journal of Economic History*, 18, 4 (1958), 556-573.

longest voyages could prove profitable. Only 20.4 percent of Burrell's voyages to Bombay were made before 1880, while Calcutta was visited five times until 1877 and never again until 1890. The adoption of the triple-expansion engine by Burrell in 1888 complemented the significant savings due to the Suez Canal and facilitated an increase in sailings to the Indian Ocean.

In the Atlantic Ocean the steamship was able to compete with sailing ships from the 1870s. Transoceanic trades were becoming increasingly attractive for steamship operators in the second half of the nineteenth century and technological innovations facilitated the general trend whereby British shipowners moved partially away from European maritime routes and concentrated instead on transoceanic routes.³² Burrell & Son shifted its attention to the region in the mid-1880s, becoming heavily involved in the Caribbean. Technology does not seem to have been the key factor in the decision to increase sailings to Jamaica, Demerara, Trinidad and other regional destinations. The steamship was able to ply the waters of the Caribbean for more than ten years before Burrell's entrance and if the company wished to do so, it could have sent its vessels to the region much sooner.

Burrell might have secured a mail contract, but an examination of the British Parliamentary Papers between 1882 and 1885 provided no indication that it did so. In March 1885, the mail contract for the West Indies was awarded to the Royal Mail Steam

³²Stanley G. Sturme, *British Shipping and World Competition* (London: Athlone Press, 1962; reprint, St. John's: International Maritime Economic History Association, Research in Maritime History No. 42, 2010), 22-24.

Packet Company.³³ A mail contract though would not suffice as an explanation for the involvement in the region. As Seija-Riita Laakso has noted, to carry solely mail was considered an “expensive misuse of shipping capacity”. Government packets could do it but not an independent shipowner.³⁴

The Caribbean economy, and most particularly the Jamaican agricultural industry, was suffering from severe economic dislocations during the 1880s. The traditional Jamaican economy, largely dependent on sugar, collapsed following the loss of preferential treatment for the product in the British market. The export of bananas though grew substantially, rising from one million stems in 1884 to 24.5 million stems by the mid-1930s.³⁵ Foreign merchants controlled the marketing of bananas and used their own steamships for transport to the market.³⁶ Bananas were supplemented by the export of citrus fruits, coconuts, pimentos and ginger.

The collapse of the sugar industry compelled planters to seek the lowest possible freight rates. Jamaica also lacked an adequate railroad network to support the export of

³³For information on the Royal Mail Steam Packet Company during this period see Robert G. Greenhill, “The Royal Mail Steam Packet Company and the Development of Steamship Links with Latin America, 1875-1900,” *Maritime History*, 3, 1 (1973), 67-91.

³⁴Seija-Riita Laakso, “Managing the Distance: Business Information Transmission between Britain and Guiana, 1840,” *International Journal of Maritime History*, 16, 2 (2004), 223. See also the more extended discussion in Laakso, *Across the Oceans. Development of Overseas Business Information Transmission 1815-1875* (Helsinki: Studia Fennica Historica, 2007).

³⁵Samuel J. Hurwitz and Edith F. Hurwitz, *Jamaica, a Historical Portrait* (New York: Praeger Publishers, 1971), 164-165. For more information on the decline of the sugar trade and the consequences for the Caribbean in general see Otis Starkey, “Declining Sugar Prices and Land Utilization in the British Lesser Antilles,” *Economic Geography*, 18, 2 (1942), 209-214.

³⁶Jesse T. Palmer, “The Banana in Caribbean Trade,” *Economic Geography*, 8, 3 (1932), 263-269.

bananas and citrus fruit.³⁷ These products are perishable and bruise easily on long transport routes. Vessels had to call on multiple ports to collect the produce near its point of origin. Liner companies active in the area (especially the Royal Mail Steam Packet Company) found these conditions unattractive and tramp shipowners were able to fill the vacuum and reap some profits.³⁸

Burrell's steamships arrived in Kingston, used mostly for imports, and then circumnavigated Jamaica with numerous brief stops in smaller ports collecting the outbound cargo.³⁹ There is no mention of bananas in the extant bills of entry for Burrell but citrus was transported in significant quantities. Sugar was another commodity frequently carried but the continuous fall of its price (which became more pronounced after 1893) must have exercised some pressure on profits and could have contributed to the decision to scale back (and eventually abandon) this trade after 1894.⁴⁰

The adverse conditions prevailing in Jamaica were alleviated somewhat by developments in Trinidad and Demerara. Both areas were able to cope with the upheavals in the sugar trade and Burrell managed to employ some tonnage there for some years after

³⁷The expansion of the railroad network outside of Kingston came only in 1894 when the line to Montego Bay was completed while Port Antonio was not connected to Kingston until 1896. See Hurwitz and Hurwitz, *Jamaica*, 168.

³⁸Greenhill, "Royal Mail," 77. The West Indies had a poor reputation in British financial circles as an area that connoted failure. See H.A. Will, "Colonial Policy and Economic Development in the British West Indies, 1895-1903," *Economic History Review*, New Series, 23, 1 (1970), 135.

³⁹Colin G. Clarke, *Kingston, Jamaica: Urban Development and Social Change, 1692-1962* (Berkeley: University of California Press, 1975), 37. In fact, by 1890 Kingston only accounted for 1.3 percent of the island's export trade.

⁴⁰There were fifty-six voyages to the Caribbean between 1885 and 1894 but only four after that year. It is also possible that Burrell might have decided to get involved in the Caribbean trade in a speculative way. There is no evidence to support such an argument and the company behaviour in other areas does not indicate speculative tendencies on the part of the shipowners. Lack of hard evidence makes this question impossible to answer in any definite way.

retreating from Jamaica. Between 1875 and 1895, British Guiana and Trinidad pursued a successful modernization of the sugar industry, financing the amalgamation of estates and the introduction of modern techniques with private capital. The availability of funding for these improvements supported the relative prosperity of the sugar industry. The Colonial Office policy was to refrain from assisting financially private enterprises, except in times of natural disasters.⁴¹ When sugar prices collapsed after 1893 (falling nearly one-third in four years) Trinidad weathered the storm because of a more diversified economy and the more rationally organized and operated sugar industry.⁴² Burrell sent steamships there repeatedly, with multiple visits per year before 1900 and occasional stops between 1906 and 1914.⁴³

The alternative to the difficulties encountered in the West Indies seems to have come from two regions in the United States. Since the mid-1880s Burrell had found some employment for its steamships in the transportation of general cargoes from New York. In the 1890s additional cargoes were secured in Philadelphia and Baltimore with these three ports serving as the American termini of routes connecting European continental ports between Brest and Elbe to the products of the New World.⁴⁴ The Gulf of Mexico

⁴¹Clarke, *Kingston, Jamaica*, 129.

⁴²*Ibid.*, 135-141.

⁴³On the sugar industry, see Eric Williams, *History of the People of Trinidad and Tobago* (London: Andre Deutsch, 1964), 151-166. There were a total of forty-two visits to these two destinations. Twenty-eight (or 66.6 percent) were before 1894 and the rest after that date. Two visits in fact were in 1908.

⁴⁴This trend for cargoes to move from North America towards Europe and in particular between the Elbe and the Brest has been highlighted in Keith Matthews, "The Canadian Deep Sea Merchant Marine and the American Export Trade, 1850-1890," in David Alexander and Rosemary Ommer (eds.), *Volumes Not Values: Canadian Sailing Ships and World Trades* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1979), 197-243.

(especially New Orleans and Galveston) also provided employment for tonnage struggling to secure cargoes in the depressed economy of the West Indies.

The Pacific (especially the coasts of the Americas) was the "final frontier" for the steamship. Sailing ships were able to remain competitive in the bulk trades of the west coast of the Americas almost throughout the nineteenth century. In 1895 savings in the consumption of coal allowed steamships to compete profitably for cargoes in this vast region. Burrell, on the verge of exiting the shipping business for the first time, was unaffected by these developments. In 1906, though, the Pacific coast of the United States and Canada, Chile and Peru provided employment for a significant part of Burrell's tonnage. In a move reminiscent of the expansion in the Indian Ocean following the opening of the Suez Canal in 1870, Burrell recognized that improvements in shipping technology had made a shipping route financially viable and engaged in new trades.

4.3 Intermediate Ports of Call: The Early Years

In the early years, relatively short voyages dominated. Between 1865 and 1869, eighty-three percent of sailings were towards a port in the Mediterranean. The Iberian Peninsula was the mainstay of Burrell's shipping enterprise, with Spanish harbours and the Portuguese port of Oporto predominating (Table 4.3). The south coast of Spain provided most of the cargoes, while Oporto, which served the fertile lands of the Douro River valley, was a logical stopping point along the Portuguese coast.

Table 4.3
Top 7 Ports Served by Burrell Vessels, 1865-1870 (Tons)

Port	Tonnage	% of Total
Huelva	8053	21.2
Oporto	4527	11.9
Valencia	2487	6.6
Cádiz	2325	6.1
Alexandria	2263	6.0
Gibraltar	1508	4.0
Málaga	1020	2.7

Notes: Calls at UK and Irish ports excluded. The total tonnage of global entries for which I have crew agreements was 37,951.

Source: See Table 4.1

There is very little information in the Customs bills of entry on cargoes carried from these ports. Indeed, there is only one customs entry from Spain in the 1860s (*Grange* arrived at London in January 1869 with a cargo of 3901 cases of oranges and some olive oil and wine). In addition, we have one Bill for an entry from Madeira (*Fitzjames* arrived with a cargo of approximately 3200 cases of oranges and small quantities of pine apples in late January 1869). As well, *Suffolk* carried lathwood and tallow from the Baltic and logs and mahogany from Vera Cruz in the fall of 1867.⁴⁵

The Mediterranean remained paramount for Burrell in the 1870s, accounting for 54.5 percent of the total by tonnage. The Indian Ocean came in a distant second, accounting for 6.9 percent of the tonnage for which we have records. The Iberian Peninsula was once more the most popular destination, in particular the south coast of Spain, although this region was not as dominant as in the 1860s (see Table 4.4).

⁴⁵This was surprising in the sense that *Suffolk* was the only company vessel to cross the Atlantic during the 1860s, participating in four voyages to various destinations in the Caribbean region.

Table 4.4
Top 25 Ports Served by Burrell Vessels, 1871-1880 (Tons)

Port	Tonnage	% of Total
Huelva	49232	9.9
Lisbon	33043	6.6
Málaga	23847	4.8
Bombay	20468	4.1
Valencia	19614	3.9
Calcutta	15111	3.0
Genoa	12991	2.6
Alexandria	11131	2.2
Palermo	10822	2.2
Seville	10634	2.1
Trieste	10523	2.1
Fiume	10013	2.0
Gibraltar	9827	2.0
Messina	9812	2.0
Barcelona	9150	1.8
Marseilles	8882	1.8
Almeira	8720	1.8
New Orleans	8661	1.7
Marbella	8433	1.7
Venice	7923	1.6
Galatz	6503	1.3
Odessa	6039	1.2
Bilbao	5916	1.2
Patras	5694	1.1
Elba	5646	1.1

Note: Calls at UK and Irish Ports Excluded. The total tonnage of global entries for which I have crew agreements was 498, 780.

Source: See Table 4.1.

We have bills of entry for six voyages from Spain: one from Denia, Almeira and Valencia; two from Málaga and three from Huelva. Agricultural products dominated the commodities carried on these six voyages. This is not surprising, since even before the nineteenth century the Mediterranean coast had developed a commercial fruit and vegetable industry. Products such as raisins,⁴⁶ figs, almonds, hazelnuts, olive oil and

⁴⁶For a more detailed analysis of the raisin trade, particularly out of Denia, see the papers in *Primer Congreso de Historia del País Valenciano: Celebrado en Valencia del 14 al 18 de abril de 1971* (Valencia: University of Valencia, 1975).

above all citrus fruits were all among the leading Spanish exports from the middle of the nineteenth century.⁴⁷ France and Great Britain were the main importers, accounting for more than half of all Spanish exports in the period 1815-1880.⁴⁸ This fits well with the information in the bills of entry for the voyages arriving in Britain from Málaga, Denia, Almeira and Valencia. Citrus fruits were the great success story of Spanish agriculture before 1880.⁴⁹ Almonds were also important, and the voyages from Málaga, Denia, Almeira and Valencia carried sizable quantities. Finally, Burrell's ships carried wine. Spanish wines found a niche in the British market after the spread of *phylloxera* in French vineyards in the 1870s. Burrell did not appear to have any particular association with individual merchants; the company's vessels carried a multitude of cargoes for different consignees in every case. While there were large orders for individual merchants, they cannot be construed as exclusive agreements that prevented Burrell from transporting similar cargoes for possible competitors. Table 4.5 depicts a typical Mediterranean cargo carried by Burrell & Son in the 1870s.⁵⁰

⁴⁷Gabriel Tortella, *The Development of Modern Spain: An Economic History of the Nineteenth and Twentieth Centuries* (Cambridge, MA: Harvard University Press, 2000), 65-66.

⁴⁸Leandro Prados de la Escosura, "Foreign Trade and the Spanish Economy during the Nineteenth Century," in Nicolás Sanchez-Albornoz (ed.), *The Economic Modernization of Spain, 1830-1930* (New York: New York University Press, 1987), 128-150.

⁴⁹José Morilla Critz, Alan L. Olmstead and Paul W. Rhode, "'Horn of Plenty': The Globalization of Mediterranean Horticulture and the Economic Development of Southern Europe, 1880-1930," *Journal of Economic History*, 59, 2 (1999), 316-352.

⁵⁰Since Málaga was not a lead-exporting port, the quantities of lead indicated in Table 4.5 were undoubtedly transhipped.

Table 4.5
Customs Bill of Entry for Grange, from Málaga, February 1872

Commodity	Consignee
1715 pigs lead	Schwann & Co.
800 pigs lead	A. Bell & Sons
561 packages lemons & oranges	Nestle & Co
3 casks wine; 104 package raisins	C.O. Cramer
1121 boxes 1043 packages 358 ¼ boxes raisins	Quartin
10 puncheons olive oil	Novelli & Co.
10 packages lemons	R. Mc Andrew & Co
2138 boxes, 474 packages raisins; 69 packages lemons, 55 packages almonds	LaCave & Co.
1 case silk	F. Horne & Co
2 cases wax	H. Williams
1700 pigs lead, 1127 boxes raisins; 111 packages lemons; 2 bags wool;	T. Nelson
682 packages 55 ½ boxes oranges; 7 packages merchandize; 1 ¼ cask olive oil;	
1 keg brandy; 3 cases fruit and wine; 4 ¼ casks wine; 8 boxes almonds;	
1 barrel potatoes	
85 casks wine	various orders

Source: Customs Bill of Entry, *Grange*, 3 February 1872.

Huelva, the port which accounted for the greatest number of entrances by Burrell vessels in the 1870s did not export agricultural products. Spain had a wealth of commercially exploitable minerals, with abundant deposits of mercury, iron, copper, lead and the like that were conveniently located near the coast, thus facilitating exports by sea. Málaga was the main exporting port for iron ore (although Burrell does not appear to have been particularly interested in this trade), while Huelva produced copper and copper pyrites. The large copper deposits in the south-western part of the Iberian Peninsula, around the Gulf of Cádiz, have been known since antiquity. The most important deposits are located between two small rivers, the Rio Tinto and the Rio Odiel. The mines of Tharsis had been under the control of the French *Compagnie des Mines de Cuivre d'Huelva* since 1855. The Huelva pyrites offered sulphur, the raw material for caustic soda and sulphuric acid, ingredients which were important to the British chemical

industry. In 1866, a consortium of British chemical firms replaced the French and immediately began to construct the infrastructure necessary for large-scale exploitation, including the railway connections to the coast and piers and quays. From Huelva, copper was shipped to British chemical companies as raw pyrites. The Río Tinto mines were developed somewhat later under the guiding hand of Hugh Matheson, a Scottish banker operating out of London, who organized an international consortium and spent millions of pounds to build railroads, piers and other facilities between the mines and Huelva. Output, exports and profits apparently justified all these efforts since the Río Tinto mines soon became the largest producer of copper in the Iberian Peninsula.⁵¹

Burrell & Son invested considerable time and effort in the copper trade. The available information enables us to document port visits in 1878 and 1879; while it is not clear whether Burrell was involved in the exports of ore from the vicinity prior to that date, company sailing ships and steamers visited the port since 1867. It is therefore possible that the company even then was carrying copper from the Tharsis mines. Burrell seems to have been working under some sort of agreement, sending *Lanarkshire* to the Bay of Cádiz repeatedly in late 1878 and early 1879 and carrying more than 3000 tons of

⁵¹Tortella, *Development of Modern Spain*, 96-106. For more information on the Río Tinto copper mines, see David R. Ringrose, *Spain, Europe and the "Spanish Miracle"* (Cambridge: Cambridge University Press, 1996), 299-300. For more general studies of Spanish mineral exploitation, see Charles Harvey and Peter Taylor, "Mineral Wealth and Economic Development: Foreign Direct Investment in Spain, 1851-1913," *Economic History Review*, 40, 2 (1987), 185-207. See also Gabriel Tortella, "Patterns of Economic Retardation and Recovery in South-western Europe in the Nineteenth and Twentieth Centuries," *Economic History Review*, 47, 1 (1994), 1-21. The best work on the international copper ore trade remains Robin Craig, "The Copper Ore Trade," in Alexander and Ommer (eds.), *Volumes Not Values*, 277-302; reprinted in Craig, *British Tramp Shipping, 1750-1914* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 24, 2003), 59-84.

pyrites in three voyages for various consignees.⁵² One of these was Hugh Matheson himself, proving Burrell's connection with the Rio Tinto mines as well.

The iron ore trade from northern Spain, particularly Bilbao, attracted Burrell's attention shortly after the creation of the company. The arrival of the Bessemer steelmaking process led to a sharply increased demand for non-phosphoric iron ore and induced British steelmakers to look to Spain for accessible deposits. The northern regions of the country were endowed with rich hematite ore which lay in compact masses and could be mined by the relatively inexpensive open-pit method. Even more important, the region had a number of good ports, especially Bilbao and Santander, which greatly facilitated the export of iron ore. When the Spanish government removed a heavy export duty on iron ore in 1870, the growing demand attracted numerous shipowners, including Burrell.⁵³

The first company vessel arrived in the region in 1867, but it was after the removal of the export duty in 1870 that the trade really took off. Burrell sent a total of 44,216 gross tons of shipping to Bilbao and Santander between 1867 and 1889. The former port was the principal destination, accounting for almost eighty-six percent of the tonnage. Santander's heyday, on the other hand, was relatively brief, lasting only between 1874 and 1882. Underscoring the relative importance of Bilbao, Burrell used larger vessels in the trade from that port, averaging about 666 gross tons, while the lesser

⁵²In August the vessel carried 1161 tons, in November 1046 tons and in December 1000 tons. It should be noted that in the first two cases the ship also carried a few boxes of grapes and oranges (113 boxes of grapes and 253 boxes of oranges, respectively).

⁵³Michael W. Flinn, "British Steel and Spanish Ore: 1871-1914," *Economic History Review*, 8, 1 (1955), 86. Robin Craig, "Aspects of Tramp Shipping and Ownership," in Craig, *British Tramp Shipping*, 29, incorrectly cites the date of the removal of the export duty as 1862.

importance of Santander was reflected in the fact that the mean vessel size used in trade with that port was only 418 gross tons. Still, the ships used in the trade with northern Spain were considerably below the average for Burrell's fleet as a whole (1058 gross tons for the first three decades of the firm's existence). Part of the explanation for the use of smaller ships likely had something to do with the state of the harbour. As the British consul in Bilbao noted in 1880:

...it continually happens that, in consequence of the state of the bar, vessels are unable to get out for many days...the result being an accumulation of shipping which produces indescribable confusion and casualties of every kind...some idea may be formed of the inconveniences and losses sustained from the fact that [during three weeks in February 1880] two English steamers, loaded with minerals, were sunk in the river, 40 protests against loss and damage were noted, and 21 orders of survey given in the Consulate.⁵⁴

These difficult conditions might account for the increased use of Santander during the 1860s and early 1870s. The average port stay for Bilbao in the 1870s and 1880s was about 2.8 days. By contrast, Santander required an average of 3.7 days in the 1870s, but in the three-year period 1880-1882, when the consular report identified serious delays and congestion in Bilbao, the mean port time in Santander was only 1.7 days, implying that by loading cargoes there Burrell saved more than a day of unprofitable port time compared with Bilbao. The remuneration earned from the trade must have been substantial, especially in the early 1870s when spot freight rates for iron ore from Bilbao were between 11s 3d and 15s 9d per ton, more than double the levels of the early 1890s,⁵⁵ thus compensating shipowners for the many delays. Tramps in general carried increasing

⁵⁴Great Britain, Parliament, *Parliamentary Papers (BPP)*, March 1880, 924.

⁵⁵Craig, "Aspects of Tramp Shipping and Ownership," 31.

exports of iron ore from Bilbao between 1865 and 1900, rising from 26,000 metric tons to more than 4,653,000 metric tons at the turn of the century.⁵⁶ The extent of Burrell's profit from this trade is unknown, but the persistence of the company's involvement is likely an indication that it earned good returns. The abrupt abandoning of the trade in 1890 most likely was due to a sharp reduction in freight rates, which plummeted to levels as low as 3s 10½d by the early 1890s.⁵⁷

In the same region as the Rio Tinto and Tharsis mines, but on the other side of the Portuguese border, was the port of Villa Real de Santo Antonio, another important destination in the copper trade between the region and the United Kingdom. The extensive presence of Burrell's ships in the Bay of Cádiz, and their repeated visits to well-known copper ports, suggests the close connection, knowledge and interest of the Scottish shipowner in the carriage of a particular type of cargo. While it is true that the company never specialized in carrying copper, instead spreading its risks among a wide range of products and ports, it is nonetheless true that pyrites were an important aspect of its operations. This is verified by the multitude of Bills of Entries that list copper as the main cargo of Burrell's ships.

The Sao Domingos deposits in the west bank of the Rio Guadiana provided the bulk of copper cargoes from Portugal. We have information pertaining to six Burrell voyages, mostly using the screw hermaphrodite schooner *Maitland*, covering slightly more than a year between July 1872 and July 1873. During this period, the vessel carried

⁵⁶*Ibid.*, 29.

⁵⁷*Ibid.*, 81.

pyrites, sulphur ore and precipitate copper from Villa Real de Santo Antonio for two recipients: F.T. Barry and Mason & Co.⁵⁸ Barry was the consignee in 1872 while Mason & Co supplanted him in 1873. We have no way of knowing the exact nature of the relationship between these parties, but the nature of their business connections would suggest that they each had some sort of agreement with the shipping company for the transport of pyrites.

Lisbon ranked as the second most important port of call by tonnage for Burrell steamships in the 1870s, and it was the main gateway to Portugal. There are four extant bills of entry for ships out of Lisbon in this period, one each for the years 1871, 1872, 1876 and 1878. Like Spain, Portugal had little industry, with an economy which continued to rely mostly on agriculture. Fruits and vegetables, fish oil, honey and animal products (*Grange* carried 104 hides and eight tons of horns and bones in July 1871) dominated the cargoes carried by Burrell's ships.

Perhaps most surprising, however, is the absence in the bills of entry of wine, a product that by the mid-nineteenth century represented about half of total Portuguese exports to the United Kingdom.⁵⁹ This apparent lack of interest in the wine trade is perhaps the main reason behind Burrell's decision to abandon Oporto in favour of Lisbon. Wine was the main export product from the Douro valley, but if Burrell focused on fruits and vegetables Lisbon might offer better opportunities for trade. Lisbon was also a port

⁵⁸*Maitland* carried 1545 tons of sulphur ore and 887 bags of precipitate copper for F.T. Barry. In 1873 it carried 1200 tons of pyrites, 830 tons of sulphur ore and 284 barrels of precipitate copper for Mason & Co.

⁵⁹Sandro Sideri, *Trade and Power: Informal Colonialism in Anglo-Portuguese Relations* (Rotterdam: Rotterdam University Press, 1970), 204.

which exported some minerals, and Burrell's vessels picked up some phosphate lime and manganese, as well as some rubber.⁶⁰

The most important product Burrell carried out of Portugal was cork, with sizable quantities appearing in every surviving bill of entry. Cork is the bark of the cork oak tree (*Quercus Suber*) which grows in specific regions throughout the western Mediterranean and parts of the Iberian Peninsula; Portugal was the leading producer. In fact, the area south of Lisbon was renowned for the finest stands of pure cork oak in the region. Since the late 1830s, English merchants had been deeply involved with the export of cork wood from Lisbon, either as owners of plantations, as businessmen operating cork factories or as exporters.⁶¹ The available information does not allow us to determine whether Burrell had special relations with any of these expatriates that would allow the firm to secure outward cargoes. There was a different consignee of the cork in each of the three cases about which we know, with the companies of Martin & Son; Fisher, Howard & Sons; and Anderson, Anderson & Co. being the largest importers in the bills of entry.⁶²

It is more difficult to identify cargoes carried by Burrell into Spain and Portugal. Since the bills of entry did not record outward cargoes, we can only infer what the vessels carried based on general information about cargoes usually exported from the United

⁶⁰In the case of *Grange*, in July 1871 there were 165 tons of unidentified mineral, while eight months later the same ship carried 263 tons of phosphate lime and manganese.

⁶¹James J. Parsons, "The Cork Oak Forest and the Evolution of the Cork Industry in Southern Spain and Portugal," *Economic Geography*, 38, 3 (1962), 209.

⁶²For more general information on the cork oak industry, see *ibid.*, 207-208. Also Santiago Zapata Blanco, "Del suro a la cortica. El ascenso de Portugal a primera potencia corchera del mundo," *Revista de Historia Industrial*, 22 (2002), 109-137. See also Rosa Ros Massana, "La comercializacion de productos corcheros a inicios del siglo XIX: El ejemplo de la empresa Rafael Arxer, Hijo Y Compania (1817-1820)," *Revista de Historia Industrial*, 24 (2003), 163-189. For a comparison with experiences in other regions, see Jacques Daligaux, "L'industrie du Liege dans le massif de Maures du debut du XIXe siecle: apogee et decline d'une industrie rurale provencale," *Provence Historique*, 45 (1995), 385-409.

Kingdom to these two countries. During the third quarter of the nineteenth century, the main Portuguese imports from the United Kingdom were textiles.⁶³ Spanish imports were more diversified. The years 1850-1860 were years of Spanish protectionism, whereas the period between 1870 and 1880 was marked by a moderate degree of trade liberalization. In the early 1860s railroad construction dictated national imports, but thereafter industrial raw materials, such as cotton and coal, and capital goods (especially machinery) replaced foodstuffs (with the exception of wheat) and consumer goods.⁶⁴ Since Great Britain was in a position to export most of these commodities, we can safely assume that Burrell's vessels carried some of these products to Spain.

Bombay and Calcutta also appear very high on the list in Table 4.4, occupying the third and fifth positions, respectively.⁶⁵ In the last decades of the nineteenth century, Indian overseas trade was dominated by steam liners, but Burrell's vessels also visited these ports every year. Unlike cargoes from the Mediterranean which emphasized agricultural products and minerals, Indian ports provided diverse cargoes, some of which were mundane and some of which were much more exotic. The single most important export in the 1870s was cotton, followed by grain, dyes and jute.⁶⁶ All these products appear in the bills of entry for Burrell's vessels. We have detailed information about

⁶³Sideri, *Trade and Power*, 204.

⁶⁴Prados de la Escosura, "Foreign Trade and the Spanish Economy," 136-137.

⁶⁵A general study of Indian ports is Indu Banga (ed.), *Ports and Their Hinterlands in India (1700-1950)* (New Delhi: Manohar Publications, 1992). For the port of Bombay, see Frank Broeze, "The External Dynamics of Port-City Morphology: Bombay, 1815-1914," in Banga (ed.), *Ports and Their Hinterlands*, 245-272.

⁶⁶Lewis R. Fischer and Gerald E. Panting, "Indian Ports and British Intercontinental Sailing Ships: The Subcontinent as an Alternative Source of Cargo, 1870-1900," in K.S. Mathew (ed.), *Mariners, Merchants and Oceans: Studies in Maritime History* (New Delhi: Manohar Publications, 1995), 373-378.

cargoes carried on eight voyages, five from Calcutta and three from Bombay. When *Strathleven* returned to London from Bombay in December 1876, her holds were filled with cotton, wool, wheat, spices, skins, horns, myrabolam and seeds, among various other miscellaneous items (see Table 4.6).⁶⁷ Calcutta consistently provided an even more diverse and valuable manifest, with tea, silk, safflower and other plant extracts and woods (such as shellac, buttonlac, mathe seeds, etc.). On one occasion, *Strathclyde* even transported a case of tiger skins.⁶⁸

Table 4.6
Customs Bill of Entry for *Strathleven*, from Bombay, December 1876

Commodity	Consignee
415 bales cotton, 703 barrels wool, 630 barrels hemp	
4185 bags, 2600 packets myrabolam, 4 cases oil	
20484 bundles yarn, 12 bales cotton waste	Sundry Consignees
5242 bales cotton, 857 bales wool, 151 bales hemp, 4316 bags wheat,	
27436 horns, 106 bales gunnies, 560 bags myrabolam,	
10 bales cotton waste, 17 bales rope, 25 bales rags, 2874 packages oil cake	Gellatly

Source: Customs Bill of Entry, *Strathleven*, 28/12/1876.

The trade from India offers an excellent opportunity for a closer analysis of the relationship between Burrell and merchants in the overseas ports of call; the cargoes carried were varied, with multiple consignors sending commodities to multiple consignees using the same vessel. In addition, this is the only case where we have large amounts of data concentrated in a well-defined chronological period. The eight voyages for which we have cargo information represent two-thirds of the voyages by Burrell

⁶⁷Myrabolam extract is derived from the dried fruit of the tree *Terminalia Chebula* and is used primarily in tanning processes, adding weight and solidity.

⁶⁸*Strathclyde*, Customs Bill of Entry, June 1872.

vessels for which we have records to the Indian subcontinent in the 1870s. It is also fortunate that the merchant houses in Britain which received the shipments carried on Burrell's vessels returning from India have been studied in some detail, which allows us to see connections that are impossible to discern in other parts of the world.

Many of the consignees of these cargoes were British branches of Greek merchant houses. Significantly, all of these Greek firms also had branches in India, which means that it is virtually certain that the consignors on the sub-continent were the respective branches of the same firm. The 1870s was the period of the greatest involvement of the Greek merchant houses in India, and these houses were among the principal providers of cargo for Burrell & Son.⁶⁹ We can see this clearly in the case of cargoes from Calcutta because the bills of entry provide a detailed list of names (unlike Bombay where in most cases the commodities were assigned to "sundry consignees"). Ralli Bros., Petrocochino Bros., Schillizi & Co., Argenti & Co. and Tamvaco & Co. were all Greek merchant houses active in trade with India. Among these, Ralli Bros. was the most prominent. This particular merchant house occupied an important position in trade between India and Britain. An analysis of the bills of entry by Katerina Vourkatioti showed that in the 1870s this firm controlled more than ten percent of the quantities of a variety of products shipped from India to the United Kingdom. It controlled thirty percent of fat, twenty-four to twenty-six percent of poppy seeds, twenty percent of jute rejections, twenty-one percent of coloured fabrics and ten to thirteen percent of sugar, hides, shellac and linseed. Indeed, even where Ralli Bros. controlled a smaller market share (such as its eight percent

⁶⁹For the Greek merchant houses in India, see Katerina Vourkatioti, "Anglo-Indian Sea Trade and Greek Commercial Enterprises in the Second Half of the Nineteenth Century," *International Journal of Maritime History*, 11, 1 (1999), 117-148.

in jute), it was responsible for the movement of considerable quantities (in jute it shipped 52,000 bales out of a total of 600,000). The bills of entry I have found about Burrell's cargoes from India indicate that at least 4.5 percent of the jute exported by Ralli Bros. was transported in Burrell's vessels.

Burrell, however, did not deal with Greek merchants exclusively. On the contrary, the available information indicates that the firm was open to carrying cargoes from any source, often using the same steamship to transport commodities belonging to competitors. The most serious competitors in Britain of Ralli Bros. were Andrew Yule & Co. in Manchester and Jardine Matheson & Co. in Scotland. Yule did not appear among the consignees of cargoes carried by Burrell but Matheson did twice. Although cotton and sugar were the two main commodities in which Matheson was heavily involved, the firm used *Strathclyde* to transport eighty chests of tea and 136 bales of silk. The fact that Burrell carried cargoes for both Ralli and Jardine suggest that while Burrell and Ralli had a close business relationship, they did not have an exclusive one.⁷⁰

The only other non-European port to appear in Table 4.4 is New Orleans. Although the cotton trade of the southern United States was seriously affected by the American Civil War, it recovered quickly. Production in 1866 was 2.1 million bales, but it soared to 4.4 million bales by 1870 and to 6.6 million bales by 1880. Exports took slightly longer to recover, rising from 651 million pounds in 1866 to 959 million pounds in 1870. But in the next decade, cotton exports more than doubled to 1822 million pounds

⁷⁰Much of the discussion in the previous two paragraphs leans heavily on Katerina Vourkatioti, "The House of the Ralli Bros., c. 1814-1961: The Archetype of Greek Diaspora Entrepreneurship" (Unpublished PhD Thesis, Panteion University, 2004, in Greek).

in 1880. As before the war, Great Britain was the largest foreign purchaser, taking twenty-two percent of US output in 1865, thirty-eight percent in 1870 and forty percent in 1880.⁷¹ In 1870, exports to the United Kingdom represented fully seventy percent of cotton exports from the United States.⁷²

Before the war, British firms – and British ships – had played a dominant role in this trade. But the dislocations caused by the war led many of them to withdraw.⁷³ Against the general trend among shipowners, Burrell & Son decided for the first time to enter the cotton trade. Regardless of why the firm made this decision, we know that in the following decades the cotton trade would prove a very important part of Burrell's activities, and an increasing number of the firm's steamers would visit ports like New Orleans to secure this precious cargo. Although the role of New Orleans in Burrell's activities declined in the 1880s and 1890s, it was replaced by a number of other ports where the firm picked up cotton cargoes.⁷⁴

⁷¹The data on cotton production and exports come from Gavin Wright, "Cotton Competition and the Post-Bellum Recovery of the American South," *Journal of Economic History*, 34, 3 (1974), 610-635; and Susan B. Carter, et al. (eds.), *Historical Statistics of the United States: Millennial Edition* (5 vols., New York: Cambridge University Press, 2006), V, 547.

⁷²John R. Hanson II, "World Demand for Cotton during the Nineteenth Century: Wright's Estimates Re-examined," *Journal of Economic History*, 39, 4 (1979), 1015-1021.

⁷³For more information on this phenomenon, see John R. Killick, "Specialized and General Trading Firms in the Atlantic Cotton Trade, 1820-1980," in Shinichi Yonekawa and Hideki Yoshihara (eds.), *Business History of General Trading Companies* (Tokyo: Tokyo University Press, 1987), 239-266; reprinted in Stanley D. Chapman (ed.), *The Textile Industries* (4 vols., London: I.B. Tauris Publishers, 1997), II, 62.

⁷⁴Unfortunately we do not have any information on cargoes from New Orleans during these years. The only bill of entry for a voyage from the United States refers to a voyage from New York in July 1879, when *Strathmore* carried a variety of cargoes for various merchants. More information on New York will be provided later.

One other North American destination which tells us a good deal about Burrell's operations in the 1870s does not appear in Table 4.4. This is Betts Cove, a small port on the shores of Newfoundland's Notre Dame Bay for which we have one bill of entry in the summer of 1879.⁷⁵ As far as we know, this was the only visit to this port by a Burrell ship, but it is significant because the cargo was 2280 tons copper of ore consigned to H. Bath & Sons. Although Bath did not appear among the consignees of any of the copper ore cargoes from Spain discussed above, this company was the recipient of copper carried by a Burrell vessel from the Black Sea earlier in the decade. This is a strong indication of what appears to have been a specialization by Burrell & Son in the carriage of copper from various destinations around the world.

The 1870s was the first decade in which Burrell sent its vessels in relatively large numbers to the Black Sea and the Sea of Azov. The burgeoning grain trade in this region was increasingly important to a variety of shipowners,⁷⁶ but as far as Burrell was concerned the grain ports of southern Russia, Rumania and Bulgaria were of secondary

⁷⁵Betts Cove was the port from which ore from the mine at Tilt Cove was shipped, since the latter place was described in the nineteenth century as "a cleft in the rocks where there is only room for one ship at a time." See G. D. Urquhart (ed.), *Dues and Charges on Shipping in Foreign Ports: A Manual of Reference for the Use of Shipowners, Shipbrokers and Shipmasters* (London: G. Philip and Son, 1872), 873, as cited in Craig, "Copper Ore Trade," 74.

⁷⁶The Black Sea grain trade has attracted a number of historians writing from a variety of perspectives. See, for example, Susan Fairlee, "The Anglo-Russian Grain Trade, 1815-1861" (Unpublished PhD thesis, University of London, 1960); Fairlee, "The Corn Laws and British Wheat Production, 1829-1876," *Economic History Review*, 22, 1 (1969), 88-116; Harold E. Gullett, "Railways and Seaborne Grain Export Trade in Tsarist Russia, 1861-1914" (Unpublished PhD thesis, University of London, 1988); Mette Ejrnæs, Karl Gunnar Persson and Soren Rich, "Feeding the British: Convergence and Market Efficiency in the Nineteenth-Century Grain Trade," *Economic History Review*, 61, supplement, 140-171; Carmel Vassallo, "The Maltese Merchant Fleet and the Black Sea Grain Trade in the Nineteenth Century," *International Journal of Maritime History*, 13, 2 (2001), 19-36; Gelina Harlaftis, "The Role of the Greeks in the Black Sea Trade," in Lewis R. Fischer, and Helge W. Nordvik (eds.), *Shipping and Trade, 1750-1950: Essays in International Maritime Economic History* (Pontefract: Lofthouse Publishing, 1990), 63-95; and Morton Rothstein, "Centralizing Firms and Spreading Markets: The World of International Grain Traders, 1846-1914," *Business and Economic History*, 17 (1988), 103-113.

significance compared with the fruit, vegetable and wine trades from Mediterranean ports. The total tonnage visiting the two most prominent destinations in the region, Odessa and Galatz, accounted for a mere 2.5 percent of the total tonnage of the leading twenty-five ports.⁷⁷ All the ports in the region (Galatz, Odessa, Braila, Constanta and Taganrog) received just a little less than 5.5 percent of Burrell's tonnage in the 1870s.⁷⁸ The two available cargo lists from the bills of entry refer to two passages by *Lanarkshire* in 1872. The first, in May, carried 5450 quarters of linseed from Taganrog, while the second, in November, returned from Braila with 6100 quarters of barley and 285 pigs of copper. It is this latter item, shipped to H. Bath & Sons, that is of particular interest, documenting a business relationship between the consignee and Burrell that lasted throughout the decade and supporting the argument about Burrell's specialization in the copper trade.⁷⁹

Patras, in the northern Peloponnesus, was visited by 5694 tons of Burrell shipping in the 1870s. The main export cargo from this port was currants. From the late eighteenth century Patras had substituted the export of grain for currants, becoming the main

⁷⁷Much of the trade of Odessa was dominated by Greek merchant firms. See, among a growing number of studies, Ioanna Pepelasis Minoglou, "The Greek Merchant House of the Russian Black Sea: A Nineteenth-Century Example of a Trader's Coalition," *International Journal of Maritime History*, 10, 1 (1998), 61-104; Patricia Herlihy, "Greek Merchants in Odessa in the Nineteenth Century," in Ihor Sevcenko and Frank E. Sysyn (eds.), *Eucharisterion: Essays Presented to Oemeljan Pritsak on His Sixtieth Birthday by His Colleagues and Students* (2 vols., Cambridge, MA, 1979), I, 399-420; and John A. Mazis, *The Greeks of Odessa: Diaspora Leadership in Late Imperial Russia* (New York: Columbia University Press, 2004).

⁷⁸The trade from the Sea of Azov has been relatively neglected until recently. For evidence that this is changing, see, for example, Gelina Harlaftis, "Trade and Shipping in the Nineteenth-Century Sea of Azov," *International Journal of Maritime History*, 22, 1 (2010), 241-251; and Evrydiki Sifneos, "Merchant Enterprises and Strategies in the Sea of Azov Ports," *International Journal of Maritime History*, 22, 1 (2010), 259-268.

⁷⁹For more information on Black Sea and Danube ports after 1870, see Gelina Harlaftis, *A History of Greek-Owned Shipping: The Making of an International Tramp Fleet, 1830 to the Present Day* (London: Routledge, 1996), 175-190.

gateway for this particular product from Greece to European markets and rising in importance to the same level as Piraeus and Ermoupolis, the other two major Greek export ports. Its geographical position facilitated the collection of production from western Greece and the Peloponnesus, making Patras the central hub in the currant trade. Between 1851 and 1891, exports from this port rose about four percent per year, making it the natural port of call for any shipowner who wished to participate in the currant trade. This product represented more than eighty percent of exports (by value) from Patras in 1854, while seven years later the percentage had risen to ninety-nine percent.⁸⁰

Burrell was considerably involved in the transport of currants in the 1870s. In fact, the temporal parameters of the firm's involvement were relatively constricted: the first vessels arrived in 1868 and calls became irregular after 1882. The visits were also highly seasonal, occurring during the summer and early autumn when the harvests came to market. We have two bills of entry from Patras, both proving the central role of currants as a cargo from western Greece; in fact, they were the only cargo carried by Burrell's vessels on these voyages. For example, when *Fitzjames* arrived in London in August 1870, it was carrying a small quantity of currants in the name of the ship's master, C.W. Pearson. It is the only concrete proof we have of Burrell allowing its masters to conduct limited trade in their own names, using cargo space for their personal benefit and gain. Although the seven packages shipped in the master's name may not have been substantial, the remainder of the cargo certainly was: 4930 barrels and 125 cases of currants consigned to T. Nelson.

⁸⁰Maria Synarelli, *Dromoi kai Limania stin Ellada, 1830-1880* [Roads and Ports in Greece, 1830-1880] (Athens: ETBA, 1989), 181-184.

During the early 1880s Burrell continued to send vessels to Patras to participate in the currant trade, but the company's vessels were not restricted to this port, sailing as well to other destinations in the Ionian Sea, picking up more currants along the way. Zante, Catacolo and Vostitza were visited after the initial loading of currants in Patras. The largest quantities were destined for Greek merchants in Great Britain, among whom G.E. Spiropoulo and K. Papayanni were most prominent, but there were about thirty different merchant names in three bills of entry, not all of whom were of Greek origin.

As with Spain, it is more difficult to estimate what was carried to Patras and the other Greek ports in Burrell's ships. Our only information comes from what is known about the general import trade of the port, with its emphasis on manufactured and colonial products, such as textiles, cotton products, coffee, sugar, rice, minerals (particularly iron ore) and grains.⁸¹ Patras was always one destination among many for Burrell's ships, stopping as they did in various ports in other Mediterranean countries along the way. The extent to which Burrell participated in the Mediterranean trade between local markets can not be known, nor can we determine whether the company's ships departed from the United Kingdom with specific cargoes from Greek (or other) merchants to be exchanged for currants in Patras.

Burrell's connections with merchants involved in the currant trade are proven by the visits of company ships to other well-known currant ports in the eastern Mediterranean. Smyrna was the main Ottoman export port for currants, accounting for one-quarter of the total value of exports of this product in the late nineteenth century.

⁸¹ *Ibid.*, 185.

Burrell sent their steamships to the Anatolian port between 1872 and 1881, thereafter preferring the opportunities offered by Constantinople.⁸²

There was one final cargo carried by Burrell & Son from the Mediterranean that deserves our attention. We have four bills of entry from Oran and Algiers for steamships carrying large quantities of esparto grass. Also known as "needle grass," esparto is a perennial grass that grows in northwest Africa and southern Spain. Its commercial value is based on its role in paper making. It was first used in the United Kingdom in 1850. The so-called "Tripoli" grade from Africa is of lesser quality, but this was the grade Burrell's vessels carried in the late 1870s and early 1880s. The principal recipient was the company Thin & Co., while J.T. Rennie Sons & Co. also received some cargoes. If Burrell carried esparto on every voyage from present day Algeria,⁸³ its involvement in the trade began very early, with the first ship arriving in Oran in 1870.

The Australian continent was not a frequent destination for Burrell & Son. Yet in 1880 a company vessel made a voyage that ushered into a new era in world trade, opening new opportunities and helping to transform the colony and its economy. Australia played a leading role in the development of refrigeration. The expatriate Scotsman James Harrison, who migrated to Geelong, Victoria in 1837, conducted some

⁸²Critz, Olmstead and Rhode, "Horn of Plenty," 339-340. For Smyrna, see Elena Frangakis-Syrett, "Commerce in the Eastern Mediterranean from the Eighteenth to the Early Twentieth Centuries: The City-Port of Izmir and Its Hinterland," *International Journal of Maritime History*, 10, 2 (1998), 125-154; Frangakis-Syrett, *The Commerce of Smyrna in the Eighteenth Century, 1700-1820* (Athens: Centre For Asia Minor Studies, 1992; Turkish ed., Izmir:Izmir Büyükşehir Belediyesi Kültür Yayını, 2006; Greek ed., Athens: Alexandria Press, 2010); and Frangakis-Syrett, *Chiot Merchants in International Trade (1750-1850)* (Athens: Agricultural Bank of Greece, 1995, in Greek).

⁸³We have no reason to believe otherwise. We have four bills of entry, representing one-quarter of all voyages to Oran and Algiers up to 1886. This is a respectable percentage that gives us some confidence in this conclusion. In 1898-1899, and again in 1908-1911 and 1923, Burrell sent more vessels to Algiers (not Oran), but we cannot be certain what they carried at such a late date since we lack even circumstantial evidence.

successful experiments in mechanical refrigeration in the 1850s. In 1873, he prepared the sailing ship *Norfolk* as an experiment to ship refrigerated mutton and beef to England.⁸⁴ The result was only partially successful, and it was another seven years before frozen meat was transported successfully to Britain from Australia.

Table 4.7
Customs Bill of Entry for *Strathleven*, from Sydney & Melbourne, February 1880

Commodity	Consignee
<u>@Sydney</u>	
3000 bales wool	various consignees
1 package merchandize	Brabant & Co
4 packages merchandize	W. Fanning & Co
4 packages merchandize	Trubner & Co
42 cases pearl shell	F. Parbury & Co
838 ingots copper	C. Newton Bros & Co
150 casks meat, 6034 ingots tin, 417 casks tallow	
186 cases pearl shell, 4712 ingots, 1468 cakes copper	order
<u>@Melbourne</u>	
102 bales wool	Dalgety, DuCroz & Co
41 bales wool	W. Fanning & Co
2158 bales wool, a quantity of fresh meat	order

Sources: Customs Bill of Entry, *Strathleven*, 2 February 1880.

The vessel in question was Burrell's *Strathleven*, a compound-engine steamer built by Blackwood & Gordon in Glasgow and equipped with refrigeration machinery designed by T.S. Mort. The ship left London in late August 1879 carrying emigrants bound for Australia;⁸⁵ She called first at Sydney and then at Melbourne, loading frozen beef and mutton, before returning to London via the Suez Canal in February 1880 (see

⁸⁴On Harrison, see Elizabeth Morrison, "James Harrison: Inventor and Science Journalist," *Australasian Science*, 19, 10 (1998), 48-60.

⁸⁵Details on the outward voyage may be found in Geoffrey Blainey, *The Tyranny of Distance: How Distance Shaped Australia's History* (Melbourne, 1966; 3rd ed., Sydney, 2001), 273-275; and Brian Fitzpatrick, *The British Empire in Australia, 1834-1939* (Melbourne, 1949; reprint, Melbourne, 1969), 171-173.

Table 4.7). According to the *Sydney Morning Herald*, when the vessel reached Gravesend "the charterers and others boarded her, and found the meat most excellent."⁸⁶

It is unfortunate that we do not have complete information on the details of the charter. We do know, however, that the vessel was chartered by McIlwraith, McEacharn and Co. of London, a partnership that had close business connections with family members in Melbourne, Sydney and Brisbane.⁸⁷ We also know that the refrigeration equipment was installed in Australia, and it appears that the machinery was removed after this voyage.⁸⁸ But we have no way of knowing how the Burrells made the decision to agree to involve their company in this experimental voyage. Refrigerated shipping in general was too expensive at the time for independent tramp owners, and liner companies dominated the trade.⁸⁹

What is undeniable is that following the success of *Strathleven*, freezing works were established in the eastern Australian states and that by 1896 more than 100 ships were equipped with refrigeration for the Australian trade. By the end of the nineteenth century, beef, lamb and mutton were exported, along with dairy products from New

⁸⁶*Sydney Morning Herald*, 22 March 1880.

⁸⁷The partners later founded the so-called "Scottish Line" of steamers connecting Britain and Australia. See David Dunstan, "McEacharn, Sir Malcolm Donald (1852-1910)," *Australian Dictionary of Biography*, Volume 10 (Melbourne: Melbourne University Publishing, 1986), 263-264.

⁸⁸Keith Farrar, *To Feed a Nation: A History of Australian Food Science and Technology* (Collingwood, VIC: CSIRO Publishing, 2005), 54.

⁸⁹Robert G. Greenhill, "Shipping and the Refrigerated Meat Trade from the River Plate, 1900-1930," *International Journal of Maritime History*, 4, 1 (1992), 65-82. For the meat trade in general, see Richard Perren, *The Meat Trade in Britain, 1840-1914* (London: Routledge and Kegan Paul, 1978); Perren, "The Meat and Livestock Trade in Britain, 1850-1870," *Economic History Review*, 28, 3 (1975), 385-400; and Forrest Capie and Richard Perren, "The British Market for Meat 1850-1914," *Agricultural History*, 54, 4 (1980), 502-515. For the use of cooling as a method of food preservation, and its introduction in the international meat trade, see Joel Mokyr, *The Lever of Riches: Technological Creativity and Economic Progress* (New York: Oxford University Press, 1990), 141.

Zealand, New South Wales and Victoria. The competition was stiff, with the Peninsular and Oriental Steam Navigation Company (P&O) securing mail contracts and charging extremely low fares in the carriage of meat and fresh fruits, in an effort to control the trade and eliminate opposition from shippers and other shipowners.⁹⁰ It does not appear that Burrell repeated this experiment. There is only one additional bill of entry from Australia (in the 1890s) and the cargo from Sydney and Melbourne did not include any meat. All we know for a fact is that Burrell & Son was a pioneer in this area.

The 1880s were marked by a big increase in the tonnage operated by Burrell (growing from 498,780 to 1,377,940 gross tons) and an expansion of its trading range (see Table 4.8). While the Mediterranean maintained its pre-eminent position in the first half of the decade (accounting for 89.9 percent of voyages), 4.4 percent of total sailings were for the Caribbean. While this is not an impressive percentage, it was a harbinger of things to come because between 1885 and 1889 the Caribbean became the centre of Burrell's operations with 43.5 percent of sailings. The Mediterranean fell to 14.1 percent, closely followed by the Indian Ocean (12 percent) and North America (8.7 percent).

The port receiving the greatest tonnage was Hong Kong (55,134 gross tons), followed by Fiume in the Austro-Hungarian Empire and Singapore with 51,577 and 51,501 gross tons, respectively. The explanation for this rapid increase in tonnage in South East Asia was due to two factors. First, Burrell sent its largest steamships to the region. Four of the six ships involved in the Chinese and Japanese trades were larger than

⁹⁰John Bach, *A Maritime History of Australia* (Melbourne: Thomas Nelson, 1976; reprint, Sydney: Pan Books, 1982), 176-184. For the refrigerated meat trade from Australia, see also Frank Broeze, *Island Nation: A History of Australians and the Sea* (St. Leonard's, NSW: Allen and Unwin, 1998).

the average vessel in the Burrell fleet during those years.⁹¹ In fact, in fourteen out of the total eighteen voyages to the region, the vessel involved practically circumnavigated the globe, leaving a port in the United Kingdom for New York and then proceeding to the west coast of the Americas there. In four cases the voyage included a visit to India, which remained an area of special interest for Burrell.

Table 4.8
Top 25 Ports Served by Burrell Vessels, 1881-1890 (Tons)

Port	Tonnage	% of Total
Hong Kong	55134	4.0
Fiume	51577	3.7
Singapore	51501	3.7
Huelva	41985	3.1
Nagasaki	40816	3.0
Shanghai	40220	2.9
Trieste	38107	2.8
Kingston	38025	2.8
Malta	37411	2.7
Hiogo	36678	2.7
Venice	35877	2.6
New York	32940	2.4
Port Said	32122	2.3
Bilbao	31724	2.3
Yokohama	31370	2.3
Gibraltar	30666	2.2
Bombay	26204	1.9
Marseilles	23732	1.7
Valencia	20008	1.5
Antwerp	19679	1.4
Falmouth (Jamaica)	17383	1.3
Barcelona	17378	1.3
Rouen	14467	1.1
Savanna-La-Mar	14435	1.1
Montréal	13863	1.0

Note: Calls at UK and Irish ports excluded. The total tonnage of global entries for which I have crew agreements was 1,377,940.

Source: See Table 4.1.

⁹¹In the year 1889, when all the ships involved were active, the average size was 2179 gross tons. The six ships plying the waters of the China Sea were 3265, 2814, 2436, 2341, 2138 and 1552 gross tons, respectively.

The second factor was the tendency of a vessel to visit the same harbour on multiple occasions during the same voyage, adding considerably to the total tonnage entering the port without really altering its significance. For example, in 1883, *Strathleven* arrived four times at Singapore and three times each at Hiogo and Yokohama in Japan. In 1887, the same ship visited Hiogo five times, Nagasaki six times and Hong Kong five times. Each visit of this vessel added 2436 gross tons to the total tonnage depicted in Table 4.8.

After 1885 the Caribbean became a major destination, which is reflected in the fact that Kingston, Jamaica, was the eighth leading port in Table 4.8, while Falmouth and Savanna-La-Mar also were among the twenty-five leading ports of call. This was also the period when Burrell turned its attention to business opportunities in the United States and Canada. New York, aided by the size of the vessels that called there before proceeding to China and Japan, was in twelfth place, while Montréal, the foremost port of call in Canada, attracted 13,863 tons of Burrell's shipping.

We have thirty-nine bills of entry from this decade. The region with the most entries is the Caribbean, particularly Jamaica. In the 1880s the island was suffering severe dislocations in its traditional sugar industry due to falling prices combined with an inability or unwillingness to diversify and a small population. Bananas were beginning to become more important, but Burrell did not transport them. The special requirements for the carriage of bananas might explain Burrell's lack of interest in this type of cargo. Bananas bruise easily and require vessels with good insulation, and the cargo holds must

be well-ventilated and kept at a steady temperature.⁹² Burrell might have deemed that re-equipping vessels to carry bananas was uneconomical and would restrict the use of these craft to a particular product and region, unnecessarily exposing the company to the vicissitudes of the trade, when these vessels might have difficulty finding profitable employment in a different trade.

No single cargo dominated the bills of entry from the Caribbean during these years. Each vessel carried a variety of products, such as pimento, coffee, logwood, ebony, hides, bamboos, citrus fruits, honey, shells, wax, orchids, ginger, cocoa nuts, leather and rum (the most important item in terms of frequency and volume without becoming dominant), for various recipients in the United Kingdom. The bills reflect the difficult conditions facing sugar producers and exporters from Jamaica: the quantities carried by Burrell out of the island were never sufficient to provide a full cargo, forcing the master of the vessel to hunt for additional products to carry back to England. According to the only bill of entry from Demerara, sugar and rum were the only cargoes carried by the company vessel.⁹³ Demerara and Trinidad managed to weather the fall in sugar prices much better than Jamaica, justifying Burrell's decision to continue visiting these ports long after Jamaica became unpopular with the company.

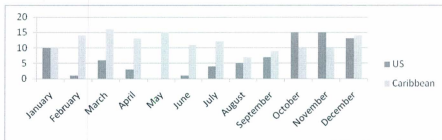
Burrell & Son was not the only shipping company active in the region. Harrisons of Liverpool developed an interest in the Caribbean from the 1870s, creating a local organization serving almost every major port in the region. Jamaica, Barbados and

⁹²Jesse T. Palmer, "The Banana in Caribbean Trade," *Economic Geography*, 8, 3 (1932), 269.

⁹³*Budapest*, Customs Bill of Entry, February 1887. On the importance of rum in the Caribbean economy, see Frederick H. Smith, *Caribbean Rum: A Social and Economic History* (Gainesville, FL: University Press of Florida, 2005).

Trinidad were important ingredients of their shipping routes, while the trade in fruits and vegetables was the *raison d'être* behind these shipping routes. Looking for ways to keep its vessels employed in the off-season for its New Orleans trade, Harrisons developed connections with Belize.⁹⁴ Burrell was also involved in regional trade in the Caribbean and its vessels also visited ports in the southern United States. In the period 1885-1895, when the company was most active in the Caribbean, Burrell used a total of fourteen vessels for trade with the region, twelve of which served both Caribbean and southern United States ports. Figure 4.1 presents information on the number of regional visits by Burrell's steamships in the ten-year period 1885-1895.

Figure 4.1
Burrell & Son Visits to the Caribbean and Southern United States, 1885-1895



Source: See Table 4.1.

One voyage in four included visits to ports in both regions; in many cases the company vessels stopped in these two areas before proceeding to some other place. But there is a strong indication that these visits were seasonal, with the Caribbean providing

⁹⁴Francis E. Hyde, *Shipping Enterprise and Management, 1830-1939: Harrisons of Liverpool* (Liverpool: Liverpool University Press, 1967), 45-47.

cargoes in the winter, spring and early summer, while in the late summer and the fall most vessels were sent to southern ports in the United States to load cargoes. The cotton trade was the driving force behind this seasonal trading pattern. Cotton was the main cargo in Burrell ships departing from ports in the southern United States during the period of the peak number of visits.⁹⁵ There was never a visit to these ports in May, with all steamships heading instead to the Caribbean. During October and November, on the other hand, Burrell preferred the opportunities available in New Orleans, Mobile and other southern ports, with half again as many ships going there as to Jamaica or Trinidad. Since the Caribbean appears to have offered a more stable trading environment with less violent fluctuations in the numbers of visits, it might be more appropriate to treat southern United States ports as a way of occupying vessels when Jamaica and the other Caribbean islands provided less cargo between August and January. The seasonal nature of these trades required good logistical calculations to ensure adequate shipping space at the right time. Cooperation with railway companies, in whose hands much of the cotton trade rested, was also important. Harrisons of Liverpool was deeply involved in the trade, and as a liner company could afford the financial and time expense to build business relations with local railway owners. We have no way of knowing Burrell's local connections, but the company does not seem to have found the logistics insurmountable, sending ships to the region repeatedly.⁹⁶

⁹⁵On the seasonal nature of the Atlantic cotton trade, see David M. Williams, "The Shipping of the North Atlantic Cotton Trade in the Mid-Nineteenth Century," in Alexander and Ommer (eds.), *Volumes Not Values*, especially 315-316.

⁹⁶Hyde, *Shipping Enterprise and Management*, 24. Harrisons was also involved in the transportation of coolie labour from India to the West Indies. We have no reason to believe Burrell was involved in this trade, since none of its vessels sailed from the Indian subcontinent towards the West Indies.

I have a fair number of bills of entry for voyages originating in ports in the Southern United States. There are four of these for voyages from Mobile (which cover all the visits by Burrell's vessels to this port in the 1880s), two from Savannah (out of a total of five) and one each from New Orleans, Wilmington (North Carolina) and Charleston (one out of three in the case of New Orleans and Charleston and all in the case of Wilmington). The only cargo carried on every voyage was cotton and its by-products⁹⁷ with just two exceptions: in April 1887, on a passage from Mobile the steamship also loaded staves, while another vessel from Savannah carried fifty tons of phosphate rock, along with 5983 bales of cotton. Burrell appears to have had few difficulties in securing sizeable cargoes that could fill its cargo holds, minimizing the need to visit numerous ports as was the case with ships going to Jamaica.

The rest of the names in Table 4.8 are from already familiar localities. Huelva remained Spain's window on the outside world (at least as far as Burrell & Son was concerned), with copper pyrites remaining the principal cargo, albeit destined for different recipients than in earlier years: in the 1880s Tennants & Co. received most of the pyrites for which we have detailed information. The other Spanish ports exported mostly agricultural products, with almonds, lemons, oranges and grapes being the most prominent.⁹⁸ Italy was the second most visited country in the Mediterranean, with Trieste and Venice being the most important ports. In the 1880s, Italian trade was totally confined to Europe (eighty-seven percent of exports and eighty-four percent of imports,

⁹⁷Deak carried 11,088 sacks of cotton seed meal in April 1887.

⁹⁸We have eight bills of entry for Spanish ports in the 1880s. Three are from Huelva, three from Valencia and one each from Malaga and Almeria. Fruits and vegetables comprised the entire cargo in all these cases, with the natural exception of Huelva from which the vessels carried mostly minerals.

with France and Great Britain being the most important partners). Unfortunately, we do not have any bills of entry from Italy for this period, with only one voyage of *Strathclyde* from 1871 offering us any information about what was carried by Burrell's ships. Venice offered beads, glass and hemp, while exports from Trieste included flour, wool, sponges and hemp. Sicily, which was also visited by the same vessel in the late summer of 1871, provided fruits and oil, both of which were common Mediterranean agricultural products. To a certain extent, these were also the products being exported from Italy in the 1880s, especially fruits and flour. Raw silk, accounting for thirty percent of Italian exports during this decade, did not appear in the bill of entry from 1871. The state of Italian industries and their relative backwardness during the last quarter of the nineteenth century dictated imports. Linen yarn, cotton cloth, finished silk, coffee, cereals, sugar and metallurgical and engineering products were the most important in terms of volume and value. It is likely that Burrell was active in the transport of some of these items.⁹⁹

Gibraltar, Malta and Port Said were ports that met a number of the needs for the shipping industry, including recruitment, coal and information (ports for orders).¹⁰⁰ Malta also presented some limited opportunities for cargoes. There are two bills of entry for cargoes from this Mediterranean island, one for a voyage in 1872 and another for 1890. The quantities involved are small as Malta was not the principal destination. In the first

⁹⁹Vera Zamagni, *The Economic History of Italy, 1860-1990* (Oxford: Clarendon Press, 1993), 118-123. See also Jon Cohen and Giovanni Federico, *The Growth of the Italian Economy, 1820-1960* (Cambridge: Cambridge University Press, 2001).

¹⁰⁰For the role of Malta as a coaling station see Carmel Vassallo, "Maltese Merchant Fleet," 19-36. Ports for orders have not been studied extensively, but for some discussion of their importance see Walter E. Minchinton, "Ports of Call in the Nineteenth Century," in *Les Grandes Escales* (3 vols., Brussels: Commission Internationale d'histoire Maritime, 1974), III, 10-19. The literature is surveyed in Alston Kennerley, "A Northwest European Shipping Communication and Servicing Hub: Falmouth for Orders, Repair and Supply, 1881-1935," *International Journal of Maritime History*, 22, 1 (2010), 111-138.

case, *Strathclyde* arrived from Calcutta, carrying a full cargo of various common items; while in Valetta, the master loaded a few bales of wool, some baskets with potatoes and two cases of "effects." In 1890, *Strathdon* was returning from Rangoon with a load of rice and picked up 526 empty casks in Malta. The quantities involved clearly identify these cargoes as an *ad hoc* opportunity to fill empty cargo space and in no way transform Malta into an important source of cargo for Burrell.

4.4 Intermediate Ports of Call: The Heyday

The 1890s was a period of considerable adjustment for Burrell & Son (see Table 4.9). Over the previous three decades the company had developed a network of voyages covering primarily the Mediterranean. In 1885 Burrell became involved in Caribbean trade and the company shifted its assets towards the Atlantic. This trend became more pronounced after 1890. For the first five years of the decade the Caribbean remained the main area of activity for Burrell, but in 1895 there was an unmistakable and sharp shift towards the North Atlantic.

Improvements to the fleet underwrote these changes. The tonnage owned by Burrell almost tripled, rising from 1,377,940 to 3,762,734 gross tons. This increase in carrying capacity and the wider adoption of the triple-expansion engine allowed the vessels to undertake longer voyages. At the same time, Burrell almost completely deserted the Mediterranean. From 1891 to 1895, the Caribbean was the primary destination (accounting for 41.7 percent of voyages). The Indian Ocean (with 16.7 percent) and China and Japan (with 13.1 percent) also attracted a fair amount of tonnage,

laying the foundations for the increased importance of Asia and the Pacific region for Burrell in the years to come.

Table 4.9
Top 25 Ports Served by Burrell Vessels, 1891-1900 (Tons)

Port	Tonnage	% of Total
New York	241385	6.4
Hamburg	215298	5.7
Yokohama	194100	5.2
Philadelphia	151564	4.0
Hiogo	140062	3.7
Baltimore	136730	3.6
Hong Kong	135543	3.6
Singapore	109088	2.9
Port Said	91245	2.4
Trinidad	88093	2.3
Antwerp	81550	2.2
Bombay	73471	2.0
Le Havre	71600	1.9
Norfolk	69422	1.8
Demerara	61449	1.6
Hakodate	60129	1.6
Dunkirk	55947	1.5
Calcutta	53008	1.4
Montréal	52980	1.4
Surabaya	51159	1.4
Nagasaki	47785	1.3
Shanghai	46562	1.2
Colombo	41428	1.1
Newport News	40511	1.1
Sydney, NS	39747	1.0

Note: Calls at UK and Irish ports excluded. The total tonnage of global entries for which I have crew agreements was 3,762,734.

Source: See Table 4.1.

The second half of the 1890s was again a period of significant change. For the second time in a decade Burrell reoriented its operations, this time towards the Atlantic and Gulf coasts of the United States. Almost two-thirds of voyages for which we have

information in this period had this region as its main destination.¹⁰¹ The Caribbean slipped to third place, behind the Indian Ocean, with 8.7 percent of voyages, almost equalling the North Sea and the Russian Empire that accounted for 5.8 percent.

The most important destination was New York with 241,385 gross tons. Since the early nineteenth century, New York played a prominent role in transatlantic trade as the centre of the so-called "cotton triangle."¹⁰² By the time Burrell started sending vessels there, New York's importance as a port for transshipping cotton was checked, but there was an abundance of other cargo of interest to tramp shipowners. New York was the terminus for a large network of railroad lines that carried goods from the interior and into the holds of cargo ships waiting at piers in Manhattan, Brooklyn and New Jersey.¹⁰³

The bills of entry reveal that cotton was not a prominent cargo for Burrell's ships. Instead, New York provided a broad assortment of cargoes, and the five bills of entry

¹⁰¹The exact percentage of voyages is 61.5 percent for the period 1895-1899.

¹⁰²For the cotton triangle, see Robert G. Albion, *The Rise of New York Port, 1815-1860* (New York: C. Scribner's Sons, 1939; reprint, Boston: Northeastern University Press, 1984), 95-121. For the early history of the cotton trade between the United States and Great Britain, see Ray Brighton, *Port of Portsmouth: Ships and the Cotton Trade, 1783-1823* (Portsmouth: P.E. Randall, 1986). For a general history of antebellum New York, see Michael B. Cohn, "New York's Early Nineteenth-Century Maritime History: A Review Essay," *International Journal of Maritime History*, 6, 1 (1994), 189-198. See also Richard C. McKay, *South Street: A Maritime History of New York* (New York: G. Putnam Sons, 1934; reprint, New York: Haskell House, 1971); and Jan Morris, *The Great Port: A Passage through New York* (New York: Harcourt, Brace and World, 1969; reprint, New York: Oxford University Press, 1985), though the latter is more sentimental in nature with only minimal historical analysis.

¹⁰³The railroads of the United States have been studied extensively. Some good sources on them are Alfred D. Chandler, Jr., *The Railroads: The Nation's First Big Business: Sources and Readings* (New York: Harcourt, Brace and World, 1965); James A. Ward, *Railroads and the Character of America, 1820-1887* (Knoxville: University of Tennessee Press, 1986); and Sarah H. Gordon, *Passage to Union: How the Railroads Transformed American Life, 1829-1929* (Chicago: Ivan R. Dee, 1996). For the connection between railroads and the port of New York, see Carl W. Condit, *The Port of New York* (Chicago: University of Chicago Press, 1980). It would be interesting to know whether Burrell developed a close working relationship with any particular railroad companies to ensure a steady supply of cargoes for its ships. In the absence of company papers, this question is not possible to answer. For a case of a shipping company, albeit a liner firm, that developed such a close relationship, see William Henry Flayhart III, *The American Line, 1871-1902* (New York: W.W. Norton and Co., 2000).

from that port offer fascinating insights into the social and economic world of Atlantic societies in the late nineteenth century. Burrell's steamships left New York loaded with hundreds of different items. Wheat, lumber, steel and other metallurgical products, manufactures (such as batteries, soap, clocks, radiators, car slates), food items (such as peas, lard, oatmeal, beans, canned salmon, ketchup, pickles, prunes, cocoa, condensed milk), construction material (such as roofing slates and iron pipes), hardwood, stationery and papers, tobacco, seal skins, chemicals, mineral oils, Florida water, spices, sugar, orchids and even compressed hair and medicines were all listed in the bills of entry.

Since New York did not produce any bulk goods in large quantities, it served as an entrepôt for the output of the entire continent. A similar function was performed by the other two principal ports on the Atlantic seaboard, Philadelphia and Baltimore.¹⁰⁴ The bills of entry for Burrell's steamships from these two ports list cargoes similar to those carried from New York and reveal a surprising reality.¹⁰⁵ Historians and maritime economists have generally considered that mixed cargoes were the prerogative of liners, with tramps focusing on bulk cargoes.¹⁰⁶ Yet tramp operators could use the so-called

¹⁰⁴Both these ports also benefitted from railway connections. On Philadelphia, see Patricia T. Davis, *End of the Line: Alexander J. Cassett and the Pennsylvania Railroad* (New York: Neale Watson Academic Publications, 1978). For Baltimore, see John F. Stoker, *History of the Baltimore and Ohio Railroad* (West Lafayette, IN: Purdue University Press, 1987).

¹⁰⁵North American ports have not been well served by historical research. There is no serious and updated study of New York, and Philadelphia and Baltimore are even less fortunate. One of the few ports whose operations have been seriously approached is Boston, a destination not frequented by Burrell. See the dated study *Boston Looks Seaward: The Story of the Port 1630-1940* (Boston: Bruce Humphries, 1941; reprint, New York: AMS Press, 1975), written under the auspices of the Federal Writers Project. See also Arthur L. Johnson, "Boston and the Maritimes: a Century of Steam Navigation" (Unpublished PhD thesis, University of Maine, 1971).

¹⁰⁶This generalization even extends to the most authoritative text on maritime economics. For a discussion of the different cargo preferences for liners and tramps that accepts this point, see Martin

“liner market” as a cushion in times of declining freight rates in the bulk market or when the volume of bulk cargoes declined due, for example, to droughts or other natural disasters. They could also charter their vessels to liner companies requiring additional tonnage at short notice. Both practices took advantage of the ease with which a tramp could operate as a cargo liner. We have no information on any charter parties for Burrell’s ships, but four of the five voyages for which we have bills of entry took place in late 1897 and in 1898. The steamers sailed only to either New York or Baltimore to load a mixed cargo, most likely suggesting that they were chartered.¹⁰⁷ In any case, what is important is Burrell’s demonstrated willingness to use its vessels to transport sundry, non-bulk items.

The second half of the nineteenth century was a period of considerable development for ports in the so-called “Hamburg-Le Havre range” along the coasts of France, the Low Countries and Germany. The increase in the volume of transatlantic trade resulted in an eleven-fold rise in the volume of goods handled by the ten most important continental ports in the coast between the Seine and the Elbe (from 3.9 million tons in 1850 to 44.6 million tons in 1914). Josef Konvitz noted that

port development in this region was a function in the competitive struggle of France, Belgium, the Netherlands and Germany for a larger share of the traffic between Europe and the United States and of the traffic to the Mediterranean and to other regions of the world. Ports also developed large facilities for barges and rail yards, so that competition to serve the continental hinterland was at least as intense as the drive to serve world shipping. It was by no means obvious that goods destined for or shipped from an inland city in Germany or France would pass through a German

Stopford, *Maritime Economics* (London: Allen and Unwin, 1988; 3rd ed., London: Routledge, 2009), 338-340.

¹⁰⁷The fifth voyage took place in July 1881. In this case, New York was the final port of call after six months in various Chinese and Japanese ports.

or French port when the cost of overland freight through a Dutch or Belgian port might be lower.¹⁰⁸

Hamburg, Antwerp, Le Havre and Dunkirk featured prominently in the list of ports visited by Burrell's ships in the 1890s. Hamburg, "Germany's Gateway to the World,"¹⁰⁹ was the most important European destination with 215,298 gross tons. For reasons that are not completely clear, Hamburg supplanted Glasgow as the primary port where Burrell's steamships began their voyages after 1895. We have already noted the presence of the port's adequate infrastructure and its central location in a wider trade network. Many of Burrell's steamers sailed directly from New York to Hamburg, most likely carrying mixed cargoes similar to those transported to London.

Antwerp benefited from an increase of Belgian industrial production which demanded imports of raw materials. But even more important was its proximity to the German industrial hinterland; many of the cargoes that entered Europe through Antwerp were in fact destined for transshipment via rail or water for Germany. As well, government support for the construction and modernization of infrastructure enabled the port to attract growing volumes of cargo, especially of grain, minerals, fuel and ore, in the late nineteenth century.¹¹⁰ Le Havre benefitted from the opening of the Suez Canal which

¹⁰⁸Josef W. Konvitz, "The Crises of Atlantic Port Cities, 1880 to 1920," *Comparative Studies in Society and History*, 36, 2 (1994), 303.

¹⁰⁹Broeze, "The Political Economy of a Port City," 2.

¹¹⁰There are a number of studies covering this port. Among them are two works by Karel Veraghtert, "The Growth of the Antwerp Port Traffic, 1850-1900," in Wolfram Fischer, R. Marvin McNinn and Jürgen Schneider (eds.), *The Emergence of a World Economy, 1500-1914* (Wiesbaden: F. Steiner, 1986), 125-136; and "The Expansion of the Port of Antwerp: Cooperation and Conflict between the City, the Government and the Chamber of Commerce (1850-1890)," in Leo M. Akveld and Jaap R. Bruijn (eds.), *Shipping Companies and Authorities in the 19th and 20th Centuries: Their Common Interest in the Development of Port Facilities* (Den Haag: Nederlandse Vereniging voor Zeegeschiedenis, 1989), 125-134. Antwerp's most important competitor was the port of Rotterdam; see Anne H. Flierman, "This Much Too

facilitated traffic between North European industrial and population centres and markets in the Indian and Pacific oceans that provided imports that were in demand. Le Havre occupied a prominent position in the import of Indian cotton, and by the turn of the twentieth century almost eighty-eight percent of entries to the port were tramps. Unlike Antwerp, which had access to Germany and beyond, Le Havre imported more limited goods for local and regional consumption, especially large volumes of English (and increasingly after 1900 American) coal, a voluminous cargo that accounted for between thirty-three and forty percent of the total quantity of goods unloaded there between 1870 and 1913.¹¹¹

East Asian ports (especially in Japan and China) accounted for almost twenty-one percent of Burrell's traffic by tonnage. Trade between Europe and Asia grew rapidly after 1870, aided by the opening of the Suez Canal and the development of steamship routes that connected the region with the West and facilitated local trade.¹¹² All the East Asian ports in Table 4.9 could be described as belonging to an extended trading network encompassing Japan, China, Singapore and other regional destinations. Burrell was in the middle of local links of communication and trade, its vessels connecting rising industrial and trading nations.

High Retribution: Municipal Harbour Fees and the Competitiveness of the Port of Rotterdam 1900-1940," in *ibid.*, 87-106. For a comparative study of Rotterdam and Antwerp, despite its emphasis on the postwar years, see Ferry de Goey (ed.), *Comparative Port History of Rotterdam and Antwerp, 1880-2000* (Amsterdam: Aksant, 2004).

¹¹¹ Andre Vigarie, *Les Grands Ports De Commerce De La Seine Au Rhin: Leur Evolution Devant L'Industrialisation Ses Arriere-Pays* (Paris: SABRI, 1964), 220-269.

¹¹² Kaoru Sugihara, "Patterns of Asia's Integration into the World Economy, 1880-1913," in Fischer, McInnis and Schneider (eds.), *Emergence of a World Economy*, 709-728.

Singapore and Hong Kong were the key ports in the region for Burrell. Their roles were quite similar; both served as regional trade entrepôts as well as providing coal and supplies for vessels. Singapore was an intermediate stop on Burrell's routes from Europe and the United States to China and Japan. It also facilitated trade between the Philippines, Burma, Thailand, Ceylon and India. Hong Kong was the focal point of Burrell's trade routes from Japan to China and from French Indochina to destinations further north in the China Sea. Both ports offered opportunities for recruiting crew members, and Burrell's masters were often able to fill vacancies in these ports.

Singapore, a free port in an age of *laissez-faire*, benefited greatly from the opening of the Suez Canal in 1869. Travelling time from London was reduced by half, allowing liners and tramp steamers to establish regular communications with the island. The locals took advantage of the new possibilities, turning Singapore first into a coaling and watering station with repair and unloading facilities and later into one of the most important entrepôts in the region.¹¹³ Singapore held a central position in intra-Asian trade, with India, Siam, and the Dutch East Indies becoming its most important trading partners. Between 1868 and 1913, Great Britain provided a declining percentage of the island's imports (never more than thirty percent), reaching a low of eleven percent in 1910. Nevertheless, British products had to pass through Singapore first to ensure a more expeditious transshipment to other regional destinations. Cottons, cotton yarn, woollens, manufactures of iron, copper and lead, arms and ammunitions, beer, coal, glass manufactures, linens, machinery, telegraph wires and apparatus, umbrellas and other

¹¹³Philippe Regnier, *Singapore: City State in South-East Asia* (London: Hurst, 1991), 18-19.

miscellaneous goods arrived first in Singapore where they were exchanged for South East Asian produce.¹¹⁴

While Singapore facilitated trade within a broad area, Hong Kong was the gateway to China for cargoes from around the world. According to general accounts of the port trade, imports included kerosene, oil, matches, rice, coal, dye, tin plate, lead and iron, while the main exports were beans, hides and skins, wool, vegetable oil, seeds, straw braid, hemp, tobacco and matting. Most of these commodities were bulky, and their shipment to Europe and beyond was facilitated by lower freight rates following the opening of the Suez Canal. In the twentieth century there were increased demands for cotton, railway equipment, textiles and electrical machinery.¹¹⁵ Japanese imports grew quickly after 1890, accounting for nearly nine percent of total imports in Hong Kong by 1913.¹¹⁶

Shanghai was Burrell's major destination in China. Total shipping rose from under five million tons in the 1870s and 1880s to over thirty million tons in the 1920s. Shanghai's position at the mouth of the Huangpu River offered easy access to the hinterland and facilitated the role of the port as a leading entrepôt for trade, in particular coal from Japan, to support the growing industries of China. The quality of local coal was poor, necessitating large import from abroad.¹¹⁷ Shanghai attracted foreign shipping with

¹¹⁴A.J.H. Latham, "The Dynamics of Intra-Asian Trade, 1868-1913: The Great Entrepôts of Singapore and Hong Kong," in A.J.H. Latham and Heita Kawakatsu (eds.), *Japanese Industrialization and the Asian Economy* (London: Routledge, 1994), 145-193.

¹¹⁵T.N. Chiu, *The Port of Hong Kong: A Survey of Its Development* (Hong Kong: Hong Kong University Press, 1973), 31-35.

¹¹⁶*Ibid.*, 158-163.

extensive services such as ship repairs and construction, insurance, banking and pilotage. Situated close to the shipping routes between the west coast of North America, Japan, China and South East Asia, and roughly equidistant in time and distance between North America and Europe, Shanghai was ideally suited to function as a port where crews could rest, vessels could be repaired and supplies could be replenished.¹¹⁸

Although we do not have any bills of entry for Burrell vessels from Hong Kong, Singapore and Shanghai in the 1890s, we do have one from the 1870s. On 3 November 1878 *Strathleven* returned from a two-month voyage to China. She had left London in May 1878; after stopping in Singapore, the ship proceeded to Hong Kong and Shanghai. The main cargo, loaded in Shanghai (where the vessel remained for twenty-four days), comprised large quantities of tea, straw braid, soy, feathers, waste silk, shells, skins and various other packages. On the way back, she picked up cargoes in Foochow (where she remained for thirteen days loading more tea and other merchandize), Canton (tea and small quantities of preserves), Hong Kong (tea) and Singapore (where she loaded thirty-eight tons of tin), before returning to London.

¹¹⁷There were a total of eleven voyages during which a Burrell steamship visited Shanghai in the 1890s; in all of these cases, the vessels involved had crossed the Pacific and traded in Japan before proceeding to Shanghai. It is not known what cargoes they were carrying on these legs of their passages, but given the need for coal in Shanghai, it seems reasonable to assume that at least part of the cargo carried was of this nature.

¹¹⁸On the port of Shanghai, see R.Y. Eng, "The Transformation of a Semi-colonial Port City: Shanghai, 1843-1941," in Frank Broeze (ed.), *Brides of the Sea: Port Cities of Asia from the 16th-20th Centuries* (Honolulu: University of Hawaii Press, 1989), 129-151. For Sino-Japanese trade, see Kaoru Sugihara (ed.), *Japan, China and the Growth of the Asian International Economy* (Oxford: Oxford University Press, 2005).

Japan (which is represented by Yokohama, Hiogo, Nagasaki and Hakodate in Table 4.9) was experiencing rapid industrialization under the Meiji dynasty.¹¹⁹ The modern sector of the economy was the government's greatest concern, with arsenals and shipyards expanding rapidly to support the military. Telegraph lines, railroads, coal and copper mines, factories for textiles, cement, glass, tools and other products were built across the islands. During the 1880s and 1890s the great industrial combines known as *zaibatsu* appeared, and private entrepreneurs took advantage of generous government support to develop their businesses. Although much Japanese government policy was designed to attract investment in liner shipping, the tramp sector also benefitted from official assistance and a favourable legal framework. Japan eventually became a maritime power, building a global network of shipping lines offering their services to the international market.¹²⁰ But in the early 1890s foreign competition was still formidable, and the need for raw materials ensured that Burrell's steamships could find profitable cargoes in Japanese ports.¹²¹

There is a peculiarity about some of Burrell's steamship activities in this region. The same vessel would repeat visits to a given port over periods of months. The ships

¹¹⁹For a general history of Japanese industrialization, see Ian Inkster, *Japanese Industrialization: Historical and Cultural Perspectives* (London: Routledge, 2001); Kozo Yamamura (ed.), *The Economic Emergence of Modern Japan* (Cambridge: Cambridge University Press, 1997); and A.J.H. Latham and Heita Kawakatsu (eds.), *Japanese Industrialization and the Asian Economy* (London: Routledge, 1994).

¹²⁰The best source on the maritime history of Japan is Tomohei Chida and Peter N. Davies, *The Japanese Shipping and Shipbuilding Industries: A History of Their Modern Growth* (London: Athlone Press, 1990). See also Keiichiro Nakagawa, "Japanese Shipping in the Nineteenth and Twentieth Centuries: Strategy and Organization," in Tsunehiko Yui and Keiichiro Nakagawa (eds.), *Business History of Shipping: Strategy and Structure* (Tokyo: University of Tokyo Press, 1985). For the development of *zaibatsu* within the maritime framework, see William D. Wray, *Mitsubishi and the N.Y.K., 1870-1914: Business Strategy in the Japanese Shipping Industry* (Cambridge, MA: Harvard University Press, 1984).

¹²¹Unfortunately we do not have any bills of entry covering voyages from Japan.

departed for unknown destinations, only to return to their point of origin (normally Nagasaki or Yokohama or Hiogo) after an absence of a few days. Given that these were tramp ships with limited accommodations, it is unlikely that they were carrying passengers, so the most logical hypothesis would be that they were engaged either in the Japanese coastal trade or in short-sea voyages, most likely to ports in southern Korea.¹²²

Bulk goods provided the cargoes from other destinations in South East Asia. Two vessels from Java carried sugar, loaded in numerous ports on the island's north shore. Steamships from Rangoon, Bassein and Saigon carried rice. Rice was a key commodity in intra-Asian trade and was exported from regions of abundant production (like Burma, Siam, and Indo-china) to rice-deficient areas in Java, Sumatra, Borneo, the Philippines and Hong Kong. Singapore acted as an important redistribution centre. Trade in rice expanded rapidly during the second half of the nineteenth century.¹²³ Burrell does not appear to have participated in the local rice-trade networks, however, since the steamships carrying rice picked up this cargo immediately before returning to Europe.

Caribbean trade remained important for Burrell until 1895, with most ships heading to Trinidad and Demerara. Southern United States ports did not attract large volumes of Burrell's tonnage, but they have left some information about the available

¹²²For the port of Yokohama, see Peter N. Davies, "Aspinall, Cornes and Company and the Early Development of the Port of Yokohama," in Lewis R. Fischer and Adrian Jarvis (eds.), *Harbours and Havens: Essays in Port History in Honour of Gordon Jackson* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 16, 1999), 139-158.

¹²³A.J.H. Latham has argued that rice was very important in facilitating the industrial growth of the region in the nineteenth century. See Latham, "Dynamics of Intra-Asian Trade," 146. See also A.J.H. Latham, "The International Trade in Rice and Wheat Since 1868: A Study in Market Integration," in Fischer, McInnis and Schneider (eds.), *Emergence of a World Economy*, 645-663; and Latham and Larry Neal, "The International Market in Rice and Wheat, 1868-1914," *Economic History Review*, 38, 2 (1983), 260-280.

cargoes. As was the case in the 1880s, Galveston and Savannah were loading ports for cotton and its by-products, such as cotton seed. Visits to these ports remained seasonal, peaking during the winter, while Trinidad and Demerara were frequented more evenly throughout the year. Burrell's commitment to annual sailings to the cotton ports of the United States continued into the twentieth century, with Savannah, Charleston, Norfolk and Galveston receiving the greatest number of visits. Cotton was always the main cargo.

Bombay and Calcutta, allowing access to the Indian subcontinent, received a respectable share of Burrell's shipping. According to an analysis of sailing-ship cargoes from the second part of the nineteenth century, jute and grain were the most important cargoes to be secured on the subcontinent in the 1890s.¹²⁴ We have one bill of entry for the voyage of *Strathdee* from Calcutta in 1890. The cargo included wheat and jute, plus the typical assortment of merchandise characteristic of Burrell's tramps returning from India. The local Greek merchant houses remained an important customer for Burrell, shipping saltpetre, shellac, buttonlac, rapeseed and the like.

During the same voyage, *Strathdee's* master loaded additional cargoes in Galle and Colombo. Galle was an important destination for Burrell's vessels in the 1870s and 1880s, but after 1889 Galle was abandoned in favour of Colombo. In the middle of the nineteenth century, Galle served shipping as a port for fuel, water and provisions. In the 1850s it acquired a flourishing coal trade to serve ships sailing between Suez and Australia, between Aden and Calcutta, and between Bombay and China. An average of 50,000 tons of coal had to be imported annually from Cardiff to satisfy the demand. When the opening of the Suez Canal brought larger steamers to the Indian Ocean, Galle

¹²⁴Fischer and Panting, "Indian Ports," 378-379.

was unable to provide adequate anchorage. Colombo, being an open roadstead, became the principal port of call, soon ranking as the greatest port in Asia for the expeditious dispatch of vessels and becoming a transshipment point for goods and passengers.¹²⁵ Both destinations provided an assortment of goods, with tea, fibres and various spices occupying most cargo space.

Table 4.10
Top 25 Ports Served by Burrell Vessels, 1906-1929 (Tons)

Port	Tonnage	% of Total
Newcastle NSW	231386	6.4
Calcutta	162427	4.5
San Francisco	144720	4.0
Bombay	105184	2.9
New York	100911	2.8
Antwerp	100662	2.8
Nanaimo	83273	2.3
Sydney	82870	2.3
Shimonoseki	78939	2.2
Astoria	78783	2.2
Coronel	70159	1.9
Portland	69945	1.9
Melbourne	65676	1.8
Baltimore	65617	1.8
Tacoma	65526	1.8
Karachi	57266	1.6
Rio Janeiro	56980	1.6
Natal, Brazil	56848	1.6
Buenos Aires	52477	1.5
Hamburg	43840	1.2
Iquique	43820	1.2
Valparaiso	43731	1.2
Rotterdam	39518	1.1
Singapore	39394	1.1
Colombo	39280	1.1

Note: Calls at UK and Irish ports excluded. The total tonnage of global entries for which I have crew agreements was 3,620,534.

Source: See Table 4.1.

¹²⁵For a more detailed history of Colombo, see K. Dharmasena, "Colombo: Gateway and Oceanic Hub of Shipping," in Broeze (ed.), *Brides of the Sea*, 152-172; Dharmasena, "The Decline of Galle and the Rise of Colombo in the Nineteenth Century," *International Journal of Maritime History*, 5, 1 (1993), 179-192; and Dharmasena, *The Port of Colombo*, Vol. 2 (Tokyo: Japan Overseas Ports Cooperation Association, 1998).

After a short hiatus between 1900 and 1905, Burrell re-emerged as a shipping enterprise with a renewed emphasis on North and South America and the Pacific in the period between 1906 and 1929. More than half of the voyages were destined for the Atlantic coast of North America, while twenty-three percent headed to the Pacific coast of the Americas, visiting a string of ports from Chile to Puget Sound. India and South Africa each accounted for seven percent of voyages. The emergence of the Pacific as a region of importance for Burrell & Son is confirmed by the prominence of regional ports among the top destinations for the company's ships (Table 4.10).

Newcastle in New South Wales was the most important port in the 1900s with 231,386 gross tons. Newcastle was in the middle of a major coal-producing region, and it is difficult to imagine any other reason for Burrell's vessels to visit the area. The trade was due to the limited supplies of energy sources on the Pacific coast of the United States and the cheap freights provided by British shipowners. Ships usually arrived in Australia carrying manufactures or in ballast, loading coal for the United States and then returning to Europe carrying grain from Puget Sound or nitrates from Chile.¹²⁶ Two bills of entry from Seattle and Portland confirm this cargo pattern for Burrell's ships. The vessels visited Newcastle and other Australian ports before proceeding to the Pacific Northwest and then back to Europe with grain.

The movement of Burrell's vessels in Australian waters in the years before the First World War was characterized by multiple port visits along the south and east coasts of the continent. The average stay in port was 6.8 days, but there were significant

¹²⁶L.E. Fredman, "Coals from Newcastle: Aspects of the Trade with California," *Australian Journal of Politics and History*, 29, 3 (1983), 443-446.

fluctuations: Bunbury had an average stay of 4.2 days, Sydney 12.6 and Melbourne 15.1.¹²⁷ One steamship remained in Cairns for twenty-two days. This could reflect some difficulty in securing full cargoes at any single destination or it might be evidence of Burrell's involvement in local trade. Very seldom did the company's steamships return to Europe immediately after leaving Australia, more often than not proceeding to other Asian or American destinations. The only cargo information we have is one voyage to Sydney and Melbourne in 1893. Unlike the groundbreaking voyage of *Strathleven* in 1880, this time *Strathdee* returned with wool and sheepskins, most of the cargo originating in Melbourne.

Puget Sound was at the core of Burrell's Pacific trading activities. Steamships departing from ports in the Pacific Northwest proceeded to Australia and the Pacific coast of South America (sixty-four percent of all destinations) or Europe (including the United Kingdom). Lumber was the most important commodity being exported from the area, but it does not appear in the few bills of entry we have for Burrell's ships. *Strathnairn* and *Strathendrick* carried about 102,000 bags of wheat each from Seattle and Portland to Hull in 1908.

The absence of lumber from the available bills of entry does not mean Burrell was not interested in this product. The frequent visits to China and Japan after the vessel had stopped in Puget Sound can be justified only by Burrell's involvement in the carriage of wood products, since Asian markets did not require large quantities of wheat. Lumber, on the other hand, was in extremely high demand. The surge in this trade occurred in two

¹²⁷For a history of the port of Sydney, see Peter R. Proudfoot, "Sydney and Its Two Seaports," *International Journal of Maritime History*, 1, 2 (1989), 141-184.

periods, the first in the 1880s and the second between 1899 and 1910. Since the turn of the century, millions of feet of lumber left the Pacific coasts of Canada and the United States for China, a country lacking domestic sources and requiring timber for roofing, bridge building and urban construction. Japan was also suffering from the depletion of its native sources and required large quantities of Douglas fir lumber to construct railroad coaches, a reflection of the country's rapid industrialization. From 1899 large shipments were also sent to Buenos Aires for ships loading cattle, while other ports in the Pacific coast of South America, such as Callao, Iquique and Valparaiso, also imported sizeable quantities of lumber. The great fire of 1906 in San Francisco, which destroyed seventy million feet of timber, proved a blessing for lumber producers and shippers alike, providing employment for thousands of tons of shipping in the reconstruction effort.¹²⁸

It is quite possible that Burrell was active in the lumber trade, ensuring outward cargoes for crossing the Pacific towards Asian markets. There were six direct crossings from the lumber-producing Pacific Northwest to China and Japan from 1894 and again after 1906. For example, *Strathnevis* sailed from Tacoma to Japan in August 1894, while *Strathclyde* crossed from Seattle to China in December 1906. More frequent sailings

¹²⁸For a more detailed analysis of different areas and how they shaped the export trade of the Puget Sound lumber industry, see Edwin T. Coman, and Helen M. Gibbs, *Time, Tide and Timber: A Century of Pope & Talbot* (Stanford: Stanford University Press, 1949; reprint, New York: Greenwood Press, 1968). See also G.R. Henning and Mary Henning, "Technological Change from Sail to Steam: Export Lumber Shipments from the Pacific Northwest, 1898-1913," *International Journal of Maritime History*, 2, 2 (1990), 133-145; and James H. Hitchman, "Measuring Pacific Coast Trade, 1900-1981," *International Journal of Maritime History*, 1, 2 (1989), 185-197. San Francisco was the third most frequented port by Burrell, but we have no information on the products the company was moving though the port. It was a regular port of call only on the outward leg of a voyage, when the steamship arrived to the Pacific from Europe or New York or South America. The average stay in the port was 14.2 days. The port of San Francisco is still waiting for a good scholarly study of its development and operations. A highly unsatisfactory study, based largely on visual evidence, is John Haskell Kemble, *San Francisco Bay: A Pictorial Maritime History* (Cambridge, MD: Cornell Maritime Press, 1957; reprint, New York: Bonanza Books, 1957).

might have been hindered by the nature of the loading process in Puget Sound. The cost of waiting in port for steamers was fifty percent higher than for sailing vessels, primarily because many mills were unable to stockpile sufficient lumber to load large cargoes in a short time or lacked adequate port facilities.¹²⁹ These problems could have convinced Burrell to abandon the carriage of lumber and to turn its attention to wheat.

Apart from lumber, coal was the mainstay of the local economy on Vancouver Island, supporting port development and the export trade. Traffic peaked in 1900, with 906,251 tons of coal being exported from Vancouver Island (out of a total production of 1,383,376 tons). The trade gave rise to a number of ports on the island, among which Nanaimo was the most prominent. The destination of this coal varied, with Australia, China, Japan, the Philippines, Chile, Argentina and Italy receiving cargoes before 1914.¹³⁰ Burrell sent 83,273 gross tons of shipping to Nanaimo, probably to load coal.

Karachi, a new port for Burrell's ships, occupies a prominent position in Table 4.10 with 57,266 gross tons. The Suez Canal improved the standing of this port as a destination for steamships from Europe, bringing it much nearer to the important markets of the continent. The earliest arrival of a Burrell steamship in the area was 1889, but it was only after 1896 that there was any regularity of these visits. Karachi exported cotton, oil seeds, wool, hides, skins, bones and, most important, wheat. After 1880, wheat

¹²⁹Henning and Henning "Technological Change," 140. See also C. Knick Harley, "The Shift from Sailing Ships to Steamships, 1850-1890: A Study in Technological Change and its Diffusion," in Donald N. McCloskey (ed.), *Essays on a Mature Economy: Britain after 1840* (Princeton: Princeton University Press, 1971), 215-237.

¹³⁰For the Western Canadian ports, see R. Gordon Hutchison (ed.), *Western Canadian Ports: Their Origins, Present Problems and Future* (Vancouver: University of British Columbia Press, 1978). For Nanaimo, see W.E. Ireland, "Background to the Development of Western Ports," in Hutchinson (ed.), *Western Canadian Ports*, 1-20.

became the main export commodity, and by the end of the century the region was the biggest wheat exporter in Asia. We have three bills of entry from Karachi, all dating from the 1890s, but we have no reason to believe that Burrell's cargoes were any different in the twentieth century. Wheat was the main cargo, with wool, linseed and bone meal supplementing it. Imports (providing Burrell did carry cargoes on the way from Great Britain) must have been based on the local needs for manufactured goods, from railway materials to patent pills, and cotton goods from the United Kingdom.¹³¹

The only European ports to appear in Table 4.10 are Antwerp and Rotterdam. Both ports functioned as gateways, providing access to the Rhine hinterland, one of the most industrialized areas in Europe and the recipient and provider of large amounts of cargo. Rotterdam depended on bulk goods and attempted to provide space and low fees to attract tramp shipowners. Tramps did not depend on a particular port in the same way as liner companies, and their choice was often dictated by cost. Low port charges made tramp companies more competitive, allowing them to charge lower freight rates. In 1910, the Rotterdam Chamber of Commerce noted that its port was not expensive for bulk goods, the only fees charged being harbour dues (based on ship size), wharf and crane fees and pilotage. Along with Antwerp, Rotterdam appears to have supplanted Hamburg, opening the markets of Central Europe for merchants and shippers while ensuring low costs for shipowners. Burrell must have found the combination very attractive, sending numerous ships to the Dutch port after 1906.¹³²

¹³¹Indu Banga, "Karachi and its Hinterland under Colonial Rule," in Banga (ed.), *Ports and Their Hinterlands in India (1700-1950)* (New Delhi: Manohar Publications, 1992), 337-358.

¹³²Flierman, "Much Too High Retribution," 88-91.

The lack of company archives impedes the effort to explain Burrell's choice of destinations. While the bills of entry allow us a glimpse into the sort of cargoes carried, they cover only specific ports for particular dates, preventing us from doing a detailed quantitative analysis. It is possible nonetheless to attempt to estimate whether the firm might have been facing adverse trading conditions in broad areas in which it was active through the use of freight rate indices.

The effort to construct historical freight rate indices for the most important national and international routes has a long history. There is no point here in entering into the often arcane methodological debate about the relative merits and deficiencies of each of these indices except to observe that each one offers opportunities and presents problems to understand shipping decisions. By drawing information from a variety of sources, however, we can try to recreate a picture of trading conditions in the major areas of interest for Burrell and get a sense of whether the shipowner might have been experiencing difficulties in securing profitable cargoes.

Two freight rate indices have attracted the most attention from historians. The best-known one was constructed by Leon Isserlis in the late 1930s. It identified freight rates for more than three hundred homeward and outward shipping routes for the period 1869-1936 and used these to construct an overall index of tramp freights. What we are interested in here, however, are the indices for the more specific routes. In the context of the present research there are two main problems with Isserlis' index. The first is the incomplete nature of his time series. Despite the large number of shipping routes, the coverage is fragmentary and erratic reflecting the gaps in the source from which he

constructed his index.¹³³ In many cases Isserlis has provided freight data for only a few years (sometimes for only a single year), thus limiting the possibility of a meaningful comparison or the delineation of long-term trends. Crucial trades such as the Mediterranean fruit trade or the West Indian sugar trade are either missing altogether or are lacking for the years when Burrell was most active.¹³⁴ The second problem is that the sub-indices are chain indices that represent comparisons between two consecutive years for specific routes. This means that the sub-indices are not really comparable. To put it another way, while the Isserlis data is useful for certain purposes, we cannot use it to determine whether a freight rate on one trade route was higher or lower than on another. This problem is illustrated in Table 4.11.

Table 4.11
Isserlis Index for Ore from Mediterranean Ore Ports to the United States, 1885-1896
(1869=100)

1885	99	1891	106
1886	108	1892	69
1887	139	1893	103
1888	119	1894	112
1889	83	1895	101
1890	84	1896	101

Source: L. Isserlis, "Tramp Shipping Cargoes, and Freights," *Journal of the Royal Statistical Society*, 101 (1938), 110.

What Table 4.11 tells us is that in 1885, freight rates for ore from the Mediterranean to the United States were ninety-nine percent of the average level in 1884.

¹³³L. Isserlis, "Tramp Shipping Cargoes, and Freights," *Journal of the Royal Statistical Society*, 101 (1938), 53-146. Isserlis constructed his index based on data from E.A.V. Angier, *Fifty Years' Freights, 1869-1919* (London: Fairplay, 1920).

¹³⁴There was no Mediterranean-United Kingdom fruit traffic, while the West Indies-United Kingdom sugar trade only covered the years 1869-1872, long before Burrell got involved in the area.

In 1886, however, rates on average were eight percent higher than in 1885; in 1887, they were thirty-one percent higher than in 1886; and so on. We can therefore delineate a trend, but without going back to the original source we cannot compare these rates to those obtained on alternate routes.¹³⁵

Fortunately, Saif Mohammed and Jeffrey Williamson tried to address some of the defects of Isserlis' index when they published their own freight rates for a number of important routes.¹³⁶ Their index covers both Atlantic and non-Atlantic routes for the period 1869-1950, thus including most of the period Burrell was involved in shipping. The clear advantage of their time series over Isserlis is its completeness; the fragmentation characteristic of Isserlis' data is absent here. The main disadvantage is the restricted number of routes provided and their more general nature. Where Isserlis identified individual ports, Mohammed and Williamson used Angier's data (supplemented by published indices created by Stemmer and Harley) to construct their freight rate indices for entire regions. This means that trends in specific ports within these general areas cannot be identified with any kind of precision.¹³⁷

¹³⁵There are other problems with the Isserlis index as well, including his decision to calculate his index based upon an average of the highest and lowest rates for each year. For the most cogent criticism of Isserlis' methodology, see Jan Tore Kløvland, "The Construction of Ocean Freight Rate Indices for the Mid-Nineteenth Century," *International Journal of Maritime History*, 20, 2 (2008), 1-26.

¹³⁶Saif I. Shah Mohammed and Jeffrey G. Williamson, "Freight Rates and Productivity Gains in British Tramp Shipping, 1869-1950," *Explorations in Economic History*, 41, 2 (2004), 172-203.

¹³⁷There are other studies of freight rates, each with their own problems and advantages. Douglass North has constructed a number of series, the most relevant of which are based on freight rates of wheat for the period 1814-1913 from various regions around the world. See Douglass C. North, "Ocean Freight Rates and Economic Development 1750-1913," *Journal of Economic History*, 18, 4 (1958), 537-555. For other indices, see Lewis R. Fischer and Helge W. Nordvik, "Maritime Transport and the Integration of the North Atlantic Economy, 1850-1914," in Fischer, McInnis and Schneider (eds.), *Emergence of a World Economy*, 519-544; C. Knick Harley, "Ocean Freight Rates and Productivity, 1740-1913: The Primacy of Mechanical Invention Reaffirmed," *Journal of Economic History*, 48, 4 (1988), 851-876; John Armstrong, "Late

The available data contained in these indices, as well as E.A.V. Angier's raw freight rates upon which both of them are based, show that the Iberian ore trade was buoyant during the period 1865-1885 when Burrell's ships were involved in the carriage of copper from Spain and Portugal. Although the Mohammed/Williamson index only provides freight rates for about half of this period, and even then only for "Western Mediterranean ore," there is an internal consistency in the data. Freight rates were consistently above the base year (1884) for every year in the period for which they provide data, ranging from a low of thirteen percent in 1879 to a high of 244 percent above the base in 1873, although the long-term trend was slightly downward, with rates falling below the base in 1885. Unfortunately, the quotations they provide are only for ore carried to miscellaneous, unnamed ports, but there is no reason to believe that the trends in rates to ports in the United Kingdom, where Burrell's vessels took ore from the Iberian Peninsula, were much different (although the nominal freight rates could certainly have diverged from their numbers). It is attractive to assume from the available data that Burrell moved away from the Mediterranean because it foresaw this decline but for two troublesome points. First, when the company abandoned this trade it diverted many of its shipping assets to the West Indies, where rates were consistently depressed for the entire

Nineteenth-Century Freight Rates Revisited: Some Evidence from the British Coastal Coal Trade," *International Journal of Maritime History*, 6, 2 (1994), 45-81, reprinted in John Armstrong, *The Vital Spark: The British Coastal Trade, 1700-1930* (St. John's: International Maritime Economic History Association, 2009), 149-169; Alexander K. Cairncross, *Home and Foreign Investment, 1870-1913: Studies in Capital Accumulation* (Cambridge: Cambridge University Press, 1953; reprint, Aldershot: Gregg Revivals, 1992); Yrjö Kaukiainen, "Journey Costs, Terminal Costs and Ocean Tramp Rates: How the Price of Distance Declined from the 1870s to 2000," *International Journal of Maritime History*, 18, 2 (2006), 17-64; and David Hummels, "Transportation Costs and International Trade in the Second Era of Globalization," *Journal of Economic Perspectives*, 21, 3 (2007), 131-154. The most promising recent work on freight rates has been carried out by Jan Tore Klovland of the Norwegian School of Economics. See Klovland, "Construction of Ocean Freight Rate Indices," and Klovland, "New Evidence on the Causes of the Fluctuations in Ocean Freight Rates in the 1850s," *Explorations in Economic History*, 46, 2 (2009), 266-284.

duration of Burrell's involvement in the region (with the exception of 1889, when the rate was slightly above the base year). Second, rates from the Mediterranean ore ports improved almost immediately after Burrell departed; although the rates for 1885 and 1886 were below the base, except for 1908 every year was above the base from then through 1950. Isserlis does not provide immediately comparable data. His ore freight rates also refer to cargoes bound for the United States, and his time series only begins in 1884 and ends in 1896. Within these years the rates fluctuated, with a series of good years interrupted by brief dismal periods. The West Indies, on the other hand, are almost totally absent from the Isserlis index, with data for only three years in the early 1870s.¹³⁸

The Indian trades offered good prospects for British shipowners, and we have no reason to believe Burrell was any different. Almost all the bills of entry for Burrell's ships entering the United Kingdom from the subcontinent are from the 1870s. The Mohammed/Williamson index for shipping from India was based largely upon the shipment of grain and light goods from Bengal. Although these cargo descriptions are somewhat vague, they do not appear to have been dissimilar to what we know Burrell's steamships carried. For most of the period 1869-1881, their index for "Bengal - Grain and Similar" was significantly higher than the base - in some cases, almost three times as high. The Mohammed/Williamson index for "Bengal - Lighter Goods" performs more-or-less in the same fashion, and there is a strong correlation (+ .85) between the two.

¹³⁸It is unfortunate that the Mediterranean fruit trade was neglected by Isserlis. He did, however, provide some rates for destinations in the United States after 1885, revealing similar fluctuations as with the ore ports. Some good years were followed by long periods of lower than base rates. By that time Burrell was not involved in the fruit trade, so these results carry minimal importance for the understanding of the firm's operations. On the West Indies, see the largely unsuccessful attempt at determining freight rates in Lewis R. Fischer and Gerald E. Panting, "Island-Hopping: The Voyages of Canadian Deep-Sea Trading Vessels to the West Indies, 1863-1890," *Journal of Caribbean History*, 21, 1 (1987), 19-42.

Burrell appears to have found these conditions conducive for a profitable employment of its vessels. The average port stay in Bombay and Calcutta during the 1870s was the lowest of all periods, being 15.5 days per visit. The following decade the average rose to 18.5 and in the 1890s reached 19.3 days. Barring a significant change in the cargoes carried (possible but improbable since the only bill of entry from 1890 identifies cargoes also carried in voyages that took place in earlier years), it seems reasonable that Burrell was able to secure good cargoes without much difficulty in these booming conditions. When things changed, with significant declines in the freight rates in Mohammed/Williamson's two indices, average port times rose, perhaps reflecting difficulties in finding cargoes.¹³⁹

Isserlis provides additional information for particular ports and cargoes. Cotton from Bombay; jute, linseed and light freight from Calcutta; and general cargo from Karachi are the routes for which we have the most data. The various Isserlis indices for all these commodities are broadly similar, albeit with the caveat that for several the time series are not continuous. The index for "Bombay to UK - Cotton," for example, suggests a pattern of alternating short-term peaks and troughs, although it is noticeable that the index frequently appears counter-cyclical when compared with Isserlis' composite index. The fact that Indian freights behaved this way provides a rationale for Burrell's

¹³⁹The "Bengal - Grain and Similar" index plummeted by forty-seven percent between 1881 and the trough in 1886, while the "Bengal - Lighter Goods" index fell by a whopping sixty-two percent between the peak in 1880 and the trough in 1886. We can not exclude the possibility that this increase in average port times could be due to other factors, such as congestion in Bombay and Calcutta, especially in the rivers Hooghly and Ulhas, respectively. See the discussion in Lewis R. Fischer and Gerald E. Panting, "Indian Ports and British Intercontinental Sailing Ships: The Subcontinent as an Alternative Source of Cargo, 1870-1900," in K.S. Mathew (ed.), *Mariners, Merchants and Oceans: Studies in Maritime History* (New Delhi: Manohar, 1995), 371-383. More research is required before we can be certain about the influence of such factors on the noticeable delays in these ports after 1880.

persistence in maintaining a presence in the Indian Ocean. The only period during which Burrell was absent from the area was 1880-1884 when only one steamship visited Bombay. Significantly, these years marked a steep trough in freight rates for cotton from Bombay (and also jute from Calcutta, another cargo that the Burrell ships often carried).

According to the Mohammed/Williamson index, conditions in the South East Asian grain and sugar trades were different than those in India, with a significant decline in freight rates after 1886. Indeed, in no year between 1886 and 1914 did the Mohammed/Williamson index for these commodities reach the level of the base year. With the outbreak of the First World War, freight rates soared, only to fall again at the end of hostilities. This is an area where Burrell maintained an interest until the very end of its shipping operations, sending its only remaining steamship to Indonesia and Burma almost every year in the 1920s. The surviving bills of entry identify sugar and rice as the principal cargoes, and the low freight rates reported by Mohammed and Williamson must undoubtedly have created some problems.¹⁴⁰ This raises the obvious question of why the company continued to send its vessels to the region. The answer is that increasingly Burrell treated South East Asian ports as part of an extremely complex tramping operation. This emerging complexity is highlighted in Table 4.12, which depicts a voyage of the 2436-ton steamer *Strathleven* between April 1889 and November 1890. The important point is the way that calls in South East Asian ports were integrated into a

¹⁴⁰Isserlis' index, on the other hand, does not correlate particularly well with Mohammed and Williamson's data. His index includes rates on passages from Java to the United Kingdom with sugar and from Burma to Great Britain with rice. According to his index, the late 1880s and early 1890s were fairly good years, especially for sugar from Java; the rates never fell to the extent reported by Mohammed and Williamson. Both indices agree, however, that rates were high during World War I but that the end of the conflict was marked by a glut, with rates dropping more precipitously in Isserlis' index than in Mohammed and Williamson's. Before then, the South East Asian sugar and rice trades were generally as buoyant as elsewhere, with very good years alternating with poor ones.

much broader pattern of tramp operations that included ports of call in a variety of East Asian ports. The complexity of *Strathleven's* voyage was fairly common for the company's vessels in the early 1890s and explains why, despite the relatively depressed freight rates, Burrell was able to continue to send its vessels on numerous voyages to South East Asia. Declining freight rates in the middle of the decade, however, go a long way toward explaining the decision to abandon the region after 1895.

Table 4.12
Voyage of the Steamship *Strathleven*, 1889-1890

Date of Departure	Departure Port	Date of Arrival	Arrival Port
22 October 1889	Glasgow	2 December 1889	Singapore
4 December 1889	Singapore	11 December 1889	Iloilo(Philippines)
14 December 1889	Iloilo	18 December 1889	Manila
3 January 1890	Manila	11 January 1890	Nagasaki
15 January 1890	Nagasaki	20 January 1890	Yokohama
24 January 1890	Yokohama	27 January 1890	Hiogo
27 January 1890	Hiogo	30 January 1890	Nagasaki
1 February 1890	Nagasaki	11 February 1890	Saigon
26 February 1890	Saigon	6 March 1890	Hong Kong
25 April 1890	Hong Kong	29 April 1890	Saigon
8 May 1890	Saigon	17 May 1890	Hong Kong
14 June 1890	Hong Kong	24 June 1890	Yokohama
28 June 1890	Yokohama	30 June 1890	Hiogo
4 July 1890	Hiogo	10 July 1890	Shanghai
15 July 1890	Shanghai	21 July 1890	Amoy (China)
22 July 1890	Amoy	31 July 1890	Singapore
31 July 1890	Singapore	19 September 1890	New York
30 September 1890	New York	4 October 1890	Norfolk VA
12 October 1890	Norfolk	20 November 1890	Liverpool
20 November 1890	Liverpool	22 November 1890	Greenock

Notes: It is quite likely that the vessel visited several other intermediate ports during this voyage. Although for the most part there is no information in the crew agreement to substantiate this conclusion, there is a note attached to the crew list from the Marine Superintendent in Glasgow questioning the captain about the lack of endorsements for several additional calls in Saigon and one in Gibraltar.

Source: See Table 4.1.

Table 4.13
Voyage of the Steamship *Strahtay*, 1909-1911

Date of Departure	Departure Port	Date of Arrival	Arrival Port
15 April 1909	Cardiff	11 June 1909	Port Louis, Mauritius
1 July 1909	Port Louis, Mauritius	1 July 1909	Surabaya
24 July 1909	Surabaya	28 September 1909	Boston
9 October 1909	Boston	12 October 1909	Newport News (Virginia)
18 October 1909	Newport News	11 January 1910	Manila
21 January 1909	Manila	31 January 1909	Shimonoseki
10 February 1910	Shimonoseki	11 March 1910	San Francisco
31 March 1910	San Francisco	6 April 1910	Union Bay (BC)
11 April 1910	Union Bay (BC)	11 April 1910	Tacoma
12 April 1910	Tacoma	23 April 1910	Guayama
30 April 1910	Guayama	9 May 1910	San Francisco
18 May 1910	San Francisco	28 May 1910	Astoria
14 June 1910	Astoria	17 June 1910	Union Bay (BC)
18 June 1910	Union Bay (BC)	22 July 1910	Newcastle, NSW
22 July 1910	Newcastle	23 July 1910	Sydney
27 July 1910	Sydney	9 August 1910	Fremantle
10 August 1910	Fremantle	9 September 1910	Newcastle, NSW
19 September 1910	Newcastle	29 October 1910	San Francisco
10 November 1910	San Francisco	16 November 1910	Union Bay (BC)
18 November 1910	Union Bay (BC)	25 November 1910	Tacoma
28 November 1910	Tacoma	9 December 1910	San Francisco
9 December 1910	San Francisco	21 December 1910	San Jose, Guatemala
29 December 1910	San Jose, Guatemala	3 January 1911	Panama
17 January 1911	Panama	6 February 1911	Seattle
20 February 1911	Seattle	21 February 1911	Union Bay (BC)
23 February 1911	Union Bay (BC)	23 February 1911	Vancouver
25 February 1911	Vancouver	27 March 1911	Yokohama
27 March 1911	Yokohama		Kobe
31 March 1911	Kobe	2 April 1911	Shimonoseki
2 April 1911	Shimonoseki	6 April 1911	Shanghai
7 April 1911	Shanghai	13 April 1911	Hong Kong
19 April 1911	Hong Kong	24 April 1911	Iloilo
2 May 1911	Iloilo	5 May 1911	Manila
11 May 1911	Manila	27 May 1911	Colombo
27 May 1911	Colombo	25 June 1911	Algiers
25 June 1911	Algiers	13 July 1911	New York
26 July 1911	New York	30 July 1911	Jacksonville
2 August 1911	Jacksonville	3 August 1911	Savannah
5 August 1911	Savannah	24 August 1911	Rotterdam

Notes: See Table 4.12.

Source: See Table 4.1.

The decision to avoid South East Asia did not last, however, and in the first decade of the twentieth century Burrell's vessels were once again active in the region.

When the firm re-entered the area, it utilized an even more complex voyage pattern involving ports not only in South East, South and East Asia but also in the North and South America, the Caribbean, Australia and even Africa before returning to Europe. *Strathay's* two-and-a-half year voyage in 1909-1911 (Table 4.13) is fairly typical of this complex pattern, involving the transportation of a variety of cargoes (rice to Boston, wheat or timber across the Pacific etc.

The only non-Atlantic routes that were characterized by improved freight rates before the end of the nineteenth century according to the Mohammed/Williamson index were from the Baltic. While this was never a major region of operations for Burrell, it is noteworthy that the company increased its presence in the region in the 1890s. All of Burrell's vessels for which we have bills of entry carried wood and wood products, and we know from Mohammed and Williamson's index that the freight rates for deals from the Baltic were particularly buoyant right up to the end of the First World War. Indeed, in only five years (1892, 1894, 1897, 1904 and 1908) did rates fall below the level of the base year, and in three years (1888, 1900 and 1912) freight rates were more than fifty percent higher than in 1884. Isserlis has five sub-indices for Baltic wood products: Cronstadt-UK with deals; Riga-UK with sleepers; Riga-UK with deals; Bolderaa (Latvia)-UK with sleepers; and St. Petersburg-UK with deals. The only one of these ports that Burrell's vessels visited was Cronstadt, and Isserlis' index fits very well with the evidence from Mohammed and Williamson. In short, the data we have appears to justify Burrell's involvement in this region.¹⁴¹

¹⁴¹The levels of freight rates on goods from the Baltic are especially interesting because according to the Mohammed and Williamson index, they were the only non-Atlantic trades to enjoy higher than

Before Burrell disinvested from shipping at the end of the 1890s, the company was engaged in two main areas of trade within the Atlantic: the Eastern United States and the US Gulf coast. The firm was particularly active in both in the period 1895-1900, when North America attracted the majority of the company's steamships.

While we have a wealth of freight rates for trade from the Eastern US ports with which Burrell was involved – New York, Philadelphia and Baltimore – unfortunately we have none for the type of diversified trade in which Burrell was involved. Mohammed and Williamson have only two relevant indices (from Eastern North America with timber and grain). Isserlis, on the other hand, has thirteen sub-indices for trades emanating from New York, Philadelphia and Baltimore (and several others for ports further south on the Atlantic littoral of the United States). Unfortunately, all of these indices except for one developed by Isserlis are for specific cargoes, and the sole time series that deals with general cargoes (which is what Burrell's vessels carried) only begins in 1919.

average freight rates in the 1890s and 1900s. Indeed, even the grain trade from the Baltic had rates which were higher than the base year during this period. British shipowners engaged in the Baltic trades, however, needed to earn most (if not all) of their profits on the homeward legs of voyages, since freight rates on coal, the most important British product shipped into the Baltic, were uniformly depressed after the mid-1880s. This problem is discussed in Lewis R. Fischer, "A Flotilla of Wood and Coal: Shipping in the Trades between Britain and the Baltic, 1863-1913," in Yrjö Kaukiainen (ed.), *The Baltic as a Trade Route: Competition between Steam and Sail* (Kotka, Finland: Maritime Museum of Kymenlaakso, 1992), 36-63; Fischer and Helge W. Nordvik, "Shipping and the Baltic Wood Trade to Britain, 1863-1908," in Walter E. Minchinton (ed.), *Britain and the Northern Seas: Some Essays* (Pontefract: Lofthouse Publications, 1988), 171-179; Fischer and Nordvik, "The Nordic Challenge to British Domination in the Baltic Timber Trade to Britain, 1863-1913," in Fischer, Nordvik and Walter E. Minchinton (eds.), *Shipping and Trade in the Northern Seas* (Bergen: Norwegian School of Economics and Business Administration for the Association for the History of the Northern Seas, 1988), 74-88; and Fischer and Nordvik, "Myth and Reality in Baltic Shipping: The Wood Trade to Britain, 1863-1908," *Scandinavian Journal of History*, 12, 2 (1987), 99-116. For a slightly different perspective which uses freight rates in a different way, see Derek H. Aldcroft and Simon Ville (eds.), *The European Economy, 1750-1914: A Thematic Approach* (Manchester: Manchester University Press, 1994), 216 ff.; and Aldcroft, "British Shipping and Foreign Competition: The Anglo-German Rivalry, 1880-1914," in Aldcroft (ed.), *Studies in British Transport History* (Newton Abbot: David and Charles, 1974), 53-99.

It is therefore difficult to examine the relationship between freight rates and Burrell's interest in this particular region. We do know, however, that freight rates from East Coast US ports held up better in the second half of the 1890s than was the case in most regions of the world. Mohammed and Williamson's index for grain shipments suggests that in three of the five years in this quinquennium grain freights were higher than in 1884, while even timber freights, although consistently below the level of the base year, were still relatively buoyant, ranging between eighty-three and ninety-five percent of the 1884 levels. The only one of Isserlis' sub-indices that covers the second half of the 1890s is New York, Philadelphia and Baltimore with grain, but it matches Mohammed and Williamson's data reasonably well, showing that grain freights rose in two of the five years under consideration.

In addition to relatively buoyant freight rates, we also know that US exports surged in the second half of the 1890s. For example, we know that all US exports rose by almost twenty-two percent between 1894 and 1899, while the export of crude foods grew by more than twenty-eight percent and trade in crude materials surged by more than twenty-nine percent over the same period.¹⁴² This suggests that the combination of relatively decent freight rates and the ready availability of cargoes especially suitable for carriage by tramp vessels explain Burrell's interest in this range of ports.

The documentation on freight rates from the cotton ports of the southern United States is better because we have data from both Mohammed and Williamson and Isserlis. Unfortunately, however, there is some disparity between the two. Mohammed and

¹⁴²Susan B. Carter, et al. (eds.), *Historical Statistics of the United States: Millennial Edition* (5 vols., New York: Cambridge University Press, 2006), V, 520-522.

Williamson argue that rates for cotton were good in the early 1880s but that they worsened after 1882 and remained poor (with the exception of 1888 and 1889) until the outbreak of the First World War. The Isserlis index, on the other hand, suggests rates from Galveston, New Orleans, Savannah, Wilmington and Charleston, while highly variable, exhibited no such trend. Regardless, it is clear that what really attracted tramp owners to the region was the ready availability of cargo; there was no need to call at multiple ports to fill their holds. All the bills of entry we have for Burrell's vessels substantiate this generalization: Burrell was almost always able to secure enough cotton in a single port to enable the company's steamers to return to the United Kingdom or continental Europe without visiting any intermediate ports. The crew lists show the same thing. Only rarely in the period 1880-1910 did any ship visit more than one cotton port on the same voyage; when this did occur, the duration of the stay in port was very brief, implying that the call was for reasons other than the procurement of cargo.

The three most important trades for Burrell in the twentieth century were Australia, the nitrate ports on the west coast of South America and the timber/grain ports of the Pacific Northwest. Neither Mohammed and Williamson nor Isserlis provide a complete index for Australian freights. Although Isserlis does offer fragmentary information on trades such as wool, ore, tin and copper, they do not cover the twentieth century when Burrell was active in the region. The only exception is wheat, which offered fairly stable rates in the first decade of the twentieth century, except for 1908 and 1910. The problem, however, is that we do not know with certainty whether Burrell's vessels carried this cargo.

Fortunately, however, other scholars have worked on Australian freight rates. Both Malcolm Tull and John Singleton have devised time series of freight rates for wheat from Australia to the United Kingdom and Europe, and Singleton has compared these with grain freights in other parts of the world.¹⁴³ Both conclude that freight rates were higher and that the trend was more positive for wheat shipments from Australia than from the world's other major grain-producing regions. We know that Burrell's vessels carried wheat in the 1890s, and given the ports at which the firm's vessels called in the period after 1900 it seems a reasonable assumption that they continued to do so. Tull and Singleton's freight rates provide a rationale for the diversion of assets into this trade in the twentieth century.

Singleton also has data on freight rates for wool and preserved meat, two cargoes that Burrell had carried in the past and which likely were carried by the company's ships in the early twentieth century. The time series on greasy wool shipments to the UK suggests a freight market that was even more buoyant than that for wheat, while that for meat, with a few divergences, behaved much like that for wool.¹⁴⁴ What we lack, however, is a full time series for coal and copper, two cargoes that dominated the export trade from Newcastle, New South Wales, during this period. We know that coal freights were low everywhere in the first part of the twentieth century and that coal was frequently used as a form of ballast. Burrell's vessels visited places like Port Louis, Mauritius after

¹⁴³Malcolm Tull, "Shipping, Ports, and the Marketing of Australia's Wheat, 1900-1970," *Australian Economic History Review*, 32, 2 (1992), 33-59; and John Singleton, "Freight Rates for Australian Wheat Exports, c. 1870-1939, and the Globalization Hypothesis" (Unpublished paper presented to the International Economic History Congress, Helsinki, Finland, August 2006).

¹⁴⁴Singleton, "Freight Rates."

leaving Newcastle, as was the case with *Strathnairn* in 1909.¹⁴⁵ Coal would therefore have been merely a cargo of opportunity and would not have been something that Burrell would have actively sought out. Copper, on the other hand, was a better-paying cargo. Isserlis has a broken time series that seems to suggest relatively high freight rates for copper, but since all of the company's vessels that visited Newcastle did so as part of an extremely complex voyage pattern the precise levels of freights likely did not matter all that much.

We have much better data on freight rates from the nitrate ports of western South America. Mohammed and Williamson paint a negative picture of extremely low freight rates, averaging about half the rate of the base year in the period 1906-1911 when Burrell's vessels frequented these ports. Isserlis time series confirms this picture. Juan E. Oribe Stemmer, who has compiled freight rates for various South American trades between 1840 and 1914, concurs.¹⁴⁶ Again, the attraction of the nitrate trade to Burrell would have been due to its role in a series of complex trading voyages in which other cargoes would have been far more important for generating substantial revenues.

The Pacific Northwest wheat trade also suffered from low freight rates, especially in the first decade of the twentieth century. No matter how depressed they were, however, they were markedly better than the situation further south, perhaps enough to sustain

¹⁴⁵On the coal trade from Newcastle, see Susan Marsden, *Coals to Newcastle: A History of Coal Loading at the Port of Newcastle, New South Wales, 1797-1997* (Wagga Wagga: Bobby Graham Publishers, 2002).

¹⁴⁶Juan E. Oribe Stemmer, "Freight Rates in the Trade between Europe and South America, 1840-1914," *Journal of Latin American Studies*, 21, 1 (1989), 23-59, esp. table 2.

Burrell's operations along the Pacific littoral of the Americas.¹⁴⁷ The period from 1906 to the First World War was below the base year but not nearly as much as in the Mohammed and Williamson index. In fact, 1911 and 1912 were both boom years, with the rate rising to 118 and 150, respectively. The argument over which index best represents reality is important but not so crucial for understanding Burrell's operations. Very few steamships sailed directly between the nitrate ports and the United Kingdom. Chile and Peru were intermediate stops in long passages linking Argentina with the Pacific Northwest, Australia, Southeast Asia and various destinations in Europe. The Isserlis index does not include information on rates prevailing between these areas.

Burrell & Son employed its vessels in a variety of ways. The classic distinction between liners and tramps needs to be qualified. Repeated voyages out of eastern North American and Indian ports demonstrate a willingness to carry a variety of goods in a pattern more typical of liners. Certain ports in any given decade also occupied more prominence in the company's sailings, with its vessels arriving and departing with a certain degree of frequency. The Mediterranean was the centre of operations during the early years. The fruit and vegetable trade proved to be a steady source of employment, with Spain, Italy, Greece and other Mediterranean countries being frequented in search of oranges, currants, wine and other edible goods for the British market. The transportation of iron ore was another important source of revenue for Burrell, a company that could

¹⁴⁷The Isserlis index does not contain much information on rates in the wheat trade from the Pacific Northwest. There are data for only three years, 1908, 1916 and 1921. The first and last were severely depressed, unlike the booming conditions of the 1916 when the United States was supplying large quantities of wheat to the belligerents during World War I. In the absence of a long series of data, it is almost meaningless to attempt an analysis of these numbers. For an overview of this trade, see Morton Rothstein, "Multinationals in the Grain Trade, 1850-1914," *Business and Economic History*, 2nd ser., 12 (1983), 85-93; and John B. Watkins, *Wheat Exporting from the Pacific Northwest* (Pullman, WA: State College of Washington Agricultural Station, 1926).

plausibly be said to have developed some expertise in this particular niche, demonstrated by the dispatch of vessels carrying ore not only from Spain but also from faraway corners such as Newfoundland.

After 1880, Burrell & Son expanded its scope dramatically. First the Caribbean and subsequently the Pacific Ocean attracted increasing volumes of tonnage, allowing the company to diversify its sources of employment and revenue. Profitability remains uncertain, as we are only able to infer it from an expanding fleet or persistence in employing vessels in particular areas or trades. Pioneering ventures, such as the carriage of frozen meat from Australia in the 1870s, were not repeated frequently. Nevertheless, Burrell & Son was not averse to investigating new possibilities; as a result, a small sailing-ship company of the 1860s developed into one of the most important tramp ship operators of the late nineteenth century, with steamships active in almost every ocean, carrying a plethora of goods in cross-trading and back to the home market.

Chapter 5

A Gathering of Strangers

One of the most important aspects of maritime history as a sub-discipline is the analysis of the people involved in maritime activities, be they merchants, shipowners, shipbuilders, office employees or seamen. This is an area of study where considerable effort has been expended in an attempt to “bring to life” important players of the international sea community. There is a long list of biographies and autobiographies of shipowners, shipbuilders and masters in particular, some of them scholarly, others less so.¹ They all share one characteristic: they are more interested in the actions and influence of a single individual, the ways they have shaped maritime history, the effects their lives and actions had upon themselves and those around them.

The mass of individuals who dedicated part or the entirety of their lives to the sea in less “glamorous” capacities has been largely ignored. Until recently historians have tended to focus on those individuals for whom we have most information, such as captains (or admirals in naval history) whose lives can be used as “examples” or whose

¹Some examples of maritime biography are Augustus Muir and Mair Davies, *A Victorian Shipowner, A Portrait of Sir Charles Cayzer, Baronet of Gartmore* (London: published privately by Cayzer, Irvine and Company Ltd., 1978); J. Forbes Munro, *Maritime Enterprise and Empire: Sir William Mackinnon and His Business Network, 1823-93* (Woodbridge: Boydell, 2003); Kay Grant, *Samuel Cunard, Pioneer of the Atlantic Steamship* (London: Abelard-Schuman, 1967); John E. Barnard, *Building Britain's Wooden Walls: The Barnard Dynasty, c. 1697-1851* (Oswestry: Nelson, 1997); Cherry Drummond, *The Remarkable Life of Victoria Drummond, Marine Engineer* (London: Institute of Marine Engineers, 1994); Victor Slocum, *Capt. Joshua Slocum: The Life and Voyages of America's Best Known Sailor* (New York: Sheridan House, 1950); William J. Slade, *Out of Appledore: The Autobiography of a Coasting Shipmaster and Shipowner in the Last Days of Wooden Sailing Ships* (London: Conway Maritime Press, 1972); Robert H. Arnott and Ronald L. Smith, *Captain of the Queen* (London: Quadrant Books, 1984). James P. Baughman, *The Mallores of Mystic: Six Generations in American Maritime Enterprise* (Middletown, CT: Wesleyan University Press, 1972); For a general discussion of the opportunities and problems associated with maritime biographies see Martin Rheinheimer, “Biographical Research and Maritime History,” *International Journal of Maritime History*, 14, 2 (2002), 249-264.

actions are assumed to carry weight and significance because of their visibility and immediacy. With the advent of the "new social history," however, this is changing and "history from below" has become more important. This is a significant development, especially for maritime history, since on a more basic level it is the confluence of the efforts of previously unknown men and women working at various tasks that makes everything else possible. A shipowner might organize large fleets and send them to sail the seven seas, but it is the labour of those who work at sea that ensures that cargoes will be transported to their destinations.

Seamen have not been completely ignored by maritime history. There are numerous studies of their lives, both at sea and ashore, covering a variety of different aspects of their activities. But there are certain problems with most of these works. The most fundamental is that many of them lack any kind of scholarly analysis.² Life at sea has often been approached with a degree of mystique and romance, seen as a way out of the troubles of life ashore or as a way to "see the world." As a result of this mentality, it is often the case that the lives and labours of seamen have been obscured by romantic notions and treated as stereotypes. Seamen are usually grouped together, with little or no attention paid to the various characteristics that separate officers from the rest of the crew. The latter are usually treated as being subject to outside forces, conforming to pre-

²See for example, Leslie Morton, *The Long Wake: from Tall Ships to Narrow Boats* (London: Routledge & Kegan Paul, 1968); R. W. Chandler, *Sparks at Sea: The Experiences of a Ship's Radio Officer* (Newton Abbot: David & Charles, 1973); S. C. Heal, *Across for Distant Horizons: The Life and Times of a Canadian Master Mariner* (Vancouver: Cordillera Publishing Company, 1995); and John Russell, *Memories of a Lifetime* (Portugal Cove, NL: ESP Press, 1997).

confirmed notions of life at sea, valiantly battling the elements, making a decent living in a masculine world and enjoying to the fullest their brief spells of life ashore.³

There are two categories of seamen who have attracted considerable attention. The first is those who served in sailing ships and the other is those employed in liners, in particular the more glamorous ships of the Atlantic passenger trade of the late nineteenth and early twentieth centuries. There are numerous studies dealing with various aspects of the lives of seamen in the sailing ship era, some of them of very high scholarly value.⁴

The liner industry has also attracted considerable attention on the part of maritime

³Some exceptions to these generalizations include Marcus Rediker, *Between the Devil and the Deep Blue Sea: Merchant Seamen, Pirates and the Anglo American Maritime World, 1700-1750* (Cambridge: Cambridge University Press, 1987); Peter Linebaugh and Marcus Rediker, *The Many-Headed Hydra: Sailors, Slaves, Commoners, and the Hidden History of the Revolutionary Atlantic* (Boston: Beacon Press, 2000); Tony Lane, *Grey Dawn Breaking: British Merchant Seafarers in the Late Twentieth Century* (Manchester: Manchester University Press, 1986); and Daniel Vickers with Vince Walsh, *Young Men and the Sea: Yankee Seafarers in the Age of Sail* (New Haven: Yale University Press, 2005). For the modern period, see Valerie Burton, "The Work and Home Life of Seafarers with Special Reference to the Port of Southampton, 1871-1921" (Unpublished PhD thesis, University of London, 1988); and Frank Broeze, "The Muscle of Empire – Indian Seamen and the Raj, 1919-1935," *Indian Economic and Social History Review*, 18, 1 (1981), 43-67.

⁴The Atlantic Canada Shipping Project has been the driving force behind numerous studies analyzing the lives of sailing ship seamen. Among the most important studies are the following: David Alexander, "Literacy among Canadian and Foreign Seamen, 1863-1899," in Rosemary Ommer and Gerald Panting (eds.), *Working Men Who Got Wet* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1980), 1-33; Lewis R. Fischer, "A Dereliction of Duty: The Problem of Desertion on Nineteenth Century Sailing Vessels," in Ommer and Panting (eds.), *Working Men Who Got Wet*, 51-70; David M. Williams, "Crew Size in Trans-Atlantic Trades in the Mid-Nineteenth Century," in Ommer and Panting (eds.), *Working Men Who Got Wet*, 107-153; John F. Battick, "A Study of the Demographic History of the Seafaring Population of Belfast and Seaport, Maine, 1850-1900," in Ommer and Panting (eds.), *Working Men Who Got Wet*, 229-261; Gerald Panting, "Personnel and Investment in Canadian Shipping, 1820-1889," in Ommer and Panting (eds.), *Working Men Who Got Wet*, 335-360; and Rosemary Ommer, "'Composed of All Nationalities': The Crews of Windsor Vessels, 1862-1899," in Ommer and Panting (eds.), *Working Men Who Got Wet*, 191-227. Other important studies of the subject include Knut Weibust, *Deep Sea Sailors: A Study in Maritime Ethnology* (Stockholm: Nordiska Museet, 1969); Charles Kindleberger, *Mariners and Markets* (New York: Harvester Wheatsheaf, 1992); W. Jeffrey Bolster, *Black Jacks: African American Seamen in the Age of Sail* (Cambridge, MA: Harvard University Press, 1997); Judith Fingard, *Jack in Port: Sailortowns of Eastern Canada* (Toronto: University of Toronto Press, 1982); Rediker, *Between the Devil and the Deep Blue Sea*; Linebaugh and Rediker, *Many-Headed Hydra*; and David Marcombe, *The Victorian Sailor* (Aylesbury: Shire Publications, 1995). Finally, dealing with the world of the Royal Navy, see Nicholas A.M. Rodger, *The Wooden World: An Anatomy of the Georgian Navy* (London: Fontana Press, 1986).

historians. The availability of organized and well preserved archives, the wealth of visual material and the acute interest on the part of the general public in this particular sector of the shipping industry has resulted in decent documentation of the lives of crew members of liners.⁵ Less attractive in terms of popular interest, but offering well documented cases, is the liner sector in its more prosaic aspect, the transportation of cargoes around the world. But this is also the area where the most obvious problems of the available historiography are becoming acute. Despite the surviving archives and associated materials, historians have been reluctant to organize, analyze and present particular cases, let alone create a synthesis of individual cases in a more general study of the lives and working conditions of seamen on board cargo liners. The relevant bibliography is sparse, suffering from the lack of quantitative data, focusing mostly on anecdotal material and personal narratives of people involved with the industry.⁶

The situation is even worse when we come to tramping. As with all other sectors, the crews of steam tramps have too often been left out of the maritime historiography.⁷ One of the most important reasons for this neglect is that cargo tramps have been studied as an economic phenomenon, with the limelight focusing on their role as transporters of

⁵Some examples of historical studies covering the liner section include Laura Tabili, "A Maritime Race: Masculinity and the Racial Division of Labour in British Merchant Ships, 1900-1939," in Margaret S. Creighton and Lisa Norling (eds.), *Iron Men, Wooden Women: Gender and Seafaring in the Atlantic World, 1700-1920* (Baltimore: Johns Hopkins University, 1996); Peter Padfield, *Beneath The House Flag of the P&O* (London: Hutchinson, 1981); and John Maxtone-Graham, *The Only Way to Cross* (New York: Barnes and Noble, 1997). There are also biographies and autobiographies by men and women with intimate knowledge of life on board these liners; see, for example, Violet Jessop, *Titanic Survivor: The Memoirs of Violet Jessop, Stewardess* (Stroud: Sutton Publishing, 1998).

⁶Examples of this include Lane, *Grey Dawn Breaking*; and Eric W. Sager, *Ships and Memories: Merchant Seafarers in Canada's Age of Steam* (Vancouver: University of British Columbia Press, 1993).

⁷Robin Craig's work is a notable exception.

cargoes and levers of economic development, rather than as working and living environments for tens of thousands of seamen. Finally, the mundane nature of their operations deprived this sector of the all-important public interest that supported so well the thriving scholarly interest towards transatlantic liners.⁸

As a tramp shipping company, Burrell & Son employed tens of thousands of people in their sixty-odd years of active operations. Despite the lack of a surviving company archive, this is a case where we can answer a number of important questions about the lives and working conditions of these men (and some women). The crew agreements provide a wealth of information about the people who served on the company's vessels. These include their age, place of birth, occupation, wages (and advances, where appropriate), place joined, last ship, and reason for leaving (discharged, deserted, etc.).⁹ From these data we can also examine the retention or turnover of crew from voyage to voyage, and we can also study whether there was group cohesion among seamen. Because each individual was supposed to sign the agreement, we can also study literacy among those who worked at sea. Because of the paucity of comparable studies, it is hard to assess the extent to which Burrell represented a "typical" case, so the value of the conclusions cannot be assessed fully until we have more comparative material.

⁸Two fine examples of studies of the tramp sector with the emphasis on the economic aspect are Basil N. Metaxas, *The Economics of Tramp Shipping* (London: Athlone Press, 1971); and Hector Gripiaios, *Tramp Shipping* (London: Thomas Nelson and Sons, 1959).

⁹On the crew agreements, see Lewis R. Fischer and Eric W. Sager, "An Approach to the Quantitative Analysis of British Shipping Records," *Business History*, 22, 2 (1980), 135-151.

5.1 Crew Numbers

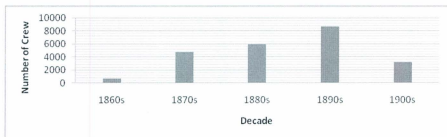
The surviving crew agreements in the Maritime History Archive (MHA) at Memorial University of Newfoundland on Burrell & Son's crews contain information on 23,246 crew members who served on the company's vessels (see Figure 5.1). These were not all "unique" individuals, since some of those employed served on more than one voyage. The majority were men; only thirty-six people who we can definitely identify as woman appeared in the agreements.¹⁰ Since the company was a growing concern, with its fleet changing in size and composition from decade to decade, and since the survival rate of crew agreements also varied over time, the distribution of these employees is uneven.

The 1860s, when Burrell & Son operated mainly sailing vessels, was the decade with the fewest crew members; there were only 664 crew members entered in the crew agreements. As the fleet expanded, the vessels grew in size, and the mode of propulsion shifted from sail to steam, the need for crew grew to 4747 in the 1870s and 5929 in the 1880s. The largest increase came during the 1890s when Burrell's fleet was at its peak. During those years the crew employed in the firm's steamers increased by almost fifty

¹⁰The crew lists do not identify crew by gender. However, there are often clues which allow us to separate men from women. The most obvious is the crew member's first name, although problems in deciphering some of the writing in the crew agreements make this at best an imprecise method. The researcher may also encounter problems with foreign names that are very similar, for example the Norwegian male form "Helge" and the female form "Helga." Since it was not unusual for the names in the crew agreements to be filled by the master of the vessel, the problem of spelling cannot be overlooked. The other principal clue is occupation; where, for example, a crew member is identified as a "stewardess," we can be sure that we are dealing with a woman. The criterion used in this study was very simple: if we could not be absolutely certain that the crew member was a female, we entered her as a male. For this reason, it is almost certain that the number of women reported in the text under-estimates at least slightly the number who actually served on Burrell's ships.

percent to 8712 men and women. In the twentieth century, the number of crew members declined to 3194.¹¹

Figure 5.1
Burrell & Son: Number of Crew over Time



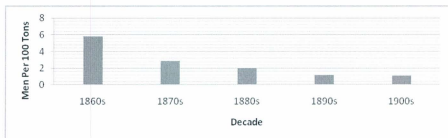
Source: Memorial University of Newfoundland, Maritime History Archives, British Empire Agreements and Accounts of Crew, 1862-1929 (Crew List Database).

The decline in the total number of crew required in the twentieth century in part reflected increased labour productivity. This is best reflected through the calculation of man/ton ratios, defined here as the number of men needed per 100 tons of shipping. Figure 5.2 depicts this and highlights the tremendous improvements in efficiency that Burrell was able to make to reduce the size of its workforce. Since the wage bill was a key component of variable costs (those which are under the direct control of the shipowner), this also would have been an important way to improve the company's financial position.¹²

¹¹The total figures for the post-1890 figure are likely to be less precise than for those in earlier period because of the increased number of Asiatic seamen signed on separate agreements which have not survived.

¹²Because the firm's financial records have not survived, we cannot know the precise share of total costs represented by wages. But the standard figure in the literature is on the order of twenty to twenty-five percent. See Yrjö Kaukiainen, *Sailing into Twilight: Finnish Shipping in an Age of Transport Revolution, 1860-1914* (Helsinki: Studia Historica, 1991), 111-122.

Figure 5.2
Men per 100 Tons of Shipping in the Fleet of Burrell & Son



Source: See Figure 5.1

The sailing ship era (the 1860s) was the least efficient as measured by the man/ton ratio. With 11,419 gross tons of shipping manned by 664 men, each man was responsible for a mere 17.2 tons, or a man per 100 ton ratio of 5.8. In the 1870s, as Burrell replaced its sailing vessels with steamships, the ratio declined to 2.9 men per 100 tons. A second major reduction came in the 1890s with the introduction of the triple-expansion steam engine. The efficiency of these new engines meant that the number of firemen, trimmers and greasers that were necessary with the older technology could now be reduced. As a result, the ratio fell to 1.2 men per 100 tons. This level was maintained when Burrell restarted operations in the early years of the twentieth century, and in the period after 1906 the man per 100 ton ratio was 1.1.¹³

This sharp reduction in the man/ton ratio in the period before 1906 was the result of a constant effort by Burrell, like many other shipowners in the period, to improve its competitive position by minimizing costs and increasing productivity. Steamships

¹³The ratio did not decline more rapidly because Burrell only purchased a single vessel propelled by the quadruple-expansion engine, preferring instead to stick with the triple-expansion technology. The reason for this decision is unclear, but it is apparent that the further reduction in manpower was not a key component of the company's cost-reduction strategy in the twentieth century.

required a considerably greater outlay of capital than did sailing vessels, both because of the cost of the propulsion machinery and because they tended to be larger. This in turn placed more pressure on shipowners to cut costs and/or maximize revenues. For more than a century before Burrell entered the business, it was well understood that there were economies of scale in shipping and that larger vessels could reduce the expenses of wages and victualling by more than half. In the competitive world of shipping, Burrell was well aware of this and took advantage of the opportunities offered by new shipbuilding technologies. The North Atlantic in particular, because of the highly competitive conditions prevailing both in the passenger and cargo trades, was the area where the pressure to reduce costs was most pronounced.¹⁴ The move by Burrell to redeploy its vessels towards the Atlantic coast of the United States in the last decade of the nineteenth century undoubtedly necessitated a more rigorous approach to those factors that would influence cost the most. The available data highlights the company's success in this regard, as the man/ton ratio declined by more than forty percent in the 1890s; the majority of this decrease was accounted for by voyages in the North Atlantic.

Within these parameters, Burrell & Son closely followed the general trend of the era. Members of the Atlantic Canada Shipping Project (ACSP) reported similar findings, as did Saif Mohammed and Jeffrey Williamson, who based their analysis on 4500 individual journeys in the ACSP data set between 1869 and 1913.¹⁵ In his study of labour productivity in the merchant fleet of Halifax during the second half of the nineteenth

¹⁴See Williams, "Crew Size in Trans-Atlantic Trades," 105-154.

¹⁵Saif I. S. Mohammed and Jeffrey G. Williamson, "Freight Rates and Productivity Gains in British Tramp Shipping, 1869-1950," *Explorations in Economic History*, 41, 2 (2004), 196.

century, Eric Sager has argued that the reduction in the man/ton ratio can not be totally attributed to the increase in the vessel size.¹⁶ Because his analysis is focused solely on sailing ships, we need to be careful of making comparisons with Burrell's experience. Still, he presents some interesting ideas that merit attention.

The most prominent of these is the association between the age of the crew and the man/ton ratio. Sager discovered that older crews equated to a lower man/ton ratio. His analysis was based on comparisons of two groups of voyages, one containing crew with an average age of less than twenty-seven years and another with a mean age of over twenty-eight years. He found that the first group had substantially lower man/ton ratios.

Crews were more experienced as time passed, since sailors were aging over time. As more crew acquired experience and literacy the level of skill undoubtedly rose...masters were also aging over time, and they were more experienced in the management of larger crews as vessel size increased...masters often expected an older crew to work more effectively, and the increasing age of crews undoubtedly assisted the decline in man-ton ratios.¹⁷

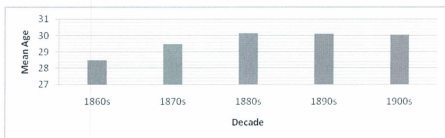
The above results refer to sailing ships, a type of vessel often associated with the need for highly skilled crew members (as opposed to steamers, where Sager argued that the level of skill required for trimmers and firemen, for example, was much lower, allowing for the employment of an inferior quality of seamen who only had to perform repetitive tasks under specific orders from well-educated officers). But this relationship between man/ton ratios and the age of crews is given some support by an analysis of Burrell & Son's operations. Smaller sample sizes for certain periods preclude a

¹⁶Eric W. Sager, "Sources of Productivity Change in the Halifax Ocean Fleet, 1863-1900," in Alexander and Ommer (eds.), *Volumes Not Value*, 155-184. This is a slightly different argument than the one advanced by Mohammed and Williamson, "Freight Rates," 197 ff., who claim that most of the decline in man/ton ratios was due to increased vessel size over time.

¹⁷*Ibid.*, 173-174.

replication of Sager's analysis, but as Figure 5.3 shows, while the man/ton ratio decreased over time, the mean age of the crew increased.

Figure 5.3
Mean of Age of Crew, Burrell & Son



Note: Includes officers. Crew members in agreements that are incomplete have been excluded.

Source: See Figure 5.1.

The 1860s, during which Burrell had the highest man/ton ratio, was also the decade with the youngest crew; the mean age was 28.5 years. When the company made the transition from sail to steam, the average age increased by a whole year to 29.5. The mean age of the engineers appears not to have been the decisive factor, since among their group the average was actually lower in the 1870s. The increase continued into the 1880s, reaching the maximum of 30.1, and then levelled off and even dropped slightly after 1906. The correlation coefficient age and man/ton ratio is very close (-0.974), implying that Sager's argument about the inverse relationship between crew age and man/ton ratio fits the Burrell case and hence likely can be applied both to sailing ships and steamers.

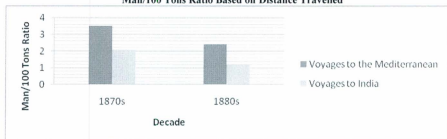
A second point worth exploring was the potential association between trade routes and the man/ton ratio. Sager argued that on longer routes there was a less pronounced drop in the man/ton ratio. Since he was studying the fleet of Halifax, Nova Scotia, Sager

tested his hypothesis by separating ships trading within the Atlantic Ocean from those that went around the Cape of Good Hope and Cape Horn. In Burrell's case, it seemed more suitable to test this hypothesis by turning our attention to two different areas, the Mediterranean and the Indian Ocean. Since most of the company vessels departed from Scotland, the distance travelled across the Atlantic to the United States or through the Suez Canal to India was not significantly different to allow for a more clear difference should one exist. Moreover, for Burrell the North Atlantic became an important trading area only in the late nineteenth century by which time India had lost some of its significance. Finally, for the sake of a meaningful comparison, I have based the analysis on voyages that had the Mediterranean and India as their declared destination from the time the crew list was opened. This would imply that masters recruited men having these two destinations specifically in mind (as opposed to being ordered to proceed to these regions in mid-voyage); this means that the man/ton ratio at the beginning of the voyage would be representative of the perceived manning needs for voyages to these two areas. One last point that needs to be made is the inability to create comparisons for the entire history of Burrell & Son. The trading foci of the company changed with time, reducing the numbers of cases where it was possible to apply the aforementioned criteria. The following results therefore refer only to the 1870s and the 1880s, so caution in drawing firm conclusions is advised.

The first thing that is apparent from Table 5.4 is the substantial difference in both decades in the man/ton ratio between vessels going to the Mediterranean and those bound for India. The ratio for Mediterranean-bound steamships in the 1870s was 3.5 men per 100 tons and 2.1 for those heading to the Indian Ocean. The difference was relatively

more significant in the 1880s: 2.4 compared to 1.2. Sager's argument about the inverse relationship between man/ton ratio and distance travelled, which was based solely on sailing vessels, can therefore be applied to steamships as well. Ships destined for the Indian Ocean always carried more men than those going to the Mediterranean. During the 1870s they had more than twice as many men (44.8 as opposed to 18.9 per vessel), but the gap closed significantly over the next decade, with the average dropping to 29.6 for the former and actually rising to twenty men per steamship in the 1880s for the latter. This was due primarily to changes in the size of vessels dispatched to these two areas: mean size for Indian Ocean ships increased by a mere fourteen percent in the 1880s, while the mean for the Mediterranean soared by approximately sixty percent.

Figure 5.4
Man/100 Tons Ratio Based on Distance Travelled



Source: See Figure 5.1.

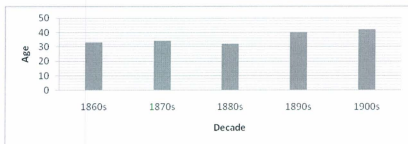
5.2 Who Sailed on Burrell & Son?

Figure 5.3 depicted the mean age of crew members working for Burrell & Son. We saw how the average age increased from the early years of the company until the 1880s, but

thereafter levelled off. While mean age tells us something, it is important to remember that Burrell & Son's crews did not comprise a monolithic bloc. Indeed, there were distinct sub-categories based on the role they played on board the vessel. These categories exhibited their own trends which did not always mirror the overall mean. A breakdown of Burrell's employees into different groups makes this point.

I have divided the employees into seven categories: masters, officers, petty officers, seamen, engineers, engine room labour and catering department. The breakdown and the assignment of particular groups of employees to any given category was arbitrary in the sense that it was a decision made by the researcher and not a Burrell policy, but it is logical and does not distort the calculations.¹⁸ Figures 5.5a-g present the data on the mean ages of the crew members of Burrell & Son for these groups.

Figure 5.5a
Mean Ages of Masters



¹⁸The detailed list of the occupational groups and their assigned category is as follows: Masters, includes masters only; Officers: includes all categories of mates; Petty Officers: includes bosuns, carpenters, assistant carpenters, sailmakers, clerks, pursers, quartermasters, surgeons and wireless operators; Seamen: includes ABs, OSs, deckhands and labourers; Engineers: includes all grades of engineers; Engine Room Department: includes firemen, trimmers, greasers, lamp trimmers, engine drivers, engine stewards, pantrymen, stokers, assistant engineers, boilermakers and donkeymen; and catering department: includes stewards, waiters, cooks, boys, storekeepers, bakers and butchers.

Figure 5.5b
Mean Ages of Mates

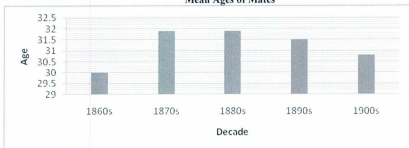


Figure 5.5c
Mean Ages of Petty Officers

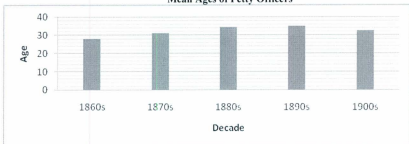


Figure 5.5d
Mean Ages of Seamen

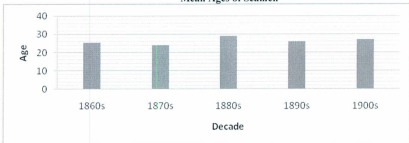


Figure 5.5e
Mean Ages of Engineers

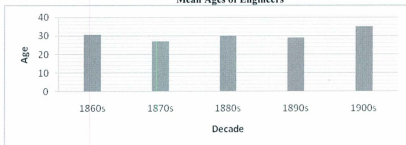


Figure 5.5f
Mean Ages of Engine Room Department

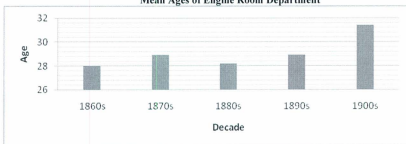
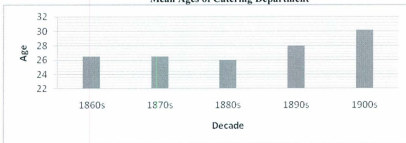


Figure 5.5g
Mean Ages of Catering Department



Source: See Figure 5.1.

Some common themes appear when looking at this data. The first is the general increase of the mean age from the 1860s to the 1870s; engineers and seamen were the only exceptions to this general trend. Looking at engineers first, we can see that their mean age fell by more than three years, from 30.5 to twenty-seven as their numbers expanded almost eightfold (from sixty-one during the 1860s to 474 during the following decade) with the introduction of more steamers into the company's fleet. This increase in numbers, however, cannot account for the reduction in mean age. It is more probable that as the need for their services increased throughout Great Britain and the rest of the world with the wider adoption of steam, Burrell was forced to recruit younger, less experienced engineers. In the early years of the steam engine, most engineers were provided by the makers of the engines or belonged to the so called "raised from the shovel" category, both groups being quite older than would have been the case if these engineers had come out of a school.¹⁹ As the need for their services grew and employment opportunities increased, younger men were recruited, serving apprenticeships in machine shops and then joining a steamship where they gained valuable experience and prepared themselves for the necessary certifying examinations.²⁰ This pattern is well supported by the case of Burrell & Son and holds true for every sub-class of engineer when analyzed separately.

¹⁹The point is particularly well illustrated in Lewis Johnman and Hugh Murphy, *Scott Lithgow: Déjà vu All Over Again! The Rise and Fall of a Shipbuilding Company* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 30, 2005).

²⁰An interesting study of the early years of the marine engineer's career is Conrad Dixon, "The Rise of the Engineer in the Nineteenth Century," in Gordon Jackson and David M. Williams (eds.), *Shipping, Technology and Imperialism* (Aldershot: Scolar Press, 1996), 231-242. See also H. Campbell McMurray, "Technology and Social Change at Sea: The Status and Position on Board of the Ship's Engineer, circa 1830-60," in Ommer and Panting (eds.), *Working Men Who Got Wet*, 35-50.

The other group to buck the general trend was the seamen, who declined in average age from 25.3 years in the 1860s to twenty-four years in the 1870s. This trend is more difficult to explain. It is not due to a preference for less experienced Ordinary Seamen (OSs) at the expense of Able-bodied seamen (ABs), since ABs dominated this category by a margin of more than thirty to one; moreover, the average age of ABs in this group also declined. The most likely explanation is that with the transition from sail to steam we are witnessing the beginning of a process of de-skilling of the AB category by hiring younger seamen. Lewis Fischer and Helge Nordvik found a similar pattern during the early years of the transition from sail to steam in the Norwegian merchant marine and advanced this argument for Scandinavia, so the same thing may have been happening in certain segments of the tramp fleet in Britain.²¹ But this must be treated merely as speculation, since there is no hard evidence to confirm it in the case of Burrell.²²

Another common trend observed in the above figures is the general increase in the mean age of the crews after Burrell re-entered shipping in 1905. With the exception of the petty officers (where we see a small reduction in mean age), all occupational categories were characterized by higher means than before, with the change being most pronounced among those employed in the engine room and catering departments. Both groups registered an almost three-year increase in mean age compared with the 1890s. It is clear that this rise is closely associated with the introduction of large numbers of non-European firemen, trimmers, stewards and waiters, who tended to be older, in both departments. In

²¹Lewis R. Fischer and Helge W. Nordvik, "Norwegian *Matroses*: Seafarers and National Labour Markets in Norway, 1850-1914," *Scandinavian-Canadian Studies*, IV (1989), 58-81.

²²The strongest proponent of the de-skilling hypothesis is Eric W. Sager, *Seafaring Labour: The Merchant Marine of Atlantic Canada, 1820-1914* (Kingston: McGill-Queen's University Press, 1989).

the 1890s, the mean age of the engine room department men was 28.9 and twenty-eight years for the catering department. But after 1906 the mean age for engine room staff was 31.4 and 30.2 for catering personnel. The explanation in both cases appears to be due to a shift in the ethnic composition of both groups. Whereas in the nineteenth century, both groups comprised mainly of British- and European-born personnel, after 1906 three-quarters of the engine room personnel and sixty-nine percent of the catering staff were Asians.²³ Most of these men were from China, and with the exception of a strong contingent of boys in the latter department, almost all of them were much older than the Europeans they replaced.²⁴

The age composition of the Burrell & Son crew is an important question. Table 5.1 reveals that the crew was getting progressively older, with fewer younger men choosing to embark on a career at sea. This was not a unique phenomenon, since there was a general trend towards older crews at the end of the nineteenth and the beginning of the twentieth century. David Alexander, in his analysis of Yarmouth vessels in the period

²³These percentages are almost certainly under-estimations given that many Asiatic and lascar agreements have not survived and hence are not part of our sample.

²⁴The data on mean ages for crew signed on lascar and Asiatic agreements is problematic because there is conflicting evidence about how to interpret them. The fact that crew members on these types of agreements were older than average is supported by another finding for Burrell's vessels: during the last decade of the nineteenth century, when the company employed relatively large numbers of Chinese firemen and stewards, they too were older than their European predecessors. On the other hand, some recent studies by Dutch scholars have uncovered "age-heaping" among non-European seamen. By this concept they mean that "people who are not used to working with figures often give their age in round numbers." Moreover, they found a strong positive relationship between literacy and numeracy, which is important here because the crew that Burrell signed on lascar and Asiatic articles were significantly less literate than any other group of seamen. For a fuller discussion of this problem see, for example, Matthias van Rossum, *et al.*, "National and International Labour Markets for Sailors in European, Atlantic and Asia Waters, 1600-1850," in Maria Fusaro and Amélia Polónia (eds.), *Maritime History as Global History* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 43, 2010), 47-72. Other scholars have noted a particular propensity by the Chinese to engage in this practice. See, for instance, Amanda J. Jowett and Li Yuan-Qing Li, "Age Heaping: Contrasting Patterns from China," *GeoJournal*, 28, 4 (1992), 427-442. If age-heaping was the case here, it could have significantly biased the age data in our sample.

1865-1895, noted that employment in sailing ships became less attractive to young people towards the end of the nineteenth century. At the same time, seafaring became more of a lifelong career rather than an occupation which a person left in their late twenties.²⁵ Both arguments can also be applied in this case since the number of those in their late teens that joined the Burrell fleet plummeted by more than seventy percent between the 1860s and the early twentieth century. At the same time, there was a marked increase in the number of crew members in their forties and fifties. This was particularly true for British crew members.

Table 5.1
Age Composition of Burrell Crew

BRITISH

AGE	1860-1869		1870-1879		1880-1889		1890-1899		1906-1915	
	N	%	N	%	N	%	N	%	N	%
10-19	48	8.2	191	4.7	153	3.2	231	4.1	16	2.1
20-29	329	56.2	2166	53.3	2575	53.7	2854	50.3	334	43.5
30-39	146	25.0	1268	31.2	1454	30.3	1785	31.5	252	32.9
40-49	39	6.7	368	9.1	490	10.2	680	12.0	114	14.9
50+	23	3.9	69	1.7	120	2.5	123	2.2	51	6.7
Total	585	100	4062	100	4792	100	5673	100	767	100

FOREIGN

AGE	1860-1869		1870-1879		1880-1889		1890-1899		1906-1915	
	N	%	N	%	N	%	N	%	N	%
10-19	1	1.4	16	2.8	40	3.8	141	4.8	49	2.6
20-29	44	59.5	256	45.2	518	49.2	1515	51.3	1155	61.2
30-39	28	37.8	217	38.3	349	33.1	934	31.7	574	30.4
40-49	1	1.4	68	12.0	136	12.9	311	10.5	92	4.9
50+	-	-	9	1.6	10	0.9	50	1.7	17	0.9
Total	74	100	566	100	1053	100	2951	100	1887	100

Note: "British" includes England, Scotland, Wales, Ireland and the Channel Islands. Percentages may not equal 100 percent due to rounding.

Source: See Figure 5.1.

²⁵Alexander, "Literacy among Canadian and Foreign Seamen," 6-8.

On the other hand, young crew members were never very numerous in the Burrell fleet. Steamships did not generally carry apprentices. As Valerie Burton has shown, less than one percent of the 3619 apprentices at sea in British ships in 1891 served aboard steamers.²⁶ Moreover, steamship operators claimed to have little use for boys, generally restricting those they took to the deck department since tasks in the engine room (such as trimming and stoking coal) required greater physical maturity. It is notable that the greatest percentage of crew members under the age of nineteen occurred in the 1860s, exactly when Burrell was operating a number of sailing vessels.²⁷ In the following years, the company used boys only in the catering department, mostly as messroom assistants and cabin personnel.

The sailing ship era was indeed a young man's age. Almost six out of every ten crewmen were in their twenties, while those over forty comprised a negligible part of the company's employees. The open sea was an adventurous place; going to sea provided an opportunity to see the world before settling down on land. This attitude changed progressively, as is shown by the increasing number of British-born men who remained at sea in their forties and fifties. Among the foreign-born, the situation was slightly more complicated. In the early years their numbers were too low to enable us to draw any meaningful conclusions, but towards the end of the nineteenth century their presence in Burrell's ships became more pronounced. In the 1870s and 1880s, there were proportionately more elderly foreigners than older British seamen. Most of the older men

²⁶Valerie C. Burton, "Apprenticeship Regulation and Maritime Labour in the Nineteenth Century British Merchant Marine," *International Journal of Maritime History*, 1, 1 (1989), 45.

²⁷Even then, Burrell did not use them as apprentices.

were of European origin, professional sailors who were disinclined to settle down and thus searched for employment opportunities on any fleet that would have them. The appearance of large numbers of Chinese firemen and stewards in the 1890s and the 1900s changed the picture. These men were younger, the elderly being rejected perhaps by company officials mindful of the strenuous working conditions in the engine room. Therefore the percentage of forty and fifty-year olds dropped.²⁸

Between the two extremes of the young and the old, we observe the same trend towards older crews. The percentage of men in their twenties declined steadily among the British, while the thirty-year-olds increased from being a quarter of the crew to almost a third. Among foreigners, the trend was reversed, with men in their thirties declining while the percentage of those in their twenties fluctuated wildly in the fourth quarter of the nineteenth century, eventually reaching a staggering sixty-one percent. It seems fair therefore to claim that when Burrell & Son decided to reinvest in shipping, it entrusted its steamships to an older group of British officers and engineers who were in charge of a younger conglomeration of foreigners, mostly Chinese, stewards, waiters, firemen and trimmers.

The information in Table 5.1 becomes more interesting when it is compared with similar information presented by David Alexander.²⁹ At first glance, the two sets of data do not seem comparable because Alexander's work was based almost exclusively on

²⁸It must be noted here that this drop is relative and to a certain extent distorts the picture. We have already mentioned that the Chinese hired for employment in the engine room were older than their British counterparts, accounting for the increase in the mean age of this occupational group. But their numbers tend to be amplified once we include in the calculations other groups of employees where older Europeans could still find employment.

²⁹Alexander, "Literacy among Canadian and Foreign Seamen," 7.

sailing vessels while Burrell's fleet comprised mostly steamships. But a closer inspection reveals a number of similarities. The age composition of Canadians who found employment on board a Yarmouth sailing vessel was strikingly similar to that of British seamen serving on Burrell's ships and they moved in the same direction. The correlation coefficient for the period from the 1860s to the end of the nineteenth century, covered by both studies, is an extremely strong +.94 for the group "Canadians/British" and +.922 for the group "Foreigners." The correlation for both groups when aggregated is +.931, indicating that Burrell's case was fairly typical of more general trends in the North Atlantic maritime world.

One final statistical analysis is required at this point. The information relating to an increase in the average age of the crew is an additional possible explanation for the observed reduction in man/ton ratio. As older crews were more experienced, fewer men were required to perform the same tasks. The correlation coefficient between the two sets of data is -.974, signifying a strong inverse association between the age of the crew and Burrell's manning requirements. The question then arises whether Burrell preferred older crews as a way to reduce costs or if a more general trend among British seafarers allowed the shipping company to take advantage of increased skills in the workforce while as an added benefit securing considerable savings. The relevant literature appears to interpret these developments as an unforeseen by-product of wider socio-economic forces in the maritime world of the North Atlantic.³⁰ Still, it is worth considering the possibility that shipowners deliberately entrusted their vessels to older crews for purely economic

³⁰See, for example, Sager, "Labour Productivity," 155-184.

reasons. In the case of Burrell, the absence of relevant documents does not allow for a more thorough investigation of the matter but the question lingers.

The last point that needs to be made concerns the common features that appear to exist among certain occupational groups. The most prominent one is between the men of the engine room and the personnel in the catering department. Both sets were recruited from the same general areas, particularly after 1890 when Burrell began to introduce Asian men into its workforce. The correlation between the ages of the two departments (+.959) is another strong indication that the company progressively entrusted low-skill jobs to these relatively low-wage employees. There was also a strong correlation (+.873) between the ages of masters and chief engineers. The chief engineer was just as important as the master, and both jobs required high levels of skill and experience. Men who occupied these posts were generally older than the average crew member and more likely to view their careers at sea as a lifetime occupation rather than a temporary adventure. In the early twentieth century masters and chief engineers were predominantly in their forties, while there were cases of engineers who were sixty years old or more.

Some perspective on Burrell's hiring patterns can be gained through an examination of the experience of the Cardiff tramp shipping firm Jenkins Brothers. Its activities were typical of the community-based maritime activities that thrived in Great Britain in the nineteenth century. As local ports declined, maritime workers in the last quarter of the nineteenth century increasingly congregated in larger ports. Mariners from the West Country seeking employment gathered at Cardiff. Similarly, Glasgow became the major shipping centre for the west of Scotland, while seamen from North East England sought berths on ships departing from the Tees and the Tyne. Up until this point,

shipping had been a more local affair in the sense that it was not unusual for a large part of the crew to share common familial or community bonds. The master would bring with him members of his immediate family or men of his local community with whom he was familiar. Masters and men shared a common language and common origins, developing paternal/fraternal relations in the workplace. Jenkins Brothers were typical in this respect even at the end of the nineteenth century. Most of its masters came from Aberporth and brought along their sons. They also hired predominantly local crews. James Jenkins was "unsparing in his efforts to obtain for young men, especially those of his native place, opportunities to begin their careers." His sister used her house as a meeting place where young men from the surrounding area could come to find employment in the family's steamships.³¹

On the other hand, Burrell & Son do not appear to have been closely connected with a particular locality in the same way as the Jenkins brothers. There was no small coastal community from which to draw its masters and officers. In that sense, its operations might have been expected to have been impersonal, unaffected by communal bonds or paternalistic attitudes towards subordinates. Glasgow provided the firm with numerous competent potential employees whose basic qualifications were their skills and competences. Yet the available data indicates that Burrell & Son was not an exception to the general rule that favoured the familiar over the alien, even if the range from which it drew its workers was much wider than a single community. The early years of the

³¹On the history of the Jenkins brothers, see David Jenkins, *Jenkins Brothers of Cardiff: A Ceredigion Family's Shipping Ventures* (Cardiff: National Museum of Wales, 1985). The quote about James Jenkins is from page 65. The best study of the paternalistic attitude towards the crew and the changes brought upon the system during the nineteenth century is Sager, *Seafaring Labour*.

company's operations demonstrated a clear preference for Scottish men, not only in positions of trust but also among the lower ranks. This national bond seems to have dissipated, however, once cost factors and the pressure to secure economies of scale began to militate against the employment of British seamen. Asian crews became dominant, at least numerically, on the Burrell steamships, although until the very end of the company's operations officers from the United Kingdom filled positions of trust.

The master was almost always the first person to be hired before the beginning of a voyage. His role was very important, particularly in the age of sail when the responsibility for the majority of decisions was vested in him. But even when the steamship and the telegraph minimized distances and facilitated communications between the managing owner and the master, his role remained significant. It was only natural for Burrell to be extremely concerned about who was in charge of its vessels, and its choices for this post highlight its policies and strategies.

Table 5.2 indicates that Scotland was the main reservoir from which the company drew masters for its ships. More than half of all captains (441 out of 798, or 55.3 percent) came from Scotland (excluding the Orkney Islands). In every decade the highest percentage came from Scotland, ranging from 46.1 percent in the 1890s to 68.9 percent in the 1870s. England was the second most important region, providing twenty-three percent of all masters, followed by the Orkneys with 11.7 percent. Burrell exhibited a clear preference for these three regions and shunned men from the United Kingdom. Only when the company had no other choice was a vessel entrusted to a foreigner; even then, the assignment was only for a brief period of time, usually until the end of the passage.

Table 5.2
Birthplaces of Masters of Burrell Vessels by Decade

	1860s	1870s	1880s	1890s	1900s	Total
Scotland	17	131	134	117	42	441
England	11	28	32	91	24	186
Orkneys	-	29	53	9	2	93
Ireland	-	1	8	12	3	24
United Kingdom	2	2	2	12	-	18
Channel Islands	-	-	12	2	-	14
Wales	-	-	-	9	1	10
Other	-	-	3	1	3	7
Europe	4	-	-	1	-	5
Total	34	191	244	254	75	798

Notes: Orkneys are depicted separately from Scotland because of the prominence of masters from these islands in the 1870s and 1880s; "United Kingdom" includes masters whose birthplace could not be determined more precisely; "other" includes five Australians, one captain from Ceylon in the 1890s and one Chilean in the 1900s. There were not 798 individual masters because many captains worked for Burrell for a number of years in different vessels.

Source: See Figure 5.1.

Not surprisingly, the crews were more homogeneous in the 1860s when Burrell operated sailing vessels. The size of the company also exercised some influence on this, since the small number of vessels required fewer crew and allowed people from Scotland to fill most of the positions. At this early stage the Burrells probably had more trust in people whose customs and language they understood and whose skills they could confirm. As the company grew and the owners became more experienced, in the 1870s the composition of the crew began to change, with greater numbers of masters and crew members coming from outside of Scotland. The trend was interrupted briefly in the 1880s when men from the Orkneys were hired in greater numbers by masters from these islands.

When Burrell moved away from Orkney captains in the 1890s, the trend towards homogenized crews was reversed. The introduction of Asian crew members meant that the majority of employees on the firm's steamships were now from a different continent,

separated by different languages, customs, and mentalities. By that point, Burrell had become an important player in British maritime circles and its policies were increasingly determined by economic imperatives. As a significant employer of thousands of men, it was not possible to remain faithful to the kinds of paternalistic behaviour that characterized the world of the sailing ship half a century earlier.

Within this broad argument about the lack of homogeneity in the place of birth among masters and crew there are some important exceptions. The most notable (and perhaps the most understandable) is the close relationship between masters and their officers (Table 5.3). On a regional basis, the correlation between the place of birth of the masters and the officers is +.90, a strong indication that either masters or the company preferred to hire officers from the same region as the captains.³²

Table 5.3
Officers' Region of Birth

	1860s	1870s	1880s	1890s	1900s	Total
Scotland	28	259	313	507	128	1235
England	14	51	76	119	62	322
Orkneys	0	80	50	7	6	143
Ireland	0	6	25	30	8	69
United Kingdom	1	8	30	48	20	107
Channel Islands	0	0	0	0	0	0
Wales	0	0	4	24	9	37
Other	2	9	10	31	20	72
Europe	0	3	5	18	9	35
Total	45	422	515	788	263	2033

Source: See Figure 5.1.

³²To calculate this correlation I assigned numeric values in response to the question of whether the masters and a majority of the officers came from the same region.

Scotland was the cradle of marine engineering. A Board of Trade return from 31 March 1901 revealed that twice as many Scottish engineers served aboard British ships compared with those from England and Wales.³³ Burrell's vessels were no exception for 74.9 percent of the engineers were from Scotland, a higher degree of ethnic concentration than in any other occupational category (see Table 5.4). Americans ranked third, behind England, as a source of engineers. This is the only occupation (aside from those involving menial tasks) in which foreigners comprised such a large share. They were heavily concentrated in the 1870s and 1880s, years of rapid expansion of steam fleets in Great Britain and elsewhere when demand exceeded the domestic supply.³⁴

Table 5.4
Engineers' Region of Birth

	1860s	1870s	1880s	1890s	1900s	Total
Scotland	54	390	540	619	115	1718
England	0	28	35	115	29	207
Orkneys	0	2	0	0	1	3
Ireland	0	3	1	0	5	9
United Kingdom	0	21	34	82	24	161
Channel Islands	0	0	0	0	0	0
Wales	0	0	0	20	3	23
Other	0	0	0	14	20	34
Europe	0	2	13	9	6	30
United States	7	25	43	12	5	92
Total	61	480	668	875	211	2295

Source: See Figure 5.1.

Compared with deck officers, the petty officer class was more diversified and multinational (see Table 5.5 below). During the first thirty years of Burrell's operations,

³³Dixon, "Rise of the Engineer," 234-238.

³⁴Sarah Palmer, "The British Shipping Industry, 1850-1914," in Lewis R. Fischer and Gerald E. Panting (eds.), *Change and Adaptation in Maritime History: The North Atlantic Fleets in the Nineteenth Century* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1985), 89-114.

Scotland was again the main source of quartermasters, boatswains, carpenters and surgeons. What differentiates this occupational group is the considerable number of Europeans, mostly from Scandinavia and Germany. Their numbers peaked in the 1890s when they comprised 27.9 percent of all petty officers. When Burrell re-entered shipping in the 1900s, however, this role was usurped by Asians. Economic efficiency was undoubtedly the main reason for this shift, which was also observable among seamen, engine room workers and those in the catering department.

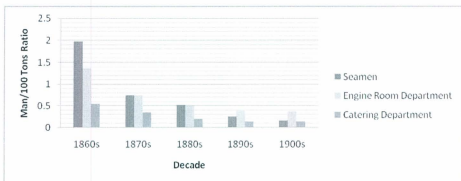
Apart from the company's early years, when sailing ships comprised the majority of the fleet, skilled jobs below deck were not numerous. While working the sails was deemed by many to be an art, requiring many years of on-the-job training, the acts of shifting coal or catering to the dietary needs of the crew were low-paid occupations filled by whoever was willing to endure the rigours of the positions. The engine room employed the largest number of men on board cargo steamships, while the catering department was not far behind.³⁵ Whenever the need arose to cut costs, owners targeted these two departments, along with seamen, because some positions, such as deck officers and engineers, could not be eliminated. Engine room workers, members of the catering staff and seamen, however, could be induced to work harder. The greatest pressure was on the engine room personnel and seamen because the catering department on Burrell's tramp steamers comprised mostly cooks.³⁶

³⁵Burrell & Son's crew agreements identify 6889 people working in the former and 2604 in the latter.

³⁶The crew lists identify the following categories that were intimately connected with the galley of the ship: chief cook, cook, firemen's cook, crew's cook, butcher, baker, storekeeper and galley boy.

The tendency to shed seamen, engine room workers and catering personnel can also be seen by calculating the man/ton ratios for all three. Figure 5.6 indicates that it was mostly in the first two areas that Burrell secured the greatest reductions. From a high of 1.98 men per 100 tons in the 1860s, the ratio for seamen plummeted to 0.16 in the 1900s, while the corresponding figures for engine room personnel were 1.37 and 0.37. The ratio for the catering department was reduced least, dropping only from 0.55 to 0.14.

Figure 5.6
Man/100 Tons Ratio, Burrell & Son (Select Departments)



Source: See Figure 5.1.

As a result of the minimal skill requirements for most jobs in these three departments, around the turn of the century Burrell seems to have opted for men (and women as well in the catering department) willing to work for the lowest remuneration irrespective of nationality. In the 1870s, Scotsmen, Irishmen and Englishmen were hired as firemen and trimmers, while in the 1880s and 1890s Europeans were added to the mix. In the twentieth century, however, Burrell turned almost exclusively to the Chinese. In the catering department, Scots, English and Europeans were also replaced by Asians.

The situation, however, was slightly different for ABs, in part due to legislation regulating the number of British seamen that had to be carried by UK-registered vessels and in part the result of the militancy of seamen in protecting their interests and excluding foreigners.³⁷ Between 1860 and 1880, the majority of ABs were from Scotland and England, with a considerable number of Irish and men from the Orkneys during the same period that Burrell used men from these islands as masters. As the fleet expanded, more Europeans, especially Scandinavians, were hired. But virtually every country to which Burrell's vessels traded contributed, including Germany, Italy, Spain, Portugal, France, Greece, Malta, Austria-Hungary, the Netherlands, Belgium, Denmark and Finland. In the twentieth century, though, there was a dramatic reduction in the number of men employed in these positions. This was reflected in the man/ton ratio, which fell from 0.26 in the 1890s to 0.16 men per one hundred tons in the 1900s. This was followed by a shift in the nationalities employed, once again with British and European ABs being replaced by men from Asia, and especially from China.

The average Burrell steamship thus contained an agglomeration of nationalities, languages and customs. The master and the officers were predominantly Scottish, overseeing the work of seamen from across the British Isles, Europe, North America and Asia. The engine room was controlled mostly by Scots, under whose command laboured Irish, English, Europeans and eventually Chinese. The catering department resembled the composition and shifts in both. Although Burrell's vessels lacked the close ties that bound

³⁷On the militancy of seamen, see Basil Mogridge, "Militancy and Inter-Union Rivalries in British Shipping, 1911-1929," *International Review of Social History*, 6, 3 (1961), 375-412; and Alston Kennerley, "The Seamen's Union, the National Maritime Board and Firemen: Labour Management in the British Merchant Marine," *The Northern Mariner/Le Marin du nord*, 7, 4 (1997), 15-28.

together masters, officers and engineers of the Jenkins Brothers steamships, it likely represented a more professional enterprise whose merits were based on a careful assessment of the skills of its individual employees.

It would be useful at this point to focus on a particular aspect of the information in Table 5.5. The staff of the catering department included the stewards. During the late nineteenth and early twentieth centuries, this was the fastest growing category of men employed at sea, mostly because of the increasing size and amenities of luxurious passenger liners. Their role on board cargo steamers, however, was more limited, and the small size of the crew meant that often only a steward, cook and one or two assistants in the galley and the mess were required.³⁸

Table 5.5
Region of Birth for Petty Officers, Engine Room and Catering Departments and Seamen

A: Petty Officers

	1860s	1870s	1880s	1890s	1900s	Total
Scotland	19	117	136	119	21	412
Europe	6	32	22	131	20	211
Asia	0	0	0	8	185	193
England	2	44	27	91	11	175
Orkneys	0	29	14	27	2	72
Ireland	0	12	28	23	8	71
United Kingdom	0	11	11	28	13	64
Wales	0	10	5	16	2	64
Other	2	7	10	24	29	72
Total	30	262	258	469	292	1311

³⁸Tabili, "Maritime Race," 180. For a more thorough study of the role of stewards on board steamers in general, particularly liners, see Valerie C. Burton, "Counting Seafarers: The Published Records of the Registry of Merchant Seamen 1849-1913," *Mariner's Mirror*, 71, 3 (1985), 314.

B: Engine Room Department

	1860s	1870s	1880s	1890s	1900s	Total
Scotland	110	659	663	538	30	2000
Europe	2	63	220	972	119	1376
England	14	205	299	610	26	1154
Asia	0	0	0	101	816	917
Ireland	15	222	241	280	9	767
United Kingdom	8	51	7	93	12	171
North America	0	32	22	87	21	162
Wales	6	12	30	94	5	147
Africa	0	0	0	0	35	35
Other	2	9	24	58	11	104
Unknown	0	19	17	16	4	56
Total	157	1272	1523	2849	1088	6889

C: Catering Department

	1860s	1870s	1880s	1890s	1900s	Total
Scotland	51	345	309	226	27	958
England	8	144	162	257	28	599
Asia	0	22	19	47	282	370
Europe	2	15	53	171	31	272
North America	0	15	31	70	11	127
United Kingdom	2	14	28	49	6	99
Ireland	0	27	14	26	5	72
Wales	0	1	3	23	1	28
Orkneys	0	0	5	1	1	7
Other	0	3	12	17	15	47
Unknown	0	14	5	5	1	25
Total	63	600	641	892	408	2604

D: Seamen

	1860s	1870s	1880s	1890s	1900s	Total
Europe	40	227	378	705	89	1439
Scotland	106	468	488	312	26	1400
England	29	220	223	379	48	899
Ireland	12	95	157	147	12	423
Orkneys	8	120	75	75	6	284
United Kingdom	24	50	87	106	17	284
North America	3	40	79	122	26	270
Asia	0	1	5	12	121	139
Wales	3	19	22	45	0	89
Other	0	8	20	34	28	90
Unknown	1	17	14	11	1	44
Total	226	1265	1548	1948	374	5361

Source: See Figure 5.1.

In the years immediately before World War I, there was a noticeable surge in the average number of stewards carried on company vessels. This increase was erratic, unstable and apparently unpredictable (see Table 5.6). The mean of 1.9 stewards per vessel in 1906 reached 6.4 in 1908, fell back to 2.4 in 1910 and soared to 9.5 in 1911. Part of the apparent increase in the last year may well be due to the small sample size (we only have crew agreements for two steamships). But it is clear that there was a general movement towards more stewards in the early years of the twentieth century.

Table 5.6
Stewards on Burrell & Son Steamships, 1890-1911

YEAR	# OF STEWARDS	# OF VESSELS	STEWARDS/VESSEL
1890	40	17	2.4
1891	42	18	2.3
1892	21	8	2.6
1893	28	15	1.9
1894	55	22	2.5
1895	34	12	2.8
1896	50	22	2.3
1897	135	66	2.1
1898	121	55	2.2
1899	26	11	2.4
...
1906	13	7	1.9
1907	70	21	3.3
1908	32	5	6.4
1909	27	10	2.7
1910	33	14	2.4
1911	19	2	9.5

Source: See Figure 5.1.

In addition to this increase in the mean number of stewards, Burrell also employed stewardesses on a number of voyages from the early 1870s to the 1920s. This practice was not common; I have found only thirty-three stewardesses who participated in twenty-eight voyages. Nor was their presence continuous; there were none in the 1860s, seven in

the 1870s, three in the 1880s, six in the 1890s and seventeen in the twentieth century. They were generally older women, at least compared with the seamen; their mean ages per decade ranged from twenty-six to thirty-eight years. On two voyages (one in 1907 and one in 1911) there were three stewardesses on board, while for three voyages there were two. On eleven voyages the stewardess served for the entire voyage, while in all other cases the stewardess joined at an intermediate port and left at a subsequent port.

There were two obvious reasons for a woman going to sea: either to see the world or as part of a long-term career. Becoming a stewardess was the most obvious option available to a woman who wanted to go to sea.³⁹ The presence of these women on board tramps, ships that offered no amenities and did not normally cater to significant numbers of paying passengers, might be a result of familial or other ties with particular crew members, but the evidence of such links on Burrell vessels is not conclusive. When associated with the increase in the number of male stewards, though, it raises the possibility that some Burrell vessels carried passengers, perhaps as a way of increasing revenue when this did not impede the cargo operations of the vessel. This sort of activity by tramp shipowners has hardly been studied,⁴⁰ perhaps because it has been assumed that

³⁹For the role of women that focuses on their employment as stewardesses, see Valerie C. Burton, "'Whoring, Drinking Sailors': Reflections on Masculinity from the Labour History of Nineteenth-Century British Shipping," in Margaret Walsh (ed.), *Working Out Gender: Perspectives from Labour History* (Aldershot: Scolar Press, 1999), 84-101; Jo Stanley, "The Company of Women," *The Northern Mariner/Le Marin du nord*, 9, 2 (1999), 69-86 and Sari Mäenpää, "Galley News: Catering Personnel on British Passenger Liners, 1860-1938," *International Journal of Maritime History*, 12, 1 (2000), 243-260. Women, however, also worked at sea in other capacities, although the literature on them remains very thin.

⁴⁰Historians of maritime migration have focused almost entirely on transport by liners. For a collection of recent studies of this topic, see Torsten Feys, et al. (eds.), *Maritime Transport and Migration: The Connection between Maritime and Migration Networks* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 33, 2007). Perhaps the most insightful scholar currently working on the subject is Drew Keeling. See especially his "Transport Capacity Management and Transatlantic Migration," *Research in Economic History*, 25 (2007), 225-283.

these vessels did not offer any inducements to potential passengers. Although the ship plans for Burrell's vessels are not available, we have no reason to believe that any were designed with accommodations for large numbers of immigrants, the type of passenger that would be most likely attracted by low fares to vessels with minimal facilities sailing on irregular schedules.

In fact, we know that some Burrell vessels did indeed carry passengers and not just poor immigrants. A search of the Ellis Island immigration records identified a total of thirty-three passengers transported to New York by ten separate Burrell steamships in the years 1892-1917.⁴¹ The list included teachers, merchants, sea captains and engineers, in some cases with their families which included small children. Their nationalities varied, from United States citizens, returning from trips abroad, to Syrians, Somalis and Scots on business or leisure visits. The vessels involved were not substantially different from others in the fleet either in terms of size or specifications. There were no stewardesses on board the ships that carried passengers for which we have records and the number of stewards on these steamers conformed to the mean for these years. Burrell's tramps most likely accepted passengers on an *ad hoc* basis, whenever it was convenient for the master and the travellers. This is better illustrated in the case of the *Strathleven* which transported 572 immigrants to Australia along with the refrigerating equipment necessary for the carriage of frozen meat on the return passage to London in 1880.⁴² The presence of women and children on long passages (for example, the family of Guy Maine remained

⁴¹"Ellis Island Ship Database." http://www.ellisland.org/search/ship_list.asp?, accessed December 2010.

⁴² The immigrants' arrival was well documented in the Australian press, as was every aspect of this particular voyage of the *Strathleven*. See for example *The Sydney Evening News* on 27 October 1879 or *The Argus* from Melbourne on 30 October 1879.

on board for a two month passage from Shanghai to New York in early 1896) appears to have been tolerated by both the master and the shipowner. Whether this can explain the rise in the average number of stewards in the 1900s requires more thorough research.

Table 5.7
British and Foreign Crew Members, Burrell & Son, 1891-1911

YEAR	TOTAL	BRITISH	FOREIGN (including Asians)	ASIANS	% FOREIGN	% ASIANS
1891	551	408	143	2	26	0.4
1892	281	189	92	2	32.7	0.7
1893	511	299	212	9	41.5	1.8
1894	671	503	168	10	25	1.5
1895	472	260	212	65	44.9	13.7
1896	895	510	385	84	43	9.4
1897	2185	1392	793	16	36.3	0.7
1898	1983	899	1084	10	54.7	0.5
1899	526	236	290	5	55.1	1
.....
1906	235	100	133	114	56.6	48.5
1907	847	114	729	493	86.1	58.2
1908	535	117	418	236	78.1	44.1
1909	431	93	338	293	78.4	68
1910	531	152	379	322	71.4	60.6
1911	207	53	153	82	73.9	39.6

Note: "British" include those from Scotland, England, Wales, Northern Ireland, the Orkneys and the Channel Islands. Foreign encompasses men and women born elsewhere, including British colonies, lascars and other Asians.

Source: See Figure 5.1.

Burrell & Son depended on foreign seamen for a considerable part of its manning requirements. From the 1890s it was not unusual for the company to send a steamship on an extended voyage with British officers, British engineers and a multi-ethnic crew. Table 5.7 shows the crew composition for the period 1891-1911.

The shift to the use of foreign-born crew, particularly Asians, is especially striking. The employment of seamen from China and India was common on vessels from

the late eighteenth century.⁴³ In the British context, “natives” were employed originally in so-called “country” ships in the short-sea and coastal trades in the Indian Ocean and the China Sea. The East India Company used this pool of experienced seafarers to recruit crew members for its fleet, as did the Peninsular and Oriental Steam Navigation Company (P&O) when the monopoly of the East India Company ended in 1834.⁴⁴

The employment of Asian seafarers had certain advantages for European shipowners, particularly after the adoption of the steamship. The financial benefits could be considerable since lascars were paid substantially less than British seamen. Their positions were precarious, however, in part because they were barred from joining the maritime unions that attracted so many British seamen. The ease with which Indians and Chinese could be substituted increased with the arrival of the steamship because the new technology made a number of highly skilled deck jobs redundant. At the same time, steam created a demand for large numbers of unskilled firemen, trimmers and stokers, posts which were among the first to be filled by lascars.⁴⁵

The opening of the Suez Canal ushered in a new era of employment opportunities for Indian and Chinese seamen. Although some liners bound for the East went around the Cape of Good Hope, others discharged their passengers at Port Said or Alexandria and

⁴³For early references to non-European seamen, see Graeme Henderson, *Unfinished Voyages: Western Australian Shipwrecks 1622-1850* (Nedlands: University of Western Australia Press, 1980). See also Rosina Visram, *Ayahs, Lascars and Princes: Indians in Britain, 1700-1947* (London: Pluto Press, 1986), 34, which mentions a few hundred lascars arriving in the UK each year between 1804 and 1813.

⁴⁴Freda Harcourt, *Flagships of Imperialism: The P&O Company and the Politics of Empire from its Origins to 1867* (Manchester: Manchester University Press, 2006), 40-43.

⁴⁵G. Balachandran, “Recruitment and Control of Indian Seamen: Calcutta, 1880-1935,” *International Journal of Maritime History*, 9, 1 (1997), 1. This tale is continued in G. Balachandran, “Crossing the Last Frontier: Transatlantic Movements of Asian Maritime Workers, 1900-1945,” in Feys, et al. (eds.) *Maritime Transport and Migration*, 97-111.

required them to make the transit to the Red Sea overland. They would then be picked up by another vessel to continue their journey.⁴⁶ Although the opening of the Canal meant that it was no longer necessary to use two separate complements of crew – one for the Atlantic/Mediterranean leg and another for the Red Sea/Indian Ocean part of the voyage – it also increased the number of passengers and hence the demand for large numbers of stewards and engine-room personnel.⁴⁷ The tramp sector was not slow to follow the example set by liner companies, particularly in the trend to reduce costs by hiring lascars.

This increasing use of non-European crews forced the British government to change the rules under which these seamen were hired because of a concern over the possibility of large numbers of foreigners settling in the port cities of the United Kingdom.⁴⁸ This was also a cause of concern for the shipping companies since they were responsible for the maintenance and well being of their non-European crew members.⁴⁹ The new rules introduced two specific changes. The first was a requirement that the period of engagement be specified explicitly, normally for one or two years rather than

⁴⁶One of the companies that operated in this fashion was P&O. For a study of the P&O's so-called "transit trade," see Freda Harcourt, "The High Road to India: The P&O Company and the Suez Canal, 1840-1875," *International Journal of Maritime History*, 22, 2 (2010), 19-73.

⁴⁷Leonidas Argyros, "Employment Patterns and Working Conditions of Crew Members in the P&O Fleet, 1890-1910" (Unpublished MA thesis, University of Greenwich, 2001), 4-7.

⁴⁸R.G.W. Prescott, "Lascar Seamen on the Clyde," in Thomas C. Smout (ed.), *Scotland and the Sea* (Edinburgh: John Donald Publishers, 1992), 200, noted that Glasgow was second only to London in terms of the number of seamen entering on lascar agreement in the late nineteenth century and that their numbers doubled between 1888 and 1901, by which date they represented almost a quarter of the entire British merchant service and about thirty percent of all British seamen entering the port of Glasgow.

⁴⁹The retention of non-European seamen in the UK became a problem in the twentieth century for seamen of African origin as well. See Ayodeji Olukaju, "Desertion, Dereliction and Destitution: The Travails of Stranded West African Seamen in the United Kingdom, ca. 1921-1934," in Carina E. Ray and Jeremy Rich (eds.), *Navigating African Maritime History* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 41, 2009), 139-162.

for a complete voyage as was the case with European crew members. The second was that lascars were prohibited from remaining in Great Britain and were required to return to their place of origin as soon as possible, whether on the vessel that brought them to the UK or on another.⁵⁰ The new rules also led to the introduction of special Asiatic and lascar agreements.⁵¹ As Janet J. Ewald put it, these agreements turned lascars into a “maritime labour pool of non-European, migrant, contract workers: aliens in Britain and working under different conditions from sailors recruited in British ports.”⁵²

The use of lascars and Asiatic agreements offered a number of advantages to the British shipowner. The setting of wages at substantially lower levels than those for Europeans was the most obvious and undoubtedly was instrumental in the persistence with which they pursued the right to employ these men. But there were other, more indirect benefits. By stipulating a specific time limit, the agreements ensured that lascars would remain with the ship for a longer period of time. This was reinforced by the difficulty these men had in deserting in the ports of the present and former European colonies, areas that were so attractive to white sailors looking for better prospects ashore. The recruiting traditions and working conditions of those on these agreements also offered indirect advantages to British shipowners. Despite negative stereotypes associated

⁵⁰See, for example, Great Britain, Merchant Shipping Act 1894, 57 and 58 Vict. cap. 60, sect. 125.

⁵¹European crew members always signed a standard crew agreement, and this remained the case. But Chinese and Asians could now be signed on under two different special agreements which specified the unique terms of employment for seamen from these regions. For a full discussion of these forms, see Leo Barnes, *Evolution and Scope of Mercantile Marine Laws Relating to Seamen in India* (New Delhi: Maritime Law Association of India, 1983), 168-178.

⁵²Janet J. Ewald, “Crossers of the Sea: Slaves, Freedmen and Other Migrants in the North-western Indian Ocean, c. 1750-1914,” *American Historical Review*, 105, 1 (2000), 76.

with Indians and Chinese seamen, European officers generally found these men far more amenable and obedient than their white counterparts. Their ambivalent, insecure status and the hostility of the maritime trade unions towards them ensured that in cases of grievances, they could not count on external support. At sea they were nominally under the control of the *serang*, a rank equivalent to bosun. The *serang* was responsible for recruiting the crew members and dealing with the company on all matters pertaining to them. This system of employment, often based on family and communal networks, ensured that the men were capable of working together, even if this sometimes sacrificed quality.⁵³ For religious reasons, lascars were also more inclined towards sobriety and obedience to their superiors, qualities appreciated by European officers and company managers.⁵⁴

The result for the British shipowner was a steady increase in the number of non-Europeans employed in the merchant fleet of Great Britain. There are different estimates of the exact numbers but it appears that from the late 1850s they began to constitute a substantial part of the work force on British ships. In 1855 there might have been 10,000-12,000 lascars, representing about eight percent of the work force, and they dominated on particular routes, especially in the Indian Ocean. Because of the Crimean War and the Australian Gold Rush their proportions (but not necessarily their numbers) fell due principally to an increasing demand for seamen. Thereafter, though, their numbers fell for a time, only to start rising again as the steamship became more prevalent in Asian

⁵³Argyros, "Employment Patterns," 4-5.

⁵⁴Peter Padfield, *Beneath the House Flag of the P&O* (London: Hutchinson, 1981), 115.

waters.⁵⁵ The first official return on lascars in 1886 indicated that there were 6513 employed in British vessels. Their numbers increased to 45,571 in 1913.⁵⁶

Most of the information available on the employment and working conditions of lascars is based upon scholarly studies of liner companies. Non-European, non-white seamen on board tramps have received almost no attention, likely due to the untested assumption that their lot could not have been radically different than that of their counterparts in liners. In fact, the requirements for employment in these two shipping sectors are quite dissimilar, a natural result of the divergent requirements of the trades that the two sectors plied. The typical tramp had no regular sailing schedule or destination. Instead, the shipowner sent his vessel anywhere that it was possible to secure a cargo, and the duration of the passage could fluctuate dramatically, even after the introduction of steam. Constant employment was rare, and long periods in port could be followed by weeks or months crisscrossing the world's oceans. It was therefore impractical to sign on crew members for a fixed period as did liners. It was more suitable to hire the necessary men for single voyages, laying them off once the vessel discharged its cargo at a terminal port. Liners, on the other hand, could use their large work force to speed operations in port, thus ensuring a rapid turnaround. When multiple ships were

⁵⁵Conrad Dixon, "Lascars: The Forgotten Seamen," in Ommer and Panting (eds.), *Working Men Who Got Wet*, 268-269.

⁵⁶Valerie C. Burton, "Counting Seafarers: The Published Records of the Registry of Merchant Seamen 1849-1913," *Mariner's Mirror*, 71, 3 (1985), 312-319. Different authors provide different estimates, but it would appear that the common denominator is the steady presence of lascars in U.K.-registered vessels with a percentage between ten and seventeen percent. Burton is basing her numbers on the Registrar General of Shipping and Seamen. Dixon, "Lascars," 281, using statistical information provided by the Board of Trade Annual Statements of Trade and Navigation, offers slightly different numbers that do not alter the general conclusions. Prescott, "Lascar Seamen on the Clyde," 200, noted that by this time they represented almost a quarter of the entire British merchant service and about thirty percent of all British seamen entering the port of Glasgow.

owned by the same company, men could be shifted from one vessel to another. Their retention at the end of each voyage minimized the hassle of looking for new crew members, while longer periods spent working together ensured smoother and more efficient operations.⁵⁷ These advantages were of less importance to the tramp shipowner. Operating in a highly competitive market, cutting costs was of paramount significance and retaining unnecessary crew members made no financial sense. The complement of crew on the average tramp could not compete in size with the hundreds of stewards and engine-room personnel required by the increasingly larger passenger steamers of the late nineteenth century. For these reasons, many tramp shipowners continued to employ their men under standard, rather than lascar or Asiatic, crew agreements. Burrell & Son was not an exception: among the surviving crew agreements at the Maritime History Archive there were no lascar or Asiatic agreements for its vessels, and non-white crew members were registered alongside their European co-workers on regular crew lists.

Europeans and North Americans comprised the majority of foreigners on Burrell's vessels during the 1890s. Nonetheless, their proportions fluctuated significantly from about twenty-five to forty-five percent, except for the last two years of the decade when the needs of the Boer War undoubtedly reduced the availability of British seamen. The use of Asians in the 1890s was concentrated in 1895 and 1896 when they comprised 13.7 and 9.4 percent of the Burrell's crews, respectively. Their impact was far more pronounced, however, when the company re-entered shipping in 1906. For the rest of the time that Burrell was engaged in shipping foreigners registered a more-or-less steady presence on board the firm's steamships. The ethnic composition of the foreign-born

⁵⁷Ewald, "Crossers of the Sea," 85-87.

component was altered significantly, with Asians constituting the majority not only of non-British crew members but also of all Burrell employees. By 1907, almost nine of every ten men serving on the company's ships were non-British Europeans, North Americans and Asians, all under the command of a handful of British officers and engineers. These foreign crew members are discussed further in Table 5.9.

Asian crew members were rare before 1895, and they did not become especially prominent until after 1906. In the 1870s, India provided the majority of these men, even though their absolute numbers were quite small, comprising a mere forty-two men, the majority from Goa and Bombay. They served in the catering department, mostly as waiters and cooks. Since these vessels did not carry significant numbers of passengers, there were only a handful of these men. Indeed, they were hired in such small numbers that they did not fall under the *serang* system. Whatever personal bonds they might have had are lost to us, but it does not appear that they were any well developed familial or communal networks. During the 1880s the number of lascars was even lower than in the previous decade. Only thirty-three Asians served on Burrell's vessels in this decade, and their places of origin were different. The majority was from China and Hong Kong (eighteen) and Japan (five), while India provided a mere eight men. Again, they filled positions in the catering department, mostly as cooks and stewards.

It was in the 1890s that the number of Asian crew members began to increase. More than four of every five Asians employed in that decade were from China and Japan, and they worked mostly in the engine room as firemen and trimmers. Most of these men were substitutes recruited at intermediate ports of call, generally in Asia; only sixteen percent were present when the vessel left the United Kingdom. On the return leg, though,

these numbers were significantly higher: fully thirty-four percent of non-white crew members were discharged at the terminal port in Great Britain. Another fifteen percent were discharged in ports in the United States and Europe (sixteen and fifteen men, respectively).

The greatest number of Asians to serve on Burrell's ships was hired in the twentieth century (see Table 5.8). Unlike in earlier decades, after 1906 the Chinese constituted not only eighty-four percent of non-European employees but also a whopping forty-two percent of all seamen. The greatest number worked as firemen, trimmers or greasers, but others served in the deck department and as quartermasters, stewards and cooks. Burrell clearly saw the Chinese as competent (and low-cost) substitutes.

Table 5.8
Asian Crew Members Place of Origin, 1891-1921

Place of Origin	Number of Men	
	1891-1900	1906-1921
Aden	8	66
Ceylon	8	-
China (incl. Hong Kong)	97	1459
India	10	27
Japan	74	21
Philippines	7	4
Singapore	2	49
Other	4	5

Source: See Figure 5.1.

The most interesting change in the twentieth century, though, was the tendency for the Chinese and other Asians to join at the beginning of the voyage. In fact, almost three-quarters signed on in the United Kingdom. Moreover, close to two-thirds were discharged in Britain at the end of the voyage. Burrell did not appear concerned with the acrimonious debates in British port cities over the "yellow peril" which allegedly was undercutting

wages and imperilling the safety of vessels. Trade union militancy was on the rise, and threats of massive strikes and intimidation against the Chinese and the shipowners who employed them were becoming more common. The Chinese were condemned for "lowering the standard of life for white men," while Parliament was urged to intervene in order to avert the dangers resulting from this "Chinese invasion."⁵⁸

From the 1890s onwards there was a relationship between nationality and occupation on Burrell's vessels. Engineers, for example, were predominantly from Scotland, while North Europeans were particularly numerous among carpenters. This was a long-standing characteristic of the British merchant marine first identified by Keith Matthews, who noted a similar relationship in the first half of the nineteenth century in the fleet owned by C.T. Bowring.⁵⁹ Matthews asked why men from Great Britain were apparently unwilling to serve in these trades; his preliminary answer was that people from Scotland and England were lured into landward trades during a period of rapid industrialization. While it is impossible to prove or disprove Matthews' hypothesis using data on Burrell's workforce, it is clear that there was a similar relationship between nationality and occupation.

Table 5.9 compares the data from Burrell & Son's crew agreements with information on foreigners and Asians from two different sources. The census, of course, was taken only every five years, so there is no information for the intervening years. Because the *Annual Statements* do not clarify whether lascars are included in the number

⁵⁸For more information regarding the relationship between Asian seamen and British trade unions see Rosina Visram, *Asians in Britain: 400 Years of History* (London: Pluto Press, 2002), particularly 54-59.

⁵⁹Keith Matthews, "Recruitment and Stability of Employment in the British Merchant Marine: The Case of C. T. Bowring and Company," in Ommer and Panting (eds.), *Working Men Who Got Wet*, 79-103.

of foreigners, they need to be used with care in any analysis of “foreign” seamen. Still, despite these problems it is clear that for most of the period 1891-1899 for which we have data, with the exception of 1895 Burrell employed more foreigners and fewer lascars than the average British shipowner. The situation changed in the twentieth century when the company consciously turned towards the Chinese as a source of cheap labour and began to staff its vessels with considerably more Asians than the average for the British merchant marine.⁶⁰

Table 5.9
Foreign and Asian Seamen on Burrell & Son, 1891-1911

Year	% of Foreign Seamen in Burrell & Son	% of Asian Seamen in Burrell & Son	% of Foreign Seamen in Censuses	% of Asian Seamen in Censuses	% of Asian Seamen in <i>Annual Statements</i>
1891	26.0	0.4	13.8	12.3	10.0
1892	32.7	0.7	-	-	10.5
1893	41.5	1.8	-	-	10.0
1894	25.0	1.5	-	-	11.0
1895	44.9	13.7	-	-	12.0
1896	43.0	9.4	15.2	15.5	12.5
1897	36.3	0.7	-	-	13.0
1898	54.7	0.5	-	-	13.5
1899	55.1	1.0	-	-	14.0
.....
1906	56.6	48.5	17.3	19	16.5
1907	86.1	58.2	-	-	16.0
1908	78.1	44.1	-	-	16.0
1909	78.4	68.0	-	-	16.0
1910	71.4	60.6	-	-	16.0
1911	73.9	39.6	13.8	20.6	16.0

Sources: The censuses are taken from Valerie C. Burton, “Counting Seafarers: The Published Records of the Registry of Merchant Seamen, 1849-1913,” *Mariner’s Mirror*, 71, 3 (1985), 318. The *Annual Statement* is from Conrad Dixon, “Lascars: The Forgotten Seamen,” in Rosemary Ommer and Gerald Panting (eds.), *Working Men Who Got Wet* (St. John’s: Maritime History Group, Memorial University of Newfoundland, 1980), 281.

⁶⁰The numbers for foreigners (without lascars) are more complicated in the twentieth century. In the first census, in 1906, Burrell employed less foreigners than the average (if we subtract the number of lascars from the total number of foreigners employed by the company we have a percentage of 8.1 for the latter. In 1911 on the other hand the situation was markedly different with Burrell using 34.3 percent foreigners as opposed to a national average of 13.8.

Apart from the most obvious information gleaned from the crew agreements, such as place of birth, age, wages, etc., we can also analyze literacy among the crew. As David Alexander has noted, although "there was obviously no technical reason why the master should be interested in whether the seamen," apart from the officers and engineers, possessed these skills, "if education was associated with socialization, then literacy might be related to behaviour and in that way related to a more or less satisfactory performance."⁶¹ The ability to sign one's name has long been regarded as an acceptable measure of literacy in eighteenth- and nineteenth-century England because by then school curricula had been devised so that reading was taught before writing. However, the intermittent nature of school attendance for many ensured that large numbers of children left school having acquired some ability to read but little or no ability to write. During the early phases of the Industrial Revolution, the proportion of the population that could sign their names was less than the proportion able to read and greater than the proportion able to write. By analyzing the numbers of men who could sign we can arrive at a reasonable "middle range" measure of literacy.⁶²

The period between 1750 and 1850 was marked by an expansion of educational opportunities in the United Kingdom. By 1840, between two-thirds and three-quarters of the British working class had achieved rudimentary literacy, and these proportions increased dramatically over the next fifty years. As a result, the proportion of men who were unable to sign their names fell from thirty percent in 1850 to one percent in 1911.

⁶¹Alexander, "Literacy among Canadian and Foreign," 27.

⁶²Roger S. Schofield, "Dimensions of Illiteracy in England 1750-1850," in Harvey J. Graff (ed.), *Literacy and Social Development in the West: A Reader* (Cambridge: Cambridge University Press, 1981), 203.

The ability to read and write was desirable for three reasons: it might be essential for participation in the life of a particular social group; it might provide skills relevant to a particular occupation; and it could lead to upward social and economic mobility.⁶³

During the nineteenth century, Scotland was in the educational vanguard. The Presbyterian insistence that all men should be able to read the Bible, combined with the powerful political position of the Kirk and the weakness of the landed classes, enabled Scotland to institute a general system of popular education from the beginning of the eighteenth century. As a result of this attitude towards schooling, the first national literacy figures for Scotland in 1855 revealed an astonishingly high literacy rate of 89 percent.⁶⁴

The shipping industry did not need many men who could read and write. The majority of positions aboard a ship required strength and the ability to perform under harsh conditions, moving heavy weights, loading and unloading or stoking the fires aboard steamships. It is not therefore necessary that ship literacy reflect general trends in the broader society. Yet in a society that respected education, even among the lower classes, might well produce a higher level of literacy that could potentially spill over to particular industries even if they did not require educated men. The arrival of the steamship was ideally suited to allow young men who were interested in a maritime career to first pursue a general education.⁶⁵ Most boys left school between the ages of ten

⁶³*Ibid.*, 204-213.

⁶⁴Lawrence Stone, "Literacy and Education in England 1640-1900," *Past & Present*, 42 (1969), 69-139. See also W.M. Matthew, "The Origins and Occupations of Glasgow Students, 1740-1839," *Past & Present*, 33 (1969), 74-94. For some statistics on education in Scotland, see B.R. Mitchell, *Abstract of British Historical Statistics* (Cambridge: Cambridge University Press, 1971).

⁶⁵Stone, "Literacy and Education," 99.

and thirteen, too young for profitable employment aboard a steamship where apprenticeships were not necessary and were actually frowned upon by shipowners.

Masters were by far the most literate group aboard Burrell's ships because their responsibilities necessitated an ability to read and write. It is not surprising that there were no cases in the crew agreements for Burrell's vessels in which a master could not sign his name. Officers and engineers were also well educated. Although in a handful of cases was there no signature accompanying the entry in the crew agreement, given that certification for these positions required passing a written exam it is virtually certain that these were cases where the officer or engineer simply neglected to sign the agreement.

The emphasis in the following analysis will therefore be on the other occupational categories since it is among them that we would expect the greatest variations in literacy. A well educated crew might imply better working and living conditions during the voyage, with more emphasis on discipline, respect and adherence to responsibilities. Yet it is difficult to assign any of this to a specific policy on the part of the shipowner. Was Burrell looking for a well educated crew or was the company satisfied to employ whoever came their way? To what extent did the company unwittingly benefit from the improvement to the educational level observed among Scots and the British in general, or did Burrell perhaps shun literate crew members, associating illiteracy with lesser skills and hence an opportunity to make savings in the wage bill?

Throughout the nineteenth century petty officers and members of the catering department were considerably more literate than the seamen or the men who worked in the engine room. Given the tasks that each group had to perform, this makes sense. A number of the occupations grouped under "petty officers" had technical duties for which

literacy would be desirable. Some members of the catering department had the responsibility to render accounts and keep track of stores; again, literacy skills would be beneficial here as well. The tasks of seamen and those who worked in the engine room, on the other hand, required few or no literacy skills. The relative rankings of these four departments therefore are exactly what might have been expected.

Table 5.10
Burrell & Son Crew Literacy (percent)

	1862-1870	1871-1880	1881-1890	1891-1900	1906-1929
Petty Officers	96.7	81.8	84.5	99.0	47.7
Seamen	78.0	78.2	72.5	88.8	56.2
Engine Room	59.5	58.9	59.5	76.2	38.8
Catering Dept.	95.2	89.2	88.9	93.7	53.8

Notes: For the groups included within each category, see note 16 above.

Source: See Figure 5.1.

The relatively high levels of literacy in the nineteenth century, regardless of occupational grouping, also reflect the predominance among the crew of natives of the British Isles and Northern Europe. These two groups dominated all of the occupational groups in Table 5.10 through the 1890s. While literacy levels for petty officers declined in the 1870s and 1880s, they rebounded to ninety-nine percent in the 1890s. Seamen were more literate in each decade except the 1880s, but the overall trend was decidedly upward throughout the period. Literacy among engine-room workers was stable through the 1880s, but improved sharply in the 1890s. The catering staff was almost as literate as the petty officers (and more so in the 1880s and 1890s), with rates ranging narrowly between eighty-nine and ninety-five percent.

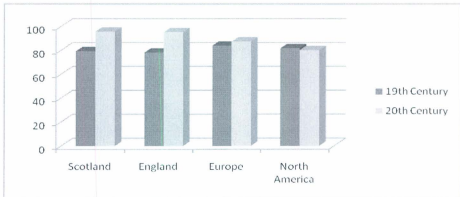
Table 5.11
Literacy Levels among Burrell & Son Seamen and Engine Room Personnel, 1890s

1890s	Number of Men	Literate Men	% of Literate Men
DECK DEPARTMENT			
Scotland	372	348	93.5
England	430	380	88.4
Ireland	161	136	84.5
North Europe	718	678	94.4
South Europe	98	45	45.9
North America	113	106	93.8
ENGINE ROOM DEPARTMENT			
Scotland	466	378	81.1
England	566	405	71.6
Ireland	245	185	75.5
North Europe	615	582	94.6
South Europe	146	87	59.6
North America	41	37	90.2
Asia	96	9	9.4

Source: See Figure 5.1.

We can observe the relationship between literacy and nationality in yet another way by examining seamen and workers in the engine room departments (see Table 5.11). Among seamen, literacy was strikingly high for those from the United Kingdom and Northern Europe, but more than half of those from Southern Europe were illiterate. Workers in the engine room were, not surprisingly, less literate on average, but the differences between those from the UK and Northern Europe compared to those from the Mediterranean remain. What is significant, however, and a portent for the future is the low level of literacy among Asians. Less than ten percent of Asian engine-room workers were literate. While Burrell did not employ many Asians in the 1890s, this would change dramatically in the twentieth century.

Figure 5.7
Burrell & Son Crew Members Literacy Rate by Region



Source: See Figure 5.1.

In the twentieth century this improving trend in literacy was reversed. Moreover, this decline was fairly consistent regardless of occupation. The decline was particularly striking among petty officers and in the engine room; the former dropped by more than fifty percent, while rates for the latter fell by almost as much. The most important factor was the numerical dominance of Asians in the most populous departments and positions (firemen, able-bodied seamen, stewards, cooks). Regardless of occupation, Asians had a literacy rate of only 28.7 percent, vastly lower than the levels among British, Europeans and North Americans (see Figure 5.8). Scots, English and Europeans were actually better educated in the 1900s, with the percentage of people from Scotland who could sign their name rising from 79.2 percent in the nineteenth century to 95.7 percent in the twentieth, while the English rose from seventy-eight to 95.2 percent and the Europeans improving from 83.8 to 87.3 percent (the difference between Northern and Southern Europeans of

course remained). Only North Americans exhibited a slight downward movement, from 81.6 to eighty percent, but this drop was not statistically significant.

Table 5.12
Burrell & Son Crew Age and Literacy (excluding Officers and Engineers)

BRITISH

AGE	1860-1869		1870-1879		1880-1889		1890-1899		1906-1915	
	N	%	N	%	N	%	N	%	N	%
10-19	40	83.3	154	80.6	126	82.4	227	98.3	12	75.0
20-29	201	61.1	1284	59.3	1375	53.4	1661	58.2	104	31.1
30-39	78	53.4	609	48.0	689	47.4	994	55.9	79	31.4
40-49	28	71.8	169	45.9	206	42.0	379	55.7	31	27.2
50+	5	21.7	43	62.3	50	41.7	67	54.5	9	17.6

FOREIGN

AGE	1860-1869		1870-1879		1880-1889		1890-1899		1906-1915	
	N	%	N	%	N	%	N	%	N	%
10-19	-	-	11	68.8	35	87.5	128	90.8	27	55.1
20-29	31	70.5	161	62.9	346	66.8	1249	82.4	448	38.8
30-39	14	50.0	114	52.5	213	61.0	742	79.4	206	35.9
40-49	-	-	49	70.1	91	66.9	241	77.5	55	59.8
50+	-	-	7	77.8	5	50.0	36	72.0	10	58.8

Source: See Figure 5.1.

Younger crew members were better educated than older workers (see Table 5.12). In every decade, British employees under the age of twenty comprised the most literate group, while among foreigners they were very close to the top of the literacy rankings. This finding is similar to the situation described by Alexander regarding Canadian and foreign crew members in the Yarmouth merchant fleet in the second half of the nineteenth century.⁶⁶ The similarities between Burrell's crew and those who served in Yarmouth vessels also existed among older age cohorts. Since the crew was aging, literacy levels fell. This was true for every decade from the 1860s to the 1920s and applied equally to British and foreign crew members. The only reversal was observed among those over the

⁶⁶Alexander, "Literacy among Canadian and Foreign Seamen," 3-33.

age of fifty during the 1870s. Half of these older men were bosuns and carpenters and half were ABs, but it is not clear why in this particularly decade they should have been more literate than their younger colleagues.⁶⁷

These data raise a question that Alexander first posed: to what extent was illiteracy something that trapped men into a life at sea while younger, better educated men found more attractive opportunities ashore. Alexander's methodology can be used here – to follow the men as they age and to look for significant changes in literacy level between different groups. Alexander found that men in their thirties were the most likely to abandon life at sea and seek land-based careers, but in Yarmouth he did not find any considerable changes in education levels among men in their twenties and those in their thirties.⁶⁸ There can be debates as to what counts as a “significant change” but in Burrell's case we can see that during the 1860s and 1870s there was a noticeable drop in the numbers of literate men between the two age groups. This change, which is observable among both British and foreign crew members, became less pronounced in the following decades. This means that from the 1880s we can no longer conclude that illiterate men were trapped in a maritime life. For earlier periods, the argument has some validity, but more research is required before we can arrive at a more definitive conclusion.

The port where a crew member signed on was also related to the level of literacy, and this was true for British and foreign crew. There was much less variance from the mean literacy rate among British men, regardless of where they signed on, than among

⁶⁷In the case of foreigners, it might be a result of the very small population sample.

⁶⁸Alexander, “Literacy among Canadian and Foreign Seamen,” 14-15. The only instance of a drop in literacy rates Alexander noticed was among Canadian crew members in the period 1870-1874.

foreigners (see Table 5.13). Among the foreign crew we can observe a high variation around the mean for various nationalities. Not surprisingly, men signing on in Asian ports were the most illiterate. This was especially true for Calcutta, where less than one in five being able to sign their names when they joined a ship.

Table 5.13
Burrell & Son Crew Literacy by Joining Port, 1862-1929

British Crew Members				
	Total	Literate	Illiterate	Percentage Literate
Antwerp	76	72	4	94.7
Dunkirk	36	33	3	91.7
Rotterdam	34	31	3	91.2
Hamburg	137	119	18	86.9
South Shields	173	147	26	85.0
New York	203	172	31	84.7
Belfast	32	27	5	84.4
Philadelphia	62	52	10	83.9
Cardiff	433	353	80	81.5
All Ports	10975	8754	2221	79.8
Greenock	174	138	36	79.3
London	769	606	163	78.8
Glasgow	5393	4174	1219	77.4
Swansea	266	204	62	76.7
Bristol	103	78	25	75.7
Liverpool	848	532	316	62.7
Non-British Crew Members				
	Total	Literate	Illiterate	Percentage Literate
Dunkirk	138	133	5	96.4
Philadelphia	100	94	6	94.0
Swansea	84	76	8	90.5
Hamburg	644	579	65	89.9
New York	307	265	42	86.3
Antwerp	211	181	30	85.9
Cardiff	217	165	52	76.0
Rotterdam	145	109	36	75.1
Glasgow	774	572	202	73.9
Liverpool	311	210	101	67.5
All Ports	6527	4339	2188	66.5
Hull	77	50	27	64.9
South Shields	129	83	46	64.3
London	647	226	421	34.9
Hong Kong	153	47	106	30.7
Calcutta	117	20	97	17.1

Source: See Figure 5.1.

The analysis of crew information from the British Empire Agreements and Accounts of Crew allows us to paint a picture of Burrell & Son as a company operating within general developments in the maritime world of the late nineteenth and early twentieth century. The Atlantic Canada Shipping Project, studying fleets of sailing ships registered in the eastern provinces of Canada, observed a drastic reduction in the man/ton ratio which allowed shipowners to secure economies of scale and to reduce their manning costs. Burrell & Son also reflected a similar trend. Eric Sager offered two main reasons for this development. The increasing mean age of the crew meant that more experienced crew members could be retained for longer service. It is possible that this was true for Burrell, but the fact that I had access to far fewer crew agreements than did the research associated with the ACSP makes this difficult to determine. At the same time, Sager argued that shorter routes experienced a more pronounced drop in the man/ton ratio, something we also noticed in the case of Burrell & Son.

The company was also fairly typical of its time in terms of recruiting crew members from among the local maritime community. Glasgow was one of the most important shipping centres in the British Isles, a beacon for potential employees from many different regions of Great Britain and the rest of the world. Burrell & Son demonstrated a clear preference for Scottish men, at least for positions of responsibility aboard their steamships. The master and the officers were predominantly Scottish. Anglo-Saxons, mostly Scots, were in charge of the engine room, overseeing the labour of men from Ireland, England and Europe. When competition demanded economies of scales, Chinese replacements were brought in by the hundreds. Initially the catering department was manned by a fascinating mixture of nationalities but as was the case with the engine-

room staff, once economies could be realized by the employment of men from China, the majority of the catering personnel soon came from East Asia.

The predominance of crew members from Scotland, England and Europe, especially in the nineteenth century, explains the high levels of literacy observed in the crew agreements. British, European and North American societies recognized the importance of education and offered relatively generous support for their school systems. The results of the extension of the education systems to include the masses can be seen clearly in the case of Burrell & Son. The absence of communal and familial ties among masters, officers, engineers and the rest of the crew aboard the company's vessels gave Burrell & Son a more professional character, with the managers paying more attention to the skills of individual employees rather than accepting them because of kinship or community ties. This was a departure from the experience of some other British tramp shipowners, but its overall impact on performance is not clear. It is therefore time to focus our attention on different yardsticks of performance (such as turnover and desertion) that might allow us to develop a more rounded view of the work experience for those who went to sea on Burrell's ships.

Chapter 6

Crew Economics

A career at sea meant working in harsh and often perilous conditions. This is not merely a conclusion reached by historians, for this point was widely acknowledged in the eighteenth and nineteenth centuries. James Boswell quotes Samuel Johnson saying in 1759, "life on a ship was like being in jail with the added chance of being drowned,"¹ an attitude that reflected the common conception about life afloat. While there is little doubt that life at sea was dangerous, scholars have begun to question the idea that sailors were unable to control their own existence and were subject to the whims of capricious masters in work environments they could not influence. Peter Linebaugh and Marcus Rediker, for example, have argued that sailors were often the prime movers in cycles of rebellion.² Knut Weibust has also identified limitations to the degree of coercion imposed by the nature of work at sea. Problems of under-manning and the difficulty of finding crews precluded imprisonment or brutality as punishments; crew members were simply too valuable for these to be rational behaviours for either masters or shipowners. Crew members could and did protest ritually (with satirical songs), and through demonstrations, "accidents," physical aggression and work slowdowns (stoppages, poor workmanship, misuse of the ship's equipment).³

¹ James Boswell, *The Life of Samuel Johnson* (London: Penguin Books, 2008), 186.

² Peter Linebaugh and Marcus Rediker, *The Many-Headed Hydra: Sailors, Slaves, Commoners, and the Hidden History of the Revolutionary Atlantic* (Boston: Beacon Press, 2000).

³ Knut Weibust, *Deep Sea Sailors: A Study in Maritime Ethnology* (Stockholm: Nordiska Museet, 1969).

The transition from sail to iron and steam (and therefore to industrial capitalism) brought considerable changes in the experiences of seamen. Larger vessels necessitated new methods of supervision and control while increasing employment. Out of pre-industrial paternalism and fraternalism arose the occupational division of labour and a new set of relationships among all members of the crew, who were not necessarily connected with the master and/or owner of the vessel through familial or communal bonds. Large vessels, employed on longer voyages to distant regions, became breeding grounds for higher rates of desertion. Eric Sager has noted that British legislation concerning seafarers was not directed at illiterate, ignorant and brutal men but to calculating individuals who understood their customary and legal rights.⁴

Most of the trends that Sager found in the Canadian merchant marine can also be deduced from the crew agreements of the vessels owned by Burrell & Son. In the preceding chapter, the changed pattern in birthplaces over time suggests that only in the 1860s was there a potential for paternalism coming from a community base. While in the 1860s most of Burrell's crews came from Glasgow and its hinterland, by the first decade of the twentieth century the Chinese constituted the largest single ethnic group serving on the company's ships. There was a significant increase both in the size of the vessels and the length of the voyages. Men working for Burrell & Son were not ignorant but were in a position to make calculated decisions based on opportunities and wages available at different ports. Although the attitudes of individuals regarding life on board Burrell's vessels are difficult (if not impossible) to discern, the crew agreements provide a good

⁴Eric W. Sager, *Seafaring Labour: The Merchant Marine of Atlantic Canada, 1820-1914* (Kingston: McGill-Queen's University Press, 1989).

deal of material for a broad analysis of working conditions. Sickness, death, and desertion were problems for every shipowner, and Burrell was not immune to any of these. In theory, higher wages in certain ports will induce greater rates of desertion. The new overseas colonies of settlement could also prove an attractive destination for men interested in better employment opportunities or outright immigration. The wages recorded in the agreements permit a comparison of levels of remuneration offered by a tramp company to be compared with liners. They can also support arguments that explain the observed levels of desertion. The arrival of large numbers of Chinese employees also had the potential of drastically altering working conditions, necessitating accommodations especially in the area of communications.

6.1 A Question of Loyalty

Changing patterns of crew retention, the percentage of employees who returned to a Burrell ship (not necessarily the same vessel) after their original agreement expired, offers an indication to shifting attitudes towards maritime professions. Among the information provided in the crew lists is the name of the vessel on which the person last served. Since the names of all Burrell's vessels are known, it was not hard to identify those seafarers who served with the company on at least two consecutive voyages. There are, however, certain limitations. Since the names of the employees are often difficult to read, I made the crucial decision not to try to computerize them. Instead, I asked whether each individual crew member had served on a Burrell ship on his or her last voyage. This means that I can only trace crew members through two voyages and can not see whether

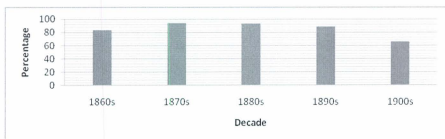
they remained with the company over a period of years or whether they advanced within the company. Still, an analysis of retention based on whether crew members served on a Burrell vessel on their last voyage enables us to discern trends among groups of employees towards a more professional attitude. Whether particular individuals abandoned a career at sea after a few voyages is of course important and worthy of investigation, but so is the general movement (or lack thereof) of employees (or groups). Even without being able to exclude possible exogenous influences, such evidence can help us to infer something about the quality of the working environment on board a Burrell vessel.

For this analysis, I have concentrated the six broad occupational categories (first discussed in Chapter 5) into three groups: masters, officers and non-officers. Three criteria were used to place particular occupations in one or the other of the groups: the likely degree of authority, the level of respect expected and the relative need to possess specialized knowledge. This is why deck officers, petty officers and engineers were put into one category, while all other occupations were placed in a second.

We can begin by looking at masters. Because these were men (and all of Burrell's masters were males) who had reached the top of their profession, a reasonable hypothesis would be that their retention rates would be higher than either of the two other categories. Indeed, as Figure 6.1 demonstrates, this in fact was true. As sailing vessels were replaced by steamships in the 1870s, the likelihood of a master remaining with the company increased. The rate of retention for masters was relatively unchanged in the 1880s, followed by a slow decline in the 1890s and a precipitous decline in the twentieth century. Masters occupied a unique position, not only in the case of Burrell but generally in every

company. In the crew agreements, they were the only occupational group to remain with the vessel at the end of the voyage while the remainder of the crew was discharged. In the 1860s, for example, Burrell operated eight vessels for which we have records, and they made thirty-one different voyages. In fifteen cases the master remained with the ship, a number that needs to be doubled to account for the following voyages, and which indicates that Burrell entrusted command of all his vessels to a small group of men. In twenty-five of the thirty-one cases, the master had served with the company on his previous voyage, an extremely high percentage that implies the use of the same people many times.⁵

Figure 6.1
Master Retention Rates, Burrell and Son



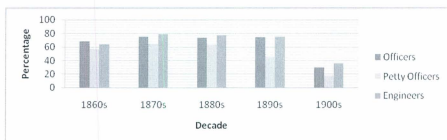
Source: Memorial University of Newfoundland, Maritime History Archives, British Empire Agreements and Accounts of Crew, 1862-1929 (Crew List Database).

The same principle seems to pertain throughout the company's history with the number of captains who were fired or superseded remaining extremely low (there were only sixteen cases of masters being replaced during a voyage). Nonetheless, the retention rate remained high until the 1900s when there was a general increase in the number of

⁵The real rate of retention was doubtless higher because a number of voyages were the first ones made by the vessels; this, of course, meant that a new master was needed.

masters who were new. It is likely, however, that this is an aberration caused by the fact that Burrell had exited from the industry at the end of the 1890s and only returned in 1906; again, this meant that a number of new masters were required.⁶ Nonetheless, the high retention rate for masters suggests the long-term career possibilities that came with the position.

Figure 6.2
Officer Retention Rates, Burrell and Son



Source: See Figure 6.1.

In the nineteenth century, officers and engineers also had high retention rates (see Figure 6.2). Indeed, they behaved quite similarly in this regard as indicated by the extremely high correlation (+.98) between the retention rates for the two classes of men. This suggests that the quality of people hired for the two posts was similar and that those that comprised the two groups looked at employment at sea as a meaningful career. The low percentage of the 1860s, as with masters, is a result of the large number of men entering Burrell's employment for the first time in the early years of operations. But once steam became the primary propulsion in the Burrell fleet, more than seventy percent of

⁶The exact retention rates for masters were: 1860s, 83.3 percent 1870s, 94.1 percent 1880s, 93.3 percent; 1890s, 88.5 percent; and 1900s, 65.8 percent.

officers (and engineers) returned to the company for second and succeeding voyages.⁷ For the next thirty years, the fleet was renewed and expanded, albeit at a slow rate, allowing men already working for Burrell to take advantage of opportunities for promotion aboard the new steamships. It seems that during these years Burrell created a pool of officers and engineers who had proved their mettle on the job and were re-hired regularly. This does not necessarily imply, however, that the company maintained lists of names to be drawn upon when circumstances arose, since we have already seen that Burrell did not place much stock in familial or communal bonds when making recruitment decisions. More likely, the high retention rate among officers and engineers is a result of a managerial preference that favoured proven capabilities over paternalistic networks. An officer who performed well could expect (and by the looks of it received) further employment.

Petty officers, however, seem to have behaved differently. The retention rates for these men were considerably lower than for officers and engineers. In the 1860s, for instance, only 56.7 percent of the petty officers made two consecutive voyages aboard a Burrell ship, but the number is likely artificially deflated by the problem discussed above for masters. The following two decades offer the best chance for meaningful comparisons since the fleet was relatively stable. Yet in both periods, there is a clear difference between officers and engineers, with retention rates of 64.4 and 62.9 percent, respectively. It is clear that boatswains, carpenters, pursers, surgeons and all the other

⁷The exact percentages for the officers are: 1860s, 68.2 percent; 1870s, 75.4 percent; 1880s, 74 percent; 1890s, 74.5 percent; and 1900s: 29.7 percent. The percentages for the engineers are as follows: 1860s, 63.9 percent; 1870s, 78.7 percent; 1880s, 77.3 percent; 1890s, 75.4 percent; and 1900s, 36 percent.

positions that comprised this category⁸ were less inclined to remain with the company in the long run.

Unfortunately, it is not possible to explain this trend with any degree of certainty. It might reflect a general attitude by such men toward making a career at sea. Another possibility is that it reflects poorer working and/or living conditions on Burrell's steamships, although the proclivity of masters, officers and engineers to return for future service calls this possibility into question. The most likely explanation is that those who served as petty officers saw themselves as part of a transient labour pool that perceived little advantage in continuous service with a single employer. Petty officers had few chances for promotion since the higher ranks required skills that few petty officers would have had the time or resources to obtain.

Nonetheless, the answer to this question is critical because of the patterns observed in the 1890s, a decade that was characterized by a considerable decline in the retention rate among petty officers (a decrease not observed among officers or engineers) to just over forty-five percent. Since this was a unique phenomenon, it cannot be attributed to the rapid expansion of the Burrell fleet during these years. It may be significant, however, that the ethnic composition of the petty officers group was altered in this decade, with Europeans replacing men from the United Kingdom. This matters, because Europeans, regardless of capacity, were more inclined than any other group to desert in this decade. About one in seven Europeans deserted in the 1890s, a figure that stands in stark contrast to a rate of less than two percent for Scots, the men who dominated these positions in previous decades. Moreover, the proclivity to desert in ports

⁸For the individual positions making up the "petty officers" category, see chapter 5, footnote 17.

in the "new overseas territories of settlement"⁹ was particularly noticeable among these Europeans (New York, Baltimore and Philadelphia were the three most prominent places of desertion). This finding accords well with what Lewis Fischer found in several studies of desertion.¹⁰ But there may also have been other reasons for the decline in the retention rate among petty officers, including a desire for continuous employment, something that was not easy to achieve if attached to a single tramp ship or even tramp shipping company. It does not appear, however, that this pattern had much to do with Burrell as an employer, since a number of indicators, such as difficulties in hiring workers or delays in port, do not support this possibility.

In the period after 1906, there was an extremely high turnover (and hence low retention rates) among officers, engineers and petty officers. Again, this in part is a result of the complete renewal of the fleet which would have led to the scattering of previous Burrell employees. But this can not be the only reason since the retention rates (29.7 percent for officers, 17.9 percent for petty officers and thirty-six percent for engineers) were dramatically lower than those for the 1860s when the same environment (a newly acquired fleet) pertained. Among petty officers, the presence of large number of Asians tended to depress the retention rate since these men tended to move around the maritime

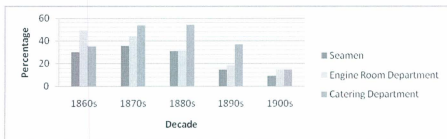
⁹The term "new overseas territories of settlement" is fairly common in international economic history. It is generally accepted that this groups comprises seven nations in this period: Canada, the United States, Brazil, Argentina, South Africa, Australia and New Zealand. For an example of its use, see A.G. Kenwood and A.L. Loughheed, *The Growth of the International Economy 1820-2000: An Introductory Text* (Fourth Ed., London: Routledge, 1999), 132.

¹⁰See, for example, Lewis R. Fischer, "A Dereliction of Duty: The Problem of Desertion on Nineteenth-Century Sailing Vessels," in Rosemary Ommer and Gerald Panting (eds.), *Working Men Who Got Wet* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1980), 51-70; Fischer, "The Sea as Highway: Maritime Service as a Means of International Migration, 1863-1913," in Klaus Friedland (ed.), *Maritime Aspects of Migration* (Köln: Böhlau Verlag, 1990), 293-307; and Fischer and Helge W. Nordvik, "A Crucial Six Percent: Norwegian Sailors in the Canadian Merchant Marine, 1863-1913," *Sjøfartshistorisk Arkiv*, 1984 (Bergen, 1985), 139-159.

world as familial and communal groups, precluding decisions based on optimum career advancement. It is far more difficult to account for the behaviour of officers and engineers. The low number of voyages during those years compared with the 1880s and 1890s might be part of the explanation, increasing the numbers who did not return simply because there was no employment. A distinctly different managerial policy cannot be excluded either; it is possible that in the drive for economy Burrell simply hired whoever was available. It is important to note, though, that engineers were more likely to make repeated voyages than the other two groups, illustrating the company's ability to retain a higher proportion of men with a particularly important (and difficult to obtain) set of skills.

The retention rates for non-officers reveal a distinctly different working environment and unique behaviours among those who filled these positions. All three groups depicted in Figure 6.3 had lower retention rates than either officers or petty officers. This was particularly true for seamen. In the first two decades, when the majority of such men came from Scotland and England, higher percentages remained with the company for consecutive voyages. The transition from sail to steam appears to have had a positive effect, with the retention rate rising from 30.3 to 35.4 percent. Since this trend was also observed among officers, it is a good indication of a more stable working environment aboard steamships than in sailing vessels. Since the majority of ABs and OSs were Britons and Burrell's ships sailed from UK ports, it was easier for these men to find employment with this particular company. But they did not exhibit the same degree of loyalty or preference for continuous employment with Burrell that career-oriented individuals demonstrated in the officers group.

Figure 6.3
Non-Officers Retention Rates, Burrell and Son



Source: See Figure 6.1.

The replacement of Britons by Europeans (and later by Asians) in the seamen category had a negative effect on the percentage who chose (or were chosen by) Burrell for subsequent employment. The retention rate fell to 30.9 percent in the 1880s and then tumbled to 14.8 percent in the 1890s and to only 9.1 percent in the 1900s. The increase in turnover in the 1880s and especially in the 1890s was related to the increasing number of Europeans who demonstrated the same proclivities as those discussed above for European petty officers in the same period. But the continuing decline in the twentieth century had much to do with the hiring of large numbers of Asian seamen. To understand this it will be helpful to say something about the way in which Asian seamen were employed.

One of the fundamental aspects of the lascar system was the intermediary role of the *serang*, who was in charge of securing the men required by the master. Familial and communal networks and relationships played a major role in the selection process.¹¹ In

¹¹There are a number of good studies of the recruitment policies among lascars and their effects on Indian seamen. Most notable are Frank Broeze, "The Muscle of Empire – Indian Seamen and the Raj, 1919-1935," *Indian Economic and Social History Review*, 18, 1 (1981), 43-67; and Broeze, "Underdevelopment and Dependency: Maritime India during the Raj," *Modern Asian Studies*, 18, 3 (1984), 429-457.

delegating the recruitment of Asian seamen to the *serang*, Burrell exhibited a major shift in policy, since as we already have seen, the company did not utilize these kinds of networks in the hiring of Scots in an earlier period. The *serang* also took charge of the Asian crew while at sea. The *serang* system might have led both to docile behaviour at sea and higher rates of crew retention. While we have no evidence on the former except for the fact that Burrell continued to hire Asian crews, we do know that the latter did not occur. This most likely is explained by the fact that Burrell did not consistently use the same *serang* and hence, given the nature of the networks from which these recruiters drew their men, the company received different crews each time.

China was an even more important source of seamen for Burrell in the twentieth century than was India. If a seaman was recruited in China, he most likely was procured from a crimp.¹² Chinese crimps who secured seamen for masters were often part of the so-called “coolie system” which sought men by various means for employment abroad through a system of forced migration. Crimps were almost certainly the principal agents in hiring Chinese seamen in the UK, where most Chinese actually joined Burrell’s vessels.¹³ Those signing-on in British ports were often escaping endemic racism and

¹²Evelyn Hu-DeHart, “*La Trata Amarilla*: The ‘Yellow Trade’ and the Middle Passage, 1847-1884,” in Emma Christopher, Cassandra Pybus and Marcus Rediker (eds.), *Many Middle Passages: Forced Migration and the Making of the Modern World* (Berkeley: University of California Press, 2007), 166-183, especially 169.

¹³Stan Huggill, *Sailortown* (London: Routledge and Kegan Paul, 1967). A more recent analysis of crimping that does an even better job at analyzing the relationship between seamen and shore agents is Judith Fingard, *Jack in Port: Sailortowns of Eastern Canada* (Toronto: University of Toronto Press, 1982).

discrimination in the UK.¹⁴ In this period, few of these men returned to Britain, which goes far in explaining their low retention rates.

The low and declining rate of retention among many classes of crew members is understandable given the nature of tramp shipping. Since few tramps were assured of continuous employment, it was uneconomical for shipowners to retain crews between voyages. As a result, most crew members (the master was the obvious exception) were discharged at the end of a voyage. When the shipowner secured employment for a vessel and it was ready to return to sea, many of these men had taken positions on other ships and hence were unavailable. Even in a fleet as large as Burrell's was at certain times, it was unlikely that multiple vessels would have been seeking mariners in the same port at the same time. This factor also made the transfer of seamen from one steamship to another within the company difficult. There is no evidence that Burrell had difficulty in recruiting the required manpower, however, so the low retention rates do not seem to have been a problem.

A detailed analysis of the ports where Asians were recruited for Burrell's vessels underscores this point. During the 1870s and 1880s, the majority were Indians who joined in ports in the United Kingdom or on the Indian subcontinent. The substantial trade between these two areas ensured an ample supply of lascars at both ends of the voyage. Moreover, in this period Burrell's recruitment of Asians was negligible. Glasgow, the main departure and terminal port for the company in these years, had an ample supply of such sailors available for employment. In 1885, for example, seamen from the Indian

¹⁴On this problem see Sascha Auerbach, *Race, Law and 'the Chinese Puzzle' in Imperial Britain* (Basingstoke: Palgrave Macmillan, 2009).

subcontinent comprised the third largest contingent among residents at the Glasgow Sailors' Home, and their numbers were increasing.¹⁵ In the 1890s the pattern changed, with the majority of Asian crew signing on in Eastern ports, mainly in China and Japan. In the early twentieth century most Asians joined in ports in the United Kingdom. More than 1200 Asian seamen were recruited in British ports after 1906, while about 340 came from ports in Asia, with China, India and Singapore providing the bulk. It was doubtless much harder to acquire these larger numbers of men than the few required in earlier years, but the pool of available recruits was also much wider. Returns from the Mercantile Marine Office for Glasgow at the end of the nineteenth and the beginning of the twentieth century reveal that there were thousands of lascars (and Asian sailors in general) available to British shipowners (see Table 6.1).

Table 6.1
Mercantile Marine Office Returns for Glasgow

	Total UK Seamen	Lascars	Lascar Percentage of Total UK Seamen
1895	33,103	8347	25.2
1896	36,270	9646	26.6
1897	39,095	10,680	27.3
1898	40,499	11,641	28.7
1899	40,386	12,052	29.8
1900	40,650	11,192	27.5
1901	42,944	12,620	29.4

Source: R.G.W. Prescott, "Lascar Seamen on the Clyde," in Thomas C. Smout (ed.), *Scotland and the Sea* (Edinburgh: John Donald Publishers, 1992), 201.

¹⁵There is substantial information regarding the presence of lascars on the Clyde and in Glasgow in particular in R.G.W. Prescott, "Lascar Seamen on the Clyde," in Thomas C. Smout (ed.), *Scotland and the Sea* (Edinburgh: John Donald Publishers, 1992), especially 200-208.

More than one in four seamen in Glasgow in these years was of Indian origin. The same was true for London, the other major British port used by the Burrell fleet.¹⁶ Since there was a steady supply of seamen available on demand, the need to retain Asians at the end of a voyage was lessened further. Burrell could afford to discharge these men because he knew that when the next steamship was ready to sail he would have no trouble finding a full complement of men for the voyage.

The relationship between place of birth and retention is amply demonstrated by a comparison of the engine room and catering departments. In the 1860s Scots comprised the majority of firemen and trimmers employed in the few steamships owned by Burrell. Over time their places were taken by Irish and Europeans; as their numbers increased, the percentage of the men who remained with the company started to decline. In the 1890s and especially the 1900s the engine room was almost exclusively manned by Asians, mostly Chinese. Just as with seamen, after this transition the turnover rate for firemen and trimmers soared.¹⁷

An examination of the catering department leads to a similar conclusion. For the first three decades, Scots and English occupied most of the positions, and their retention rates were generally high. This made sense for reasons beyond ethnicity because the catering department provide a reasonable level of opportunities for promotion and advancement, although such prospects were far more prevalent in liner than in tramp

¹⁶On the Lascar presence in London, see Michael H. Fisher, "Excluding and Including 'Natives of India': Early-Nineteenth-Century British-Indian Race Relations in Britain," *Comparative Studies of South Asia, Africa and the Middle East*, 27, 2 (2007), 303-314.

¹⁷The exact percentages for the engine room personnel are: 1860s, 49 percent; 1870s, 43.7 percent; 1880s, 31.4 percent; 1890s, 18.2 percent; and 1900s, 14.5 percent.

shipping.¹⁸ Until the 1890s dominance by people from the British Isles led to this department having the highest retention rate among those in the non-officer class. But when British workers were replaced by lascars and Chinese at the end of the nineteenth and the beginning of the twentieth century, the retention rate plummeted, eventually falling to levels close to that found among engine-room workers.¹⁹ This is yet another example of the close connection between these two occupational groups when the same pool of people was used for recruitment.

6.2 A "Jail" Breached

Desertion is one of the most complicated issues in the field of maritime history and contains the outlines of an important, if still rudimentary debate. Lewis Fischer has argued that the most important reason for desertion was economic. By deserting in ports where wage levels were high, seamen could unilaterally opt out of contracts entered into in ports where the supply of labour was abundant and wages correspondingly low, and then re-enlist on another vessel to take advantage of pay differentials. Moreover, seamen also deserted to escape the burden of debts owed to the ship.²⁰ David Mackay agrees, but

¹⁸Some of these positions also offered the possibility of supplementing the normal remuneration through tips; see Valerie C. Burton, "The Work and Home Life of Seafarers with Special Reference to the Port of Southampton, 1871-1921" (Unpublished PhD thesis, University of London, 1988), 143-145.

¹⁹The percentages for the catering department are: 1860s, 34.9 percent; 1870s, 53.8 percent; 1880s, 54.2 percent; 1890s, 37 percent; and 1900s, 14.5 percent.

²⁰Fischer, "Dereliction of Duty." See also Fischer, "Seamen in a Space Economy: International Regional Patterns of Maritime Wages on Sailing Vessels, 1863-1900," in Stephen Fisher (ed.), *Lisbon as a Port Town, the British Seaman and Other Maritime Themes* (Exeter: University of Exeter Press, 1988), 57-92; and Fischer, "International Maritime Labour, 1863-1900: World Wages and Trends," *The Great Circle*, 10, 1 (1988), 1-21.

adds that desertion was also used to address grievances over working conditions, food and discipline.²¹ Fischer later showed that desertion could also be a form of hidden migration by which a seaman could use service at sea to secure a passage to places where the opportunity structure was more fluid.²² Most recently, Jari Ojala and Jaako Pehkonen have contended that while the economic and migration rationales were important, the issue frequently was far more complex and had important social components as well.²³ The one thing about which all these scholars agree is that the contemporary view that seamen lacked agency and therefore could exercise little control over their own destiny was wrong.²⁴

As an employer of thousands of men, Burrell & Son was not immune to the effects of desertion. The crew agreements offer valuable information on this topic, allowing the researcher to create a detailed picture of desertion in a tramp steamship company. In general, the deserters cannot speak for themselves since their own words were seldom recorded. But the locality and the timing of their actions enable us to infer motives and to suggest explanations, in most cases supporting arguments already put forward to explain behaviours observed by previous scholars.²⁵

²¹David Mackay, "Desertion of Merchant Seamen in South Australia, 1836-1852: A Case Study," *International Journal of Maritime History*, 7, 2 (1995), 53-73. See also Sager, *Seafaring Labour*, 56-59 and 254-257.

²²Fischer, "Sea as Highway."

²³Jari Ojala and Jaako Pehkonen, "Not Only for Money: An Analysis of Seamen's Desertion in Nineteenth-Century Finland," *International Journal of Maritime History*, 18, 1 (2006), 25-53.

²⁴Somewhat surprisingly, the economic historian Charles Kindleberger seems to subscribe to this view. See Kindleberger, *Mariners and Markets* (New York: Harvester Wheatsheaf, 1992), 24.

²⁵See, for example, Fischer, "Dereliction of Duty;" and Ojala and Pehkonen, "Not Only for Money."

Desertion was not an immediate problem for Burrell & Son. Before the 1890s relatively few men abandoned ship without permission. Things changed, however, during the last decade of the nineteenth century when the percentage of deserters more than doubled reaching 7.4 percent of all employees. This trend continued after Burrell re-entered shipping in 1906 when 7.7 percent of all men deserted (see Table 6.2).

Table 6.2
Burrell & Son Desertion

Period	Total Number of Crew	Deserters	Deserters as Percentage of Crew
1862-1870	664	29	4.5
1871-1880	4747	143	3.0
1881-1890	5929	207	3.5
1891-1900	8712	642	7.4
1906-1929	3194	247	7.7

Source: See Figure 6.1.

The spatial distribution of desertion did not remain the same over time. The fact that Burrell shifted its focus of operations to different geographical regions contributed to this, but even when the same areas were visited in different periods their importance as places of desertion fluctuated. This is demonstrated in Tables 6.3-6.7 which list the ten most common ports for desertion by decade. One noticeable fact from these tables as a whole is the prominent position occupied by British ports. There are three possible factors that might explain this. In some cases, it likely reflects an inconsistency in the crew agreements; most of the men who were reported as having deserted in a United Kingdom port signed on but never reported before the vessel departed. While in some cases such men were registered as "Did Not Join," at other times they were reported as deserters. It is

questionable whether these men should be treated as true deserters, but for consistency we will treat them as having jumped ship. There were also cases when men were registered as deserters after the ship had reached its final destination; this might mean that they left before being paid off, but again we will treat them as deserters. Finally, it appears that some men who deserted in Britain simply took advantage of an opportunity to reach a different port in the United Kingdom for reasons that we cannot really determine.

Table 6.3
Common Desertion Ports, 1862-1870
 (N = 29)

<i>PORT</i>	<i># OF DESERTERS</i>	<i>% OF DESERTERS</i> ²⁶
Glasgow	17	58.6
Liverpool	5	17.2
Swansea	3	10.4
London	2	6.9
North Shields	1	3.5
Cardiff	1	3.5

Source: See Figure 6.1.

In the 1860s, Burrell lost few men to desertion. Indeed, men deserted from Burrell's ships in only six ports (see Table 6.3), all of which were in the United Kingdom. Although the small number of cases precludes definitive conclusions, fourteen of the twenty-nine men who deserted were really men who never joined the ship. The remainder appear to be men who used Burrell's ships to secure transportation to wherever it was they wanted to go. Had there been more general reasons (such as wider economic opportunities or harsh conditions aboard Burrell's ships) for desertion, it is likely that the

²⁶The percentage identifies the significance of any particular port within the group of those men and women who deserted.

pattern would have been different. No one jumped ship in the Mediterranean, for example, the area where Burrell predominantly sent its vessels in this decade.

Table 6.4
Popular Desertion Ports, 1871-1880
 (N = 143)

<i>PORT</i>	<i># OF DESERTERS</i>	<i>% OF DESERTERS</i>
Glasgow	56	39.2
London	8	5.6
Troon	8	5.6
Sydney, NSW	7	4.5
Liverpool	6	4.2
Greenock	5	3.5
Melbourne	5	3.5
Cardiff	4	2.8
Montreal	4	2.8
Ardrossan	3	2.1

Source: See Figure 6.1.

The picture did not change significantly in the 1870s. British ports accounted for the majority of desertions. Glasgow, the main place of departure for Burrell vessels in these years, was the site of almost two in every five desertions, once again suggesting that for the most part these were men who should have been listed as "Did Not Join." As Burrell expanded its range of operations, foreign ports appear on the list for the first time, but the numbers of men involved were insignificant. Sydney, Melbourne and Montreal were the most common foreign ports for desertion. Australia experienced an economic boom in the second half of the nineteenth century, and many shipping companies experienced heavy losses of crew "down under."²⁷ Canada, on the other hand, suffered from economic stagnation until the mid-1890s, so the most likely cause for desertions in

²⁷Fischer, "Dereliction of Duty," 55.

Montreal was the port's proximity to the United States, a much more desirable country for migrants in the period. But we should perhaps not make too much of either of these points, since neither Australia nor Canada were important destinations for Burrell and all these desertions occurred on only two voyages – *Strathleven* to Sydney and Melbourne in the fall of 1879 and *Strathclyde* to Canada in the late summer of 1873. Indeed, these were the only vessels Burrell sent to these two areas in the 1870s. Apart from the ports included in Table 6.4, Burrell lost men in India, the Mediterranean and the United States, but all these cases involved only one or two men. Desertions in Australia, Canada and the United States, three of the so-called “new overseas territories of settlement” with persistent labour shortages and hence high wage rates, accounted for a total of nineteen desertions (13.3 percent of the total). While this number might not seem substantial, if we exclude deserters in the UK, the percentage of desertions in Australia, Canada and the US was 55.9 percent, mirroring a pattern found in other studies. While desertion in such regions was a problem for many shipowners, in the 1870s it does not seem to have been a concern for Burrell.

The 1880s marked a shift in the patterns observed previously (see Table 6.5). Despite the continuing presence of Glasgow, the United Kingdom in general lost its significance for desertion while the new overseas territories of settlement became much more prominent. Glasgow, Cardiff and South Shields were the only British ports among the top ten places of desertion, in all cases because they served as departure points or important stops to pick up coal cargoes. New York, America's busiest port and also the main gateway for migrants to the United States, was in second place. What is important is

not the actual number of deserters, which remained fairly small, but their spatial distribution. The new overseas territories of settlement attracted more than half of all deserters (once UK ports are excluded).

Table 6.5
Common Desertion Ports, 1881-1890
 (N = 207)

<i>PORT</i>	<i># OF DESERTERS</i>	<i>% OF DESERTERS</i>
Glasgow	37	17.9
New York	18	8.7
Montréal	8	3.9
Marseilles	8	3.9
Savannah	8	3.9
Cape of Good Hope	7	3.4
Cardiff	7	3.4
Kingston, Jamaica	7	3.4
South Shields	6	2.9
Malaga	5	2.4

Source: See Figure 6.1.

It is very likely that most of the desertions in the new overseas territories of settlement had economic features. Indeed, this is underscored by the fact that none of these countries were significant ports of call for Burrell's vessels during the decade. The Mediterranean and the Caribbean were the main destinations (which explains the appearance of Marseilles and Kingston, Jamaica in the list), with North America being a distant fourth, behind India. Yet more than a quarter of deserters jumped ship in North America, with New York and Savannah being the most popular ports.²⁸ The appearance in the list of the Cape of Good Hope is also significant since South Africa was another of

²⁸Those who left in Savannah were likely engaging in "opportunity desertion," that is, they jumped ship in this Georgian port simply because that is where the vessel called rather than from any desire to get to the deep south of the US, which was not a major recipient of immigrants in the nineteenth century and had wage rates considerably below the American mean.

the new overseas territories of settlement and because few of Burrell's vessels called there.

Table 6.6
Common Desertion Ports, 1891-1900
 (N =642)

<i>PORT</i>	<i># OF DESERTERS</i>	<i>% OF DESERTERS</i>
New York	153	23.8
Baltimore	71	11.1
Philadelphia	46	7.2
Swansea	25	3.9
Newport News	20	3.1
Cardiff	16	2.5
Hamburg	15	2.3
North Shields	15	2.3
South Shields	14	2.2
Boston	12	1.9

Source: See Figure 6.1.

Burrell's shift of operational focus in the 1890s increased the possibility for men to desert in North America, and Table 6.6 shows that they seized it with a vengeance: five of the top ten desertion ports were on the east coast of the United States with New York, not surprisingly, topping the list. The new overseas territories of settlement were clear magnets for those looking for better opportunities in the decade: the US, Canada, Australia and South Africa account for almost three-quarters of all desertions outside the United Kingdom. Hamburg, which in this decade was important to Burrell as a base made this list largely because of the phenomenon discussed above concerning departure and terminal ports. With the exception of the US ports, however, Burrell did not lose many men at any particular destination. One interesting point, though, is that although the Indian Ocean trades were important to Burrell in this decade, only four men deserted in

Bombay and none in Calcutta, suggesting that most of the motivation to desert was economic.

When Burrell re-entered shipping in 1906, the pattern of desertions changed. Shifts in the company's operational patterns meant that many of the old destinations lost their importance. New York, which had been dominant for the last twenty years, slid to eighth place, overtaken among North American ports by Norfolk and San Francisco. The appearance at the top of the list of Buenos Aires reaffirms the importance of the new overseas territories of settlement.²⁹ The general rise of Pacific Ocean ports also stands out: five out of the ten top ports were in this area, with Australia and the west coast of South America becoming havens for deserters. To a large extent this was a reflection of shifting trading patterns. The economic realities of the early 1900s were also a factor as Pacific Ocean trades were rising while trade in the Atlantic was dislocated.³⁰

Table 6.7
Common Desertion Ports, 1906-1929
(N = 247)

<i>PORT</i>	<i># OF DESERTERS</i>	<i>% OF DESERTERS</i>
Buenos Aires	31	12.6
Norfolk	24	9.7
San Francisco	22	8.9
Greenock	15	6.1
Sydney	10	4.1
Cardiff	9	3.6
Newcastle Australia	9	3.6
New York	8	3.2
Antofagasta	7	2.8
Portland	7	2.8

Source: See Figure 6.1.

²⁹According to Fischer, "Dereliction of Duty," 59, Buenos Aires was an important centre for desertion in the 1880s and 1890s but almost desertion free in all other periods between the 1860s and 1914.

³⁰For the depression in Atlantic trade see Derek H. Aldcroft, "The Depression in British Shipping, 1901-1911," *Journal of Transport History*, Second series, 7, 1 (1965), 14-23.

The new overseas territories of settlement accounted for an impressive 85.8 percent of desertion from Burrell steamships during these years. While Buenos Aires was the single most popular port in terms of numbers, Australia overtook it as a region. Almost every Australian port visited by Burrell's ships received at least some deserters: Sydney, Newcastle, Fremantle, Melbourne, Adelaide, Brisbane, Bunbury (WA), etc. San Francisco and the Pacific Northwest (Portland, Vancouver, Nanaimo and Astoria) also attracted numerous men, as Burrell's vessels became involved in the lumber trade. South America, being part of the triangular trade in the Pacific region concluded the list of regions witnessing a rise in the number of deserters. In this case, the economic opportunities were far less obvious, and it is more likely that these men left their posts in places such as Antofagasta, Iquique and Valparaiso hoping for a more remunerative position aboard a different ship, desperate to complement its crew.

Table 6.8
Desertion Rates in Major Ports of Desertion, Burrell & Son, 1880-1929

Ports	Desertion Rate (%)
1880s	
New York	7.5
Montréal	10.0
Marseille	6.4
Savannah	6.3
1890s	
New York	7.9
Baltimore	8.2
Philadelphia	4.4
1900s	
Buenos Aires	8.7
Norfolk	12.7
San Francisco	2.5

Source: See Figure 6.1.

While Tables 6-3-6.7 show the ports in which crew deserted from Burrell ships, it is equally important to examine desertion rates, that is, the frequency of desertion as a proportion of the number of occasions that crew had to jump ship. But for this analysis to be meaningful, it is important to have a sizeable sample population. For this reason, our analysis of desertion rates will focus only on the three or four top ports in every period after 1880 (Table 6.8).

In the 1880s the most important desertion ports in terms of numbers were New York, Montréal, Marseilles and Savannah. But when we calculate desertion rates we find that Montréal actually was more prone to desertion than New York. Marseilles and Savannah were both visited by a similar number of men and lost a similar percentage. Since neither of these latter ports is known to have been especially attractive places to jump ship, we can take their desertion rate of six-seven percent as the "norm" for intermediate ports in this decade.

In the 1890s there was a much larger population of deserters. The three most important ports were all in North America: New York, Baltimore and Philadelphia. The first two had very similar desertion rates and, indeed, New York's rate was quite similar to its desertion rate in the 1880s. Philadelphia, on the other hand, was much less desertion-prone than its neighbours.

In the twentieth century the most popular desertion ports were Buenos Aires, Norfolk and San Francisco. Buenos Aires' desertion rate of fewer than nine percent was higher than any of the other leading ports in the 1880s and 1890s except for Montréal in the 1880s. While Norfolk had the second largest number of deserters, it had the highest decadal desertion rate of any of the ports in this analysis with about one in eight crew jumping ship.³¹ San Francisco on the other hand, famous for the activities of its crimps in the nineteenth century,³² proved much less of a problem for Burrell which lost a mere two and a half percent of its crew members there.

Apart from the spatial dimension of desertion, there are several other factors that are worth examining. Was age related to a propensity to desert? Was the level of skill possessed by crew members related to desertion? Was nationality related to an inclination to jump ship? We can now turn our attention to these issues.

We can begin with age. It is reasonable to expect that younger members of the crew would be more inclined to desert, if only because youths and young adults might well be less constrained by considerations of family and career; they arguably might also be more adventurous. The data in Table 6.9 suggest that age in a very general way was related to a propensity to desert from a Burrell vessel. There are, however, two problems

³¹Norfolk's desertion rate was heavily influenced by the unusual circumstances surrounding the arrival of *Strathyre* in July 1908. The steamship had already travelled across the Pacific and between Brazil and New York and had been absent from its home port for more than sixteen months when twenty-two men deserted. This was two-thirds of the crew and was comprised exclusively of men from Japan who had been signed on as replacements for Chinese ABs and firemen in Shanghai. The exact reasons for their mass desertion are a mystery but their action inflated Norfolk's importance as a desertion port. A level around three percent would likely more accurately reflect the losses to be expected in this port, at least judging from what happened in the port in the 1880s and 1890s.

³²Stan Huggill, *Sailortown* (London: Routledge and Kegan Paul, 1967), 157-205. See also Hope, *New History of British Shipping*, 323 and 343.

in determining the effect of age on desertion patterns. One is the ever-present problem of small sample sizes. Table 6.1 presented information on crew members in ten-year cohorts, but that data is not appropriate here because of the low number of crew in the various age groupings. To remedy this, in Table 6.9 I divide crew into "young" and "old" groups; the former includes those who were twenty-nine-years-old or younger, while the latter comprises those who were thirty years of age or older when they signed on. A second problem is more technical, but in brief it arises from the fact that those under the age of thirty always comprised a larger share of the crew than did older seamen. To try to control for this, and to make the data comparable, the last two columns in Table 6.9 present desertion rates as in Table 6.8 for the two groups.

Table 6.9
Desertion by Age

Period	Percentage of Young Deserters	Desertion Rate of Young Crew (%)	Desertion Rate of Older Crew (%)
1862-1870	65.5	4.5	4.2
1871-1880	59.4	3.2	2.9
1881-1890	58.4	3.7	3.4
1891-1900	59.6	8.1	6.7
1906-1929	64.5	10.2	7.9

Note: "Young crew" includes those aged twenty-nine years or younger; "Old crew" comprises those aged thirty and above.

Source: See Figure 6.1.

The first column in Table 6.9 shows that in all periods "young" crew accounted for a majority of desertions. This was to be expected based upon the assumptions above, but knowing this is not very helpful since this same group also comprised a majority of the crew in each decade. Nonetheless, it is striking that the share of desertions accounted

for by those under the age of thirty was relatively stable over the entire period, ranging narrowly between fifty-eight and sixty-six percent of all desertions. If we compare the data in the last two columns, however, we can see clearly that young crew had a higher propensity to desert than did their older colleagues in every decade. The difference between the two groups, however, was insignificant before 1890. Thereafter, though, we can see the emergence of two important trends. First, the tendency to desert increases sharply regardless of age. Second, the gap between desertion rates for the two groups widened because the growth rate of desertions for young crew rose more rapidly than the one for older men.

Explaining these trends is more difficult than identifying their existence. Given the increasing multinational character of the crew, it is not feasible to try to link them with shore-based records to see if the absence of ties and obligations on land was related to the greater propensity of the young to desert. This may be true, however, given what Gelina Harlaftis found on board Greek ships where familial bonds between crew members and the fact that wages were sent directly to the families of these men kept desertion rates low. Greek seamen, she argued, did not desert in large part because to do so would have an impact on his standing within the local community and the well being of his family.³³

In addition, given the range of ports in which seamen deserted, it is impossible to see whether desertion, especially in the new overseas territories of settlement, was a kind of hidden migration. It may have been, especially since we know that young men were far

³³Gelina Harlaftis, *A History of Greek-Owned Shipping: The Making of an International Tramp Fleet, 1830 to the Present Day* (London: Routledge, 1996), 311.

more prone to immigrate than older men. But all we can say for certain at this point is that these trends existed.

Another variable that appears to be related to desertion is the capacity in which a crew member served. Lewis Fischer's analysis of the Saint John fleet of sailing vessels found that ordinary seamen were much more likely to desert than ABs, petty officers or officers.³⁴ Did the same relationship hold in the Burrell fleet? Table 6.10 provides some data to see if there was a relationship between occupation or skill level and desertion.

Table 6.10
Desertion by Capacity

Category	Total Men	Deserters	% of Deserters
Masters	787	1	0.1
Officers	1813	21	1.2
Petty Officers	1429	62	4.3
Seamen	6122	467	7.6
Engineers	2404	6	0.3
Engine Room	6682	560	8.4
Catering	2585	124	4.8
Other/Unknown	-	10	-

Note: The "Other/Unknown" category includes those where the capacity of a crew member was not revealed in three crew agreement.

Source: See Figure 6.1.

In general terms, the table suggests that the capacity in which a crew member served was related to desertion. Moreover, it also shows in broad terms that there was a relationship between skill levels and a propensity to desert. The largest number of deserters and the highest desertion rate was among the unskilled trimmers and firemen who worked in the engine room. Next in both numbers and desertion rates were seamen.

³⁴Fischer, "Dereliction of Duty," 61.

The overall desertion rate for seamen (7.6 percent), however, masks a difference between OSs, who were relatively unskilled, and the more skilled ABs: the desertion rate for the former was 9.8 percent, while for the latter it was only 7.3 percent, suggesting again the relationship between skill levels and desertion. Petty officers were much less likely to desert, but they were far more likely to jump ship than masters, officers and engineers, the three groups with the highest level of skills. The latter three groups were also the most educated and professional members of the crew and the most likely to entertain hopes of a long-term career at sea.³⁵ Only one master left his post without permission.

The staff in the catering department was something of an aberration. Although most positions in this department were unskilled, the crew serving in them tended to desert far less frequently than seamen or engine room workers. If we disaggregate this group, however, we can identify a relationship between age and experience. All the positions dominated by teenagers (including cabin boys and mess boys) had the highest desertion rates in the fleet. Cabin boys, for example, deserted at a rate of 16.2 percent, while 13.5 percent of all mess room boys jumped ship. These findings notwithstanding, members of the catering staff in general were relatively unlikely to desert.

The relationship between place of birth and desertion is another question worth exploring. We have already seen that Burrell drew its crew from different areas of the world and that these recruitment regions varied over time as the company searched for economies of scale. This was especially true of crew in the engine room, catering and

³⁵Among the officers, second mates were twice as likely to desert as first mates.

deck departments. Data to analyze the relationship between nationality and desertion are presented in Table 6.11.

Table 6.11
Desertion Rates by Place of Birth for
Selected Nationalities

Nationality	Desertion Rate (Percent)	Desertions in New Overseas Territories of Settlement (Percent)
French	12.9	54.5
Swedes	12.8	71.0
Germans	12.6	71.8
Greeks	12.3	73.7
Spanish	12.0	66.7
Danes	10.7	55.0
Portuguese	10.4	40.0
Italians	9.6	56.3
Finns	9.1	40.0
Norwegians	8.8	65.0
Indians	7.5	
English	6.2	47.9
Chinese	5.9	
Irish	4.3	36.6
Scots	2.3	21.4

Source: See Figure 6.1.

From the table it is clear that some nationalities were more desertion prone than others. French, Swedes, Germans, Greeks and Spaniards were significantly more likely to jump ship than other nationalities. A second group, comprising Danes, Portuguese, Italians, Finns and Norwegians, were less likely to desert than the first group but considerably more likely to do so than the remainder of the nationalities depicted. It is difficult to explain the differences with any confidence, and the recurring problem of sample size complicates the task (this applies particularly to the French and Portuguese). The rank order, for example, does not correlate particularly well with what has been found by other researchers or with contemporary notions of the relationship between

nationality and desertion. The Norwegian merchant marine, for example, was plagued by a massive number of desertions in this period,³⁶ particularly among domestic seamen, yet in the Burrell fleet the Norwegian desertion rate was in the middle of the pack.

Table 6.12
Desertion Rates in New Overseas Territories of Settlement by Place of Birth for Selected Nationalities

Nationality	Desertions in New Overseas Territories of Settlement (Percent)
Greeks	73.7
Germans	71.8
Swedes	71.0
Spanish	66.7
Norwegians	65.0
Italians	56.3
Danes	55.0
French	54.5
English	47.9
Portuguese	40.0
Finns	40.0
Irish	36.6
Scots	21.4

Source: See Figure 6.1.

A partial explanation, however, can be seen from Table 6.12, which displays the proportion of desertions for each nationality in the new overseas territories of settlement.³⁷ Two conclusions emerge. First, for most of the nationalities in the table, more than half of their desertions occurred in these places; only the Portuguese, Finns and the various components of the United Kingdom deviated from this pattern. This underscores the argument that desertion in general tended to take place in regions with

³⁶This point is discussed in Lewis R. Fischer and Helge W. Nordvik, "A Crucial Six Percent: Norwegian Sailors in the Canadian Merchant Marine, 1863-1913," *Sjøfartshistorisk Årbok, 1984* (Bergen, 1985), 139-159.

³⁷The Chinese and Indians are excluded from Table 6.12 and the subsequent analysis because of barriers to their entry in a number of these territories. Indeed, almost none of the desertions by these two nationalities occurred in any of the seven countries which comprise this group.

higher than average wages and countries where economic opportunities were greatest (hidden migration). Second, there is a rough, but not conclusive relationship between the share of desertions in the new overseas territories of settlement and the propensity of various nationalities to engage in trans-oceanic migration during this period. Swedish, Norwegian and German migration, for example, was relatively high in these years, especially to the United States, and the proportion of desertions in the new overseas territories of settlement by members of these groups was especially high. After the turn of the twentieth century, Greek migration picked up pace, both to the US and Australia, and no nation's desertions were as concentrated in the new overseas territories of settlement as the Greeks. Spanish desertions were relatively spread out over the period, but most of them occurred in the New World, either in former Spanish colonies or in the US. No European country contributed as large a proportion of its population to the nineteenth-century international migration flow as Norway, so the fact that almost two-thirds of Norwegian desertions occurred in the new overseas territories of settlement is hardly surprising. Among those nationalities for which more than half of all desertions occurred in the new overseas territories of settlement, only France presents something of a puzzle. Given linguistic patterns, it might be expected that French desertions would be concentrated in Francophone areas. While Montréal was an important port of call for Burrell vessels in these years, only about a fifth of all desertion by French crew members occurred there. All of this suggests that the economic explanation for desertion makes a good deal of sense when examining the patterns in the Burrell fleet.

6.3 Money Matters

The search for higher maritime wages provides another side to the economic explanation of desertion. Wages therefore become an important instrument not only in understanding desertion but also in understanding an important aspect of employment at sea: the wage pyramid. Was Burrell more generous than the average shipowner in an effort to attract better employees? Did the company hire crew members in low-wage or high-wage ports? Most important, how much did a tramp shipowner pay for the services of his crew members?

Crew agreements offer a wealth of information on wages. The subject has been dealt with by several authors, particularly with reference to sailing ships and liners,³⁸ but very rarely has full data being presented for all categories of labour and all forms of propulsion.³⁹ Burrell & Son offers a unique opportunity to analyze wages pertaining to the operations of a tramp shipping company. Almost every category of employee aboard steamships in the late nineteenth and early twentieth centuries is present on Burrell's vessels, although for a few of them the sample size is small, making generalizations and the construction of large-scale, long-term tables almost meaningless. There are certain

³⁸Argyros, "Employment Patterns and Working Conditions;" and Burton, "Work and Home Life of Seafarers."

³⁹Some examples of the proclivity to focus on single occupations include Conrad Dixon, "The Rise of the Engineer in the Nineteenth Century," in Gordon Jackson and David M. Williams (eds.), *Shipping, Technology and Imperialism* (Aldershot: Scholar Press, 1996), especially 234-235 (some data on engineer's wages); and Eric W. Sager, "Labour Productivity in the Shipping Fleets of Halifax and Yarmouth, Nova Scotia, 1863-1900," in Ommer and Panting (eds.), *Working Men Who Got Wet*, 178 (data on masters). For an example that looks at all classes of labour, see Lewis R. Fischer and Helge W. Nordvik, "From Namsos to Halden: Myths and Reality in the History of Norwegian Seamen's Wages, 1850-1914," *Scandinavian Economic History Review*, 35, 1 (1987), 41-65.

categories, though, that can yield a detailed analysis. The most prominent were ABs and trimmers, and we will focus on them (although not exclusively). These two groups were also chosen with the express aim of allowing comparisons with published material, facilitating a better understanding of Burrell's position within the maritime sector in the period under study.

Table 6.13
Burrell & Son Crew Wages, 1862-1915

	1862-1870	1871-1880	1881-1890	1891-1900	1906-1915
OFFICERS					
Mate	£6 - £7	£7 - £8	£8 - £8 10	£9 - £10	£11
Second Mate	N/A	£5 - £6	£6	£6 - £7	£8
Third Mate	N/A	N/A	N/A	£5	£6 10
ENGINEERS					
Chief Engineer	£10	£11 - £14	£14	£15 - £17	£17
Second Engineer	£6 - £7	£7 - £9	£8 - £9	£10 - £12	£12
Third Engineer	N/A	£7	£7	£7 - £8	£8
Fourth Engineer	N/A	N/A	£6	£6 10	£6 10
PETTY OFFICERS					
Quartermaster					£3 15
Boatswain	£4 10	£4 10 - £4 15	£4 - £5	£4 15 - £5	£5
Carpenter	N/A	£5 - £6	£5 - £6	£6	£5 10 - £6
SEAMEN					
Able-bodied	£3 5	£3 5 - £4	£3 - £4	£3 5 - £4 10	£3 5 - £4
Ordinary	£1 - £2 15	£1 - £2 15	£1 10 - £2 10	£2 - £3	£2 - £4
ENGINE ROOM DEPARTMENT					
Donkeyman	N/A	£4 10 - £4 15	£4 10 - £4 15	£4 10 - £5 15	£3 15 - £5
Trimmer	£3 5-£3 10	£3 - £4	£3 - £4	£3 - £4	N/A
Fireman	£3 10	£4 - £4 10	£3 5 - £4 5	£3 10 - £4 10	£3 10
Fireman- Trimmer	N/A	£3 5 - £4 10	£3 10 - £4 10	£3 10 - £4 10	£3 10 - £4
CATERING DEPARTMENT					
Cook	N/A	£3 10 - £4 10	£4 - £4 10	£5 - £5 10	£5
Messroom Steward	N/A	N/A	£1 10 - £3	£2 - £2 10	£2 10
Steward	N/A	£4 10 - £5	£4 10 - £5 10	£6	£6
Asst. Steward	N/A	N/A	£1 10	£1 10 - £2	£2 10

Note: The table reports the range found in the crew agreements. All figures are in pounds and shillings.

Source: See Figure 6.1.

Although Burrell & Son was a British company, a sizeable portion of its workforce, as we have already seen, was not. Many crew members signed on in ports outside the United Kingdom. The British pound sterling was the most typical currency used for wages, but in some cases crew remuneration was recorded in foreign currency, generally the US dollar. But this was extremely rare, comprising a mere 2.6 percent of all individuals for whom we have wage information. Most crew paid in US dollars joined in the United States, but some were recruited in China, Japan, Singapore, Chile and Canada. Because the overwhelming majority of crew were paid in pounds sterling, we will restrict our analysis to them.

Table 6.13 presents information on those categories of employees receiving their wages in British pounds.⁴⁰ Masters are notably absent since the crew agreements do not include information on their remuneration.⁴¹ On the basis of circumstantial evidence, most prominently the notion that chief engineers were the second highest paid group on board a steamship, with their wages either matching or not far behind those of the master, we can argue that Burrell paid their masters no less than £10 in the 1860s and more than £17 in the 1900s. In his analysis of the rise of the engineer, Conrad Dixon concluded that the chief engineer's remuneration was about a quarter below that of the master in the

⁴⁰The table presents information about those occupational categories for which there are numerous examples in the Burrell fleet. Only groups with more than thirty examples per decade are included. Less numerous examples would not be representative of general trends as they might be influenced by extraordinary circumstances for which it is not possible to control.

⁴¹According to Sager, "Labour Productivity," 178, masters' wages on sailing ships averaged between £12 and £20 in the years 1863-1894. P&O paid captains on its steamships substantially more, with the master of *Oriental* receiving £33 6 in 1847; see H. Campbell McMurray, "Technology and Social Change at Sea: The Status and Position on Board of the Ship's Engineer, circa 1830-60," in Ommer and Panting (eds.), *Working Men Who Got Wet*, 46. But this was always a well paid position. Ronald Hope, *A New History of British Shipping*, 324, states that between 1870 and 1890 a shipmaster of a steamer to the Black Sea earned £20 and £15 if it was a foreign going sailing ship. These rates went up in the years before the First World War when the captain of a 4000-ton cargo steamship was paid £22 per month.

middle of the nineteenth century and rose substantially by 1914, reaching ninety percent of the captain's wage.⁴² If so, then Burrell should have been paying its masters about £12 10 in the early years of the company and approximately £19 in 1914, less than the level quoted for captains of steamships the size most common in Burrell's fleet.

The deck officers (mates of various sorts) comprise the first group for which we have more detailed information. The relatively small mean size of Burrell's ships in the 1860s negated the need for more than a single mate in the bridge. If the estimates for masters' wages above are correct, the first officer received about half the money paid to his superior. Although this level is far lower from what was paid to mates serving on the steam liners of the P&O,⁴³ it fits perfectly with what we would expect according to the ratio of earnings posited by Dixon.⁴⁴ Progress for mates was slow, with wages increasing by about one pound per decade. Indeed, this was similar for all officers. The increase in the average size of vessels used by Burrell necessitated the hiring of more officers, with second and third mates appearing in substantial numbers in the 1870s and 1890s, respectively. The second officer's remuneration lingered around £6 for almost thirty years, with a comparatively generous increase of one-third in the twentieth century. The third officer was naturally the least well paid mate, receiving £5 in the 1890s and £6 10 in the 1900s, a level only slightly higher than for the petty officers. It must be noted that officers comprised one of the groups which exhibited little variation from the mean

⁴²Conrad Dixon, "Rise of the Engineer," 235.

⁴³The first officer of the P&O steamship *Oriental* received £15 in the late 1840s. See McMurray, "Technology and Social Change," 46.

⁴⁴According to the rate, first officers made about forty-five percent of masters' wages. See Dixon, "Rise of the Engineer," 235.

throughout the period. While other categories of employees experienced considerable variations, the officers did not.

The engineers were the best paid group (excluding the master) in Burrell's fleet. In the early years of the steamship, they were well paid because demand outstripped supply. Later, however, they enjoyed a rather privileged position since they were indispensable to the operation of the steamship. They were also very well organized and often militant: when shipowners tried to reduce wages in 1884, engineers joined forces with dock workers and seamen to block the greatest part of the proposed cuts.⁴⁵

As with deck officers, engineers on tramp ships were not as well paid as their counterparts in liners whose wages in the 1860s ranged from £25 for the chief engineer to £14 for the second and third.⁴⁶ The chief engineers in Burrell's service, on the other hand, could expect £10 in the 1860s, although their pay increased by as much as forty percent in the next decade, a level maintained until the 1890s when there was another increase to anything between £15 and £17, the highest salary paid to any crew member (except the master). The upper limit became the norm when Burrell reinvested in shipping after 1905.

The rise in the chief engineer's remuneration was reflected in increases in the pay of his subordinates. There is a very strong correlation between changes in wages paid to second and third engineers (+0.96). The high level of professional organization among engineers was an important factor affecting their collective well-being. Echoing the importance of their position in the ship's operations, engineers were better paid than deck officers. Second engineers received higher wages than first officers; third engineers were

⁴⁵*Ibid.*

⁴⁶McMurray, "Technology and Social Change." 46.

better paid than second mates. Even fourth engineers, a group decidedly underprivileged when compared with their superiors, without any substantial wage increase in thirty years (during which their pay was about £6), were receiving as much money as third officers. The only similarity in the levels of payment between deck officers and engineers was the limited variation from the mean wage.

Petty officers were decidedly not well paid, at least in Burrell's case. Comparable data from other companies are not available but within the company there were other categories of employees with fewer responsibilities and better wages. The exception was the carpenter, whose mean wage averaged between £5 and £6, about a pound higher than the mean for boatswains and quartermasters. It is possible that British carpenters were reluctant to go to sea, demanding and receiving better payment for their services. Burrell had to employ large numbers of foreigners, especially Scandinavians, in this position, and the facts seem to indicate that the company had to pay dearly for their services. Yet there was a marked stability in carpenter's wages throughout the nineteenth century and even a small reduction in the 1900s when the company hired large numbers of Chinese carpenters in a drive to reduce the wage bill.

The presence of Asians in other petty officer categories seems to explain the reason for the lowest level of remuneration in this category, the £3 15 paid to quartermasters. Only about two percent of quartermasters were Europeans or North Americans, with the rest coming from China, Japan or India; while the Asians received on average £3 15, the Europeans and the Americans were paid £4. Only in the case of boatswains was the remuneration level unaffected by the arrival of large numbers of Asian crew members, with Europeans and Asians receiving similar wages which had not

improved considerably since the 1860s. The stagnation is probably one of the reasons affecting desertion among petty officers, which was markedly higher than for officers or engineers.

Table 6.14
Burrell & Son, Mean AB Wages, 1862-1915, by Port of Engagement

1862-1869

Port	Wages
Glasgow	£3 5

1870-1879

Port	Wages
Melbourne	£6
Middlesbrough	£4
North Shields	£4
Cardiff	£4
Belfast	£4
Ardrossan	£3 17 6
Liverpool	£3
London	£3
Glasgow	£2 15

1880-1889

Port	Wages
Philadelphia	£5
Richmond	£5
Gibraltar	£4 10
Greenock	£4
South Shields	£4
West Hartlepool	£4
Bilbao	£4
Port Said	£3 17 6
London	£3 15
Bristol	£3 15
Swansea	£3 15
Cardiff	£3 12
Middlesbrough	£3 10
Penarth	£3 10
Gourock	£3 10
New York	£3 10
Glasgow	£3 5
Leith	£3 5
Hong Kong	£3 5
Liverpool	£3 5
Antwerp	£2 15

1890-1899

Port	Wages
Barrow	£4 10
Barry	£4
South Shields	£4
Cardiff	£4
Fowey	£4
Grimsby	£4
Hull	£4
London	£4
North Shields	£4
Southampton	£4
Penarth	£4
Greenock	£4
Leith	£4
Dundee	£4
Glasgow	£3 15
New York	£3 15
Liverpool	£3 12 6
Swansea	£3 12
Halifax	£3 10
Poplar	£3 10
Hong Kong	£3 10
Rotterdam	£3 5
Antwerp	£3 5
Hamburg	£3 5
Dunkirk	£3 5

1906-1929

Port	Wage Europeans	Wage Asians
Glasgow	£4 2 6	£3 10
New York	£4 5	N/A
Newcastle NSW	£4 10	N/A
Philadelphia	£4	N/A
Port Said	£4	N/A
Bombay	£4	N/A
Greenock	£4	£3 10
Philadelphia	£4	N/A
Norfolk	£4	N/A
San Francisco	£4	N/A
Poplar	N/A	£3 10
Dunkirk	£3 5	N/A
Liverpool	N/A	£3 10
London	N/A	£3 5
Barry	N/A	£3 5
South Shields	N/A	£3 5
Calcutta	N/A	£3 5
Blyth	N/A	£3 5

Source: See Figure 6.1.

The wage difference between able-bodied and ordinary seamen fully supports the argument above about the relationship between skill levels and desertion since OSs were generally paid fifty to seventy-five percent less than ABs before the 1890s. Able-bodied seamen's wages remained at the same level throughout the second-half of the nineteenth century. Indeed, it seems there was very little difference between what an AB received aboard a Burrell steamship in 1890 and what the same man would have gotten for his work aboard a government-run mail packet in the 1830s! The mean wage hovered between £3 and £4, with a small increase in the 1890s when the average wages of ABs in steamships appear to have risen in general throughout the British merchant fleet, particularly between 1889 and 1892.⁴⁷ In the context of Burrell's operations, this increase was lost when Asians were hired to fill these positions in the twentieth century. During those years, Chinese and Japanese ABs received wages towards the lower end (£3 5), while Europeans and North Americans were paid on average £4. Compared with other tramp shipowners, Burrell does not appear to have followed a distinct policy. Cardiff tramp steamer owners paid similar amounts to their ABs as late as 1913.⁴⁸ The 1910 strike which established minimum levels of pay – £5 10 per month for ABs on cargo steamships and £6 for passenger liner – seems not to have affected Burrell.⁴⁹

Because of their numbers in the Burrell crew agreements, we can use ABs to study the relationship between particular ports and wages (see Table 6.14). Depending on

⁴⁷Sager, *Seafaring Labour*, 258.

⁴⁸David Jenkins, *Jenkins Brothers of Cardiff: A Ceredigion Family's Shipping Ventures* (Cardiff: National Museum of Wales, 1985), 63.

⁴⁹Hope, *A New History of British Shipping*, 344.

the period, there were certain ports where labour was considerably cheaper for the shipowner and we would expect Burrell to exhibit a clear preference for recruitment in such ports in an effort to control the company expenses. In the 1860s this was not the case because Glasgow was the only port from where Burrell vessels departed and all sailors signed-on there.⁵⁰ The following decade was different. Burrell steamships departed from a number of ports and had to take in additional men at various overseas destinations, often because of desertions. It then becomes clear that the big British ports offered less expensive labour to the shipowner than many ports elsewhere in the UK. Glasgow, London and Liverpool, the sources for the majority of ABs, were also notably less costly than other British ports. Glasgow, for example, was almost a third cheaper than Cardiff or Belfast, with the mean wage in the former being approximately £2 15 while in the case of the Welsh and Irish ports the mean climbed to £4. Melbourne was by far the most expensive port in which the company had to find seamen, with the average wage skyrocketing to an impressive £6. Masters must have been desperate for seamen to be willing to pay such amounts.

Glasgow, and especially London, became more expensive in the 1880s but at least in the case of the former the increase was not too dramatic, allowing Burrell to keep using this port for the majority of its able-bodied seamen. The mean wage rose to £3 5, while in London the increase reached £3 15. Liverpool remained cheap, surpassing only Antwerp which appears at the bottom of the list. Coal ports in Wales remained accessible, being on

⁵⁰It must be noted here that in the following analysis about the correlation between port of joining and wages we have excluded ports where fewer than three men came aboard. This is the minimum threshold and even though in many cases the size of the population is indeed small and its qualification as representative of greater trends can be questioned, all information presented here can be used as an indication if not taken at face value when the number of cases allows for a more secure argument.

average either lower or on a par with London, allowing Burrell to complement its crews there before heading overseas. It is no surprise that North American ports proved to be prohibitively expensive even though New York appears very low on the list with the mean reaching £3 10 when in Philadelphia able-bodied seamen could demand £5. This suggests that New York may have been the only economical port on the Atlantic coast of North America. Or perhaps this is merely a statistical aberration, for Lewis Fischer and Helge Nordvik found that wages in New York were consistently at or above those paid elsewhere on the east coast of North America in the same period.⁵¹

The rise in coal exports at the end of the nineteenth century may have made labour in coal ports very dear,⁵² which would explain why Barry, South Shields and Cardiff topped the list in the 1890s. At the other end of the scale, continental ports became more attractive for Burrell, with Dunkirk, Hamburg, Rotterdam and Antwerp providing numerous seamen at very low cost. Glasgow, New York and Liverpool witnessed some increases in the mean wage but they remained competitive, considering the alternatives. New York and Halifax are the only North American ports to appear in those years, Burrell unwilling to pay the high wages demanded elsewhere along the Atlantic seaboard. It is perhaps indicative of an increasingly more compact and interconnected reality faced by shipowners and crew members in the region the fact that wages tended to cluster around £3 to £4, unlike earlier years when there were significant divergences from the mean, the latter ranging from £2 to £6.

⁵¹See, for example, Fischer and Nordvik, "From Namsos to Halden."

⁵²For the British coal trade, see particularly Sarah Palmer, "The British Coal Export Trade, 1850-1913," in David Alexander and Rosemary Ommer (eds.), *Volumes Not Values: Canadian Sailing Ships and World Trades* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1979), 331-354.

The 1900s brought many changes in the recruitment policies followed by Burrell, the most notable being the increased emphasis on Asian crew members. There emerged two distinct areas of recruitment: Asian seamen were signed on in British ports while Europeans and North Americans filled vacancies overseas. The available data highlights the emergence of United Kingdom ports as economical options, with London, Barry, Liverpool and Poplar being among the least expensive options available to Burrell. Each able-body seaman received £3 5 in the first two and £3 10 in the others. Glasgow labour became very expensive, justifying Burrell's decision to move its base of operation further south.

It is very difficult to procure sufficient data to test how much cheaper Asian labour was compared with British, European and North American labour. Glasgow and Greenock are the only ports where we have examples from both groups, albeit rather small, especially in the former. Even though we can not be certain about the extent of the differences, the information available indicates that Asians were approximately a quarter cheaper than their white counterparts. The average wage for the former was between £3 5 and £3 15 while the latter demanded between £4 and £4 5. If these differences are reflective of the reality on the ground, Burrell was making a sound business choice by sending their ships in English ports where Asian labour could be provided in sufficient quantities and satisfactory prices. London, Barry and South Shields had a mean wage of £3 5, matching the lower limit of the wage range in the Scottish ports.

North American ports were once again among the most expensive choices for the shipowner. New York rose to become the most expensive option in the Atlantic seaboard, at least as far as Burrell was concerned. The relatively large number of men who joined

the company here must have been a response to unforeseen circumstances, an extraordinary expense and not part of Burrell's overall strategy. No Asian seamen were signed on in American ports, largely because of a lack of supply. Australian labour appears to have been the most expensive, with the shipowner having to pay £4 10 per man for labour in Newcastle, New South Wales. It is a reminder of the higher costs associated with recruiting in coal ports in Wales during the 1890s and would suggest that in coal ports demand must have outpaced supply consistently. Wage data from Indian ports paint a picture of well-paid labour, with the mean amount demanded by ABs in Calcutta and Bombay being quite high, especially the £4 secured by men in the latter port. Most of these seamen were not lascars, declaring the United Kingdom or other European and North American or Asian countries as their place of birth. The number of Indian born men employed by Burrell as able-bodied seamen in this period was very small and does not allow us to understand the movement of wages among these men in the early twentieth century.

The engine room department shared many similarities with the men working on the deck. Firemen received slightly more than able-bodied seamen, but they laboured in worse conditions. The difference in the pay scale was not substantial, averaging about 5s with two exceptions. The first was during the 1870s, when firemen were clearly better paid than seamen, the majority receiving between £4 and £4 10, when ABs were paid with as little as £3 5. The rapid expansion of Burrell's steamship fleet and the company dependence on Scots and Irish undoubtedly pushed the cost upwards. The opposite happened in the 1900s when firemen received substantially less money than able-bodied seamen, their mean being £3 10 compared with as much as £4 for ABs. The arrival of

large numbers of Asian firemen brought the average wage down, securing significant savings for Burrell.

Trimmers generally received slightly less than firemen but from early 1870s and especially after 1890, Burrell increasingly combined the services of trimmers and firemen into one, paying these men about the same amounts as simple firemen. This is without a question one of the best money saving decisions taken by Burrell (and perhaps other shipowners) who reduced their costs by eliminating almost completely one of the two most numerous categories of employees in the engine room. These savings appear more substantial in the 1890s, when trimmers and firemen were still to be found working on certain steamers. When this was the case, Burrell would have to spend anywhere between £6 and £8 in wages (plus victualling costs) for two men while wherever the two capacities had been combined into the same person, the related cost dropped to between £3 10 and £4 10.

In the 1860s, 1870s and 1880s, wages for trimmers in various ports followed patterns similar to those observed for ABs (see Table 6.15). In the 1870s Glasgow and other Scottish ports (such as Ardrrossan) offered labour at lower prices than English ports such as London. The wages demanded had a broader range, going from as little as £2 up to £4, while in England most trimmers secured something between £3 15 and £4. During the following decade the same patterns were also present but instead of London the main sources of labour become the Welsh coal ports. As was the case with seamen, labour there was more expensive than further north, with the average in Glasgow remaining in the same range as earlier while in Wales trimmers could secure wages similar to those available in London, namely between £3 15 and £4. Whenever men were hired in the dual

capacity of fireman and trimmer, Scotland proved once more the better choice for the shipowner, with the mean wage being about between £3 5 and £3 10 in Glasgow and between £4 and £4 15 in Penarth, Barry, Cardiff or even London.

In the 1890s, Glasgow, Hamburg and New York offered labour at the cheapest prices. This reflected the availability of large pool of labour, offering the shipowner some degree of flexibility and bargaining power. British ports became increasingly more expensive while Boston proved the high cost associated with manning a steamship in North American Atlantic ports other than New York. Similar arguments apply to men who combine the functions of fireman and trimmer. Continental ports such as Hamburg, Amsterdam, Antwerp and Rotterdam offered lower prices, between £3 and £3 15, while British ports, in particular coal ports, did not fall below £4 and often went as high as £4 15.

The arrival of Asian trimmers and firemen brought these prices down. In the 1900s, there were no trimmers; all men working in the engine room combined the jobs of firemen and trimmers. Burrell manned its vessels in London, Liverpool and Barry, paying on average £3 10 per fireman/trimmer, savings equalling almost a pound sterling per person. No British or Europeans were signed on in these ports because of the substantial differences in their remuneration compared with the Chinese and Japanese. The only United Kingdom port for which we have data on both groups is South Shields. While the sample size is small the wage differential is real, with the first group receiving £4 10 and the latter only £3 10 for the same work aboard a steamship. Glasgow, another port where Burrell signed on many firemen/trimmers, paid them between £4 and £4 5 per person while New York labour also demanded higher wages, with the mean price being about 5s

more than the Scottish port. In typical fashion, Sydney and Newcastle proved the high costs incurred every time a vessel signed on men in Australian waters while the cases of Buenos Aires and Antofagasta demonstrate that ports with limited supply resulted in significantly higher wages: in all these areas, the mean wage was above £4, more often than not reaching £4 10.

Table 6.15
Burrell & Son Trimmers and Firemen/Trimmers Wages, 1862-1915⁵¹

1862-1869

Port	Trimmers
Glasgow	£3 5 - £3 10

1870-1879

PORT	Trimmers
London	£3 15 - £4
Ardrossan	£2 - £4
Glasgow	£2 - £4
Calcutta	£3

1880-1889

PORT	Trimmers	Firemen/Trimmers
Penarth	£3 15 - £4	£4 - £4 15
Barry	N/A	£4 - £4 15
Cardiff	£3 5 - £3 15	£4 - £4 15
Glasgow	£2 - £4	£3 5 - £3 10

1890-1899

PORT	Trimmers	Firemen/Trimmers
Boston	£5	N/A
Hull	£4	£4 5
Liverpool	£3 15	£4 - £4 5
London	£3 10 - £4	£4
Poplar	£3 10	£4 - £4 10
Barry	£3 10	£4
Swansea	N/A	£4 - £4 10
Antwerp	£3 10	£3 5 - £3 15
New York	£3 5 - £4	£3 15
Hamburg	£3	£3 10
Glasgow	£3	£3 15 - £4
Rotterdam	N/A	£3 10
Amsterdam	N/A	£3 15

⁵¹Combined firemen/trimmers appeared in the 1880s. In the 1900s there were no men who were simply trimmers.

1906-1929

PORT	European Firemen/Trimmers	Asian Firemen/Trimmers
Sydney	£4 15	N/A
South Shields	£4 10	£3 10
Memel	£4 10	N/A
Antofagasta	£4 10	£4
Newcastle NSW	£4 10	N/A
New York	£4 5 - £4 10	N/A
Buenos Aires	£4 - £4 10	N/A
Glasgow	£4 - £4 5	N/A
Dunkirk	£3 15	N/A
Belfast	£2 15	N/A
London	N/A	£3 10
Poplar	N/A	£3 10
Barry	N/A	£3 10
Calcutta	N/A	£3 10
Liverpool	N/A	£3 10
Blyth	N/A	N/A
Hamburg	N/A	£3 10

Source: See Figure 6.1.

The catering department aboard a tramp steamer was not supposed to be large. The services of a steward, for example, were more important on a passenger liner than on a cargo tramp. Despite that, Burrell employed considerable numbers of stewards and cooks and their remuneration appears to have been reasonable, at least in comparison with what their counterparts in other shipping companies appear to have been earning. In the latter part of the nineteenth century, a steward could expect to make approximately £2 10, with the only substantial rise occurring just before the First World War. The reasoning behind such low levels was the dependence of stewards on tips from passengers, a source of revenue that could compensate for the meagre official earnings.⁵⁴ In Burrell's case, since passengers could not be counted upon to supplement wages, the company provided the full amount deemed adequate in exchange for the services provided. In the 1880s and

⁵⁴Burton, "Work and Home Life of Seafarers," 143-144.

1890s a steward earned on average £4 10 to £5 10, an amount that put him on par with petty officers. Cooks received about £3 10 to £4 10 in the 1870s, and there was a small increase in the following decade. The greatest gains were made in the 1890s when mean wages for both stewards and cooks rose by a pound sterling per month. It is not clear, though, what caused these increases. With the exception of some officers and engineers, no other occupational group received such substantial increases in monthly wages. The £5 to £6 that cooks and stewards were paid until the First World War put them on the same level with petty officers. It is noteworthy that the substitution of Asians for British and Europeans occurring in these positions during the early twentieth century did not have a negative impact on remuneration, unlike what happened with every other occupational category aboard Burrell's steamships. If we consider that at least some of the company steamships carried a small number of passengers, we can conclude that stewards could reap handsome profits if they were lucky enough to have paying passengers on board.

We can not assume that this privileged position was shared by all members of the catering department. Mess-room stewards and assistant stewards could not consider themselves well-paid. On the contrary, their wages were among the lowest aboard the steamship, almost never rising above £2 10 (with the exception of some mess-room stewards who received £3 in the 1870s). The arrival of large numbers of lascars and Chinese in the 1890s and 1900s suppressed their wages, and they did not benefit from whatever factors influenced the increases recorded in the case of stewards and cooks.

The crew members manning Burrell & Son vessels were not a homogeneous group. Nationality and age were the most obvious dividing line but it was mostly while at sea that different approaches to a maritime career became most apparent. Masters and

officers were most inclined towards a professional attitude, viewing Burrell & Son as a long-term employer and often endeavouring to advance through the ranks. They tended to remain with the company at the end of the voyage and were less willing to risk wages and professional standing by deserting at intermediate ports of call. They were better remunerated.

For the rest of the crew, Burrell & Son could be viewed more as an opportunity to achieve short-term goals or even as a pathway to a better life somewhere else. This was especially true among seamen and engine room personnel, two occupational categories prone to desertion. The loss of numerous specialized skills after the transition from sail to steam negated long apprenticeships, allowing men with no particular maritime skills to find employment aboard a steamship. The prospects for advancement were more limited than for officers, and the remuneration less enticing. Desertion was a valid option, especially among those interested in starting a new life in a different country. The new overseas colonies of settlement, offering good job prospects for newcomers, were prominent among the locations chosen by Burrell & Son's crews when they decided to jump ship.

While Burrell was a relatively small company, closely associated with Glasgow, crews at the outset tended to be homogeneous, and their ties with their home port were reflected in lower levels of turnover and desertion. Once the company expanded, the arrival of large numbers of foreign crew members, whether Europeans, North Americans or Asians, affected performance. Desertions increased dramatically, clearly demonstrating the importance of employment at sea as a means facilitating immigration to the Americas and Australia. Shipowners were nonetheless able to reap considerable benefits, despite

the constant need to recruit crew members at expensive foreign ports. Substantial economies were achieved through the employment of Indians and Chinese, especially among the more numerous engine room and deck departments. Wages for these men were significantly lower than for British, European and North American employees. The result was a mosaic of nationalities, motives and attitudes that shaped the way Burrell & Son operated. This justifies the view of the shipping industry as a palimpsest for the hopes and aspirations of those intimately involved with it, whether managers or crew members.

Chapter 7

The Fringes of the Sea

George Burrell, the founding father of the company, entered the shipping business as a shipping and forwarding agent on the Forth & Clyde Canal in the 1850s.¹ His successors took advantage of the available opportunities and expanded the enterprise into one of the most significant tramp shipping companies in the United Kingdom. In terms of their tonnage, there can be no question of the company's importance. Robert Ropner, another successful nineteenth-century tramp operator, owned thirty-five steamships in 1894 (77,750 gross tons), while the same year Burrell managed thirty-five vessels of 88,606 gross tons.² This level of investment provided numerous opportunities for expansion and diversification, both attributes that are found in Burrell's operations. Starting with a few sailing vessels, the company managed to make a successful transition to steam, gradually increasing its fleet size, entering new trades and extending its operations from the British Isles to the most commercially important areas of the nineteenth-century world.

The firm has acquired a reputation for careful, conservative management with an emphasis on well-proven techniques and standardized vessels.³ The analysis of its development policies and the timing of significant shifts in the nature of the fleet and trading patterns support this assertion. Technological advances in marine engineering were of limited interest to the company until they were proven; unlike Holt, for example,

¹R.A. Cage, *A Tramp Shipping Dynasty – Burrell & Son of Glasgow, 1850-1939: A History of Ownership, Finance, and Profit* (Westport, CT: Greenwood Press, 1997), 7.

²Ian Dear, *The Ropner Story* (London: Hutchinson Benham, 1986), 30.

³R.A. Cage, "The Structure and Profitability of Tramp Shipping: 1850-1920: Some Evidence from Four Glasgow-Based Companies," *The Great Circle*, 17, 1 (1995), 6.

Burrell adhered to conservative principles and hence was a laggard in the short term. The compound and triple-expansion engines, for example, were well known for several years before being adopted by Burrell. The company never made the transition to quadruple-expansion engines, deeming that the advantages (e.g., increased speed) were outweighed by the disadvantages. In line with the general attitude among British shipowners in the early twentieth century, Burrell appeared indifferent to the greatest development of the interwar years, the arrival of the diesel engine.⁴

Yet this image of technological conservatism obscures certain important policy decisions that had significant, long-lasting impacts on maritime trade and the economic development of certain countries and regions. The company's pioneering role in the creation of the refrigerated meat trade from Australia is an example. We know that in 1879 Burrell chartered *Strathleven* to make a voyage to Australia with the knowledge that once there it would be fitted with refrigeration equipment to carry refrigerated mutton to London, a voyage which led to the development of a new export trade and a rapid growth spurt in the Australian economy. What we do not know, however, is whether such a voyage was ever repeated. While the first cargo arrived in London in good condition and was sold profitably, there is no evidence that this led to future engagements by the company in this trade.

If its pioneering participation in the Australian refrigerated meat trade was the only instance of such potentially risky behaviour, we might merely treat it as an aberration. But there are other examples which make this conclusion seem less certain.

⁴For the experience of British shipowners in general, see Julian Greaves, "Managing Decline: The Political Economy of British Shipping in the 1930s," *Journal of Transport History*, 3rd ser., 28, 1 (2007), 57-74.

The most obvious of these was the company's propensity for entering new trades. Before the mid-1880s, for instance, the firm had a long-term presence in the Mediterranean, especially in the fruit and iron ore trades. Yet in the second half of the decade there was a pronounced shift towards transatlantic destinations, first to the Caribbean, later to the United States and eventually into the Pacific.

From what we know about the Caribbean trade between 1885 and 1895, Burrell must have had great difficulty securing profitable cargoes. Yet the company persevered, sending numerous ships to places like Jamaica and Trinidad. While we lack profit figures for these voyages, they must have been profitable because there was no other likely way for Burrell to have amassed the capital to fund the large-scale investments that fuelled the rapid increase in company-owned tonnage that took the fleet from 27,584 gross tons in 1893 to 90,061 gross tons two years later.⁵

In short, Burrell was a company that could act either conservatively or entrepreneurially depending upon circumstances. The question of entrepreneurship has long been an important issue for historians, and scholars have attempted to define the characteristics that separated entrepreneurs from ordinary businessmen. Lewis Fischer has created an entrepreneurial behaviour model which is particularly useful in analyzing Burrell's managerial policies. Fischer has identified six parameters which characterize

⁵It is also possible, of course, that Burrell could have secured the funds through bank loans. This seems unlikely, however, for two reasons. First, we can find no evidence of this in any of the extant sources. Second, it is hard to envision a situation in which banks would lend huge amounts of capital to a firm that was not profitable.

entrepreneurial behaviour. Burrell's history contains instances which fit the conditions established by Fischer for being deemed an entrepreneur.⁶

Moderate risk-taking is the first important characteristic of an entrepreneur. Burrell was not adverse to risks, something the company proved repeatedly in its decisions to enter trades where it almost certainly had no extensive local knowledge and lacked relevant experience. The move away from the Mediterranean towards the Caribbean, despite our lack of knowledge about the exact motivations for it, can be seen as a decision that carried moderate risks. Although market conditions were not ideal, Burrell was not entering *terra incognita* but rather a region that was well known to British shipowners. The move thus was risky but not foolhardy.

Decision making is another characteristic of entrepreneurial behaviour. William and George Burrell, the two personalities behind Burrell & Son for the greatest part of the nineteenth and twentieth century, were undeniably the driving forces behind all policy decisions. They were the active managers in the majority of the vessels owned by the company. Indeed, on only 6.3 percent of all the company's voyages for which crew lists have survived were the Burrell brothers not listed as managing owners.⁷ We lack much information on those people who served as managing owners for the fifty-two voyages

⁶Lewis R. Fischer, "'An Engine, Yet Moderate': James Peake, Entrepreneurial Behaviour and the Shipping Industry of Nineteenth Century Prince Edward Island," in Lewis R. Fischer and Eric W. Sager (eds.), *Enterprising Canadians: Entrepreneurs and Economic Development in Eastern Canada, 1820-1914* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1979), 101-103.

⁷Most of these voyages took place between 1868 and 1876, the early years when experience and connections were certainly lacking, as was to be expected from any newly founded company. There were only two cases of voyages after 1876 when a member of the Burrell family was not the managing owner of the vessel: the voyages of *Aurette* in 1893 and 1896. The steamship had been purchased second-hand and for unknown reasons a Burrell did not act as managing owner. A Burrell was the manager, however, for the remaining fourteen voyages the vessel performed while in the company's ownership.

not managed by the Burrells. But we do know that two of them were definitely connected with the Burrells through purchases of shares in other company vessels. John Edmund Swan, a Glasgow iron merchant, owned eleven shares in *Fitzwilliam*, while John Finlay Maclaren, another iron founder from Glasgow, owned numerous shares in various Burrell & Son vessels.

Burrell & Son demonstrated novel instrumental behaviour because the company was a true pioneer in opening new routes, creating markets and assisting in the development of regional economies. It is difficult to claim that Australian refrigerated meat would not have made its way to the London market without Burrell's intervention. Assigning deterministic significance to the actions of individuals is fraught with danger. But the fact remains that Burrell was able and willing to take risks and to attempt something not done before.

The characteristic of individual responsibility is rather ambivalent in our case. Since the late 1880s, Burrell & Son was run by two brothers, William and George, but despite the compartmentalization of responsibilities and the lack of archival material, it seems improbable that there was no communication or consultation between the siblings. From what little we know about the company's methods of operation and decision making, it appears that the brothers were the sole decision makers, fully responsible for policy, purchasing, operations and the final disposal of the vessels. They delegated everyday operational decisions to agents but maintained close supervision over developments.⁸ Other shareholders do not appear to have been involved actively in decision making. The most obvious example of individual responsibility can be found in

⁸Cage, "Structure and Profitability," 8.

the disposal of the company's assets. The Burrell brothers purchased all shares before the final sale of all their vessels, distributing profits among shareholders or maintaining funds to satisfy future needs. In short, everything we know suggests that William and George accepted responsibility for company moves.

Organizational skills were undoubtedly one of the Burrells most pronounced characteristics. The mere achievement of transforming an upstart shipping company into one of the most important tramp firms in Scotland within a single generation should suffice. The two periods of rapid growth marked by the purchase of new steamships within a narrow time frame by definition demanded good organization and competent planning. The 1894-1896 expansion took place with no measurable dislocations or delays in the company's operations. The mean delivery time dropped compared with previous periods, demonstrating the efficiency and attention paid by the Burrells during the planning phase, with the distribution of orders among numerous shipbuilders in order to avoid costly delays. All surviving shipbuilding data indicate savings between contract price and prime cost ranging from a few to thousands of pounds. We do not know the exact process by which the Burrells calculated costs and contracted for their vessels, but the apparently consistent savings supports the argument that it was careful organization that ensured there would be no cost overruns.

The company manifested its organizational skills when it re-entered the shipping business in 1905. Ordering, launching and operating twenty-two new steamships within two years demanded careful planning. Delivery times were reduced by seven percent over the previous period, while costs remained similar to the levels prevailing in 1894-1896. Circumstantial evidence in the form of employee statements suggests that William and

George Burrell worked without great assistance from subordinates, maintaining absolute control and making most decisions.⁹

The ability to perceive future opportunities is the last basic characteristic of an entrepreneur. It is very difficult to detect the presence of this characteristic in Burrell, not necessarily because it was lacking but because in the absence of written sources it is hard to document what the Burrells were thinking. Company papers, letters and communications with agents, shipbuilders and charterers might offer some clues of their intent. In the absence of such records, it is difficult to be certain about the Burrells' motivation when we detect a policy change. Did they move into the Caribbean trade because they sensed some opportunities there? Did they re-enter the world of tramp shipping in 1905 due to their perception of opportunities that we can not identify? Was the equipping of *Strathleven* with refrigerating machinery a brilliant analysis of the capabilities of modern technology to ensure the transportation of meat in good condition over long distances? Did Burrell anticipate the growth potential of Australia as a source of this commodity? No definite answers are possible. The firm's survival in the competitive world of British tramp shipping for almost sixty years suggests that the owners possessed this ability, but there is always the possibility that the owners were fortunate rather than insightful.¹⁰ Sir William Burrell exited from the shipping industry as a wealthy, socially accepted man who could dedicate the last years of his life to the

⁹*Ibid.*, 8-9.

¹⁰Peter N. Davies, "Business Success and the Role of Chance: The Extraordinary Philipps Brothers," *Business History*, 23, 2 (1981), 208-232.

pursuit of his passion for Asian antiques and art. What we can say with certainty is that without success in shipping, this lifestyle would not have been possible.

All the aforementioned characteristics of entrepreneurial behaviour are meaningless if they do not lead to what Fischer calls "n" achievement. The accumulation of wealth, power, status, satisfaction or some other outcome is the goal for which the entrepreneur strives. Their attainment justifies the effort, either to himself or his peers. Unfortunately, in the case of the Burrells we cannot measure how successfully they achieved their goals. Simply put, we do not know what they were aiming for. Both the Burrells clearly achieved wealth, status and power; if one or all of these were the brothers' goals they were certainly successful. Whether either considered himself a "success," however, remains unanswerable. Both became wealthy, and William in particular certainly had a positive reputation: he was showered with honours while he was alive, and the bequest of his excellent collection of Asian art to the city of Glasgow has ensured his posthumous fame. But perhaps William and George Burrell aimed for something different, perhaps for the creation of a shipping enterprise that outlasted them, a business to bequeath to their descendants. If this were the case, they appear less successful. There was no continuity, and their shipping operations ended in 1930 with the sale of their last steamship, the only remnant of the fleet they managed in the years before the First World War.

This raises a final series of related questions. Why did Burrell & Son sell its entire fleet, not once, but twice? What motivated them to exit the shipping industry in 1899, only to return a few years later? What were the reasons behind their decision to dispose of their brand new steamships within a decade of their re-entry into shipping in 1906? And

why did the firm retain a single vessel for fourteen years after most of their fleet had been sold in 1915?

Table 7.1
Burrell & Son's Vessel Sales during the Second Boer War

Vessel	Year Sold	Buyer
<i>Castledale</i>	1898	Actieb. Metillier, Sweden
<i>Fitzpatrick</i>	1898	Alfred Lewis Jones, shipowner, Liverpool
<i>Strathairly</i>	1898	British & Colonial Steam Navigation Co., Ltd., (Buchnall Bros.), London
<i>Strathavon</i>	1898	John Harvey, London (shipbroker)
<i>Strathcarron</i>	1898	John Thomas Lunn, Newcastle, shipowner
<i>Strathclyde</i>	1898	Irish Shipowners Co. (T. Dixon & Sons, managers)
<i>Strathdon</i>	1898	Thomas Gentles
<i>Strathesk</i>	1898	Cia Naviera Bascongada
<i>Strathfillan</i>	1898	Alfred Lewis Jones, shipowner, Liverpool
<i>Strathlyon</i>	1898	E. Frisch & Co., Marseilles
<i>Strathnairn</i>	1898	Alfred Lewis Jones, shipowner, Liverpool
<i>Strathness</i>	1898	Edward Lloyd, Percy Edmond Buchnall, Edgar Allen Buchnall, Sydney Lloyd Buchnall, London, shipowners
<i>Strathnevis</i>	1898	Andrew Tate, Newcastle, manager of Tate Steamers
<i>Strathray</i>	1898	British & Colonial Steam Navigation Co., Ltd., (Buchnall Bros.), London
<i>Auretta</i>	1899	E. Bories, Bordeaux
<i>Fitzclarence</i>	1899	John Robert Douglas Hickie, London, shipowner
<i>Hindoustan</i>	1899	John Edwards, (manager, S. Hendy)
<i>Strathallan</i>	1899	Elpida Ladopoulo & Fils, Syra, Greece
<i>Strathdee</i>	1899	F. Vaccaro fu A., Genoa
<i>Strathgarry</i>	1899	Prince Line, Ltd., Newcastle (J. Knott, manager)
<i>Strathgyle</i>	1899	J. B. Murray & Co., Glasgow
<i>Strathisla</i>	1899	John Thomas Lunn, Newcastle, shipowner
<i>Strathleven</i>	1899	Steamship <i>Strathleven</i> Shipping Co. (Henry Abram manager).
<i>Strathmore</i>	1899	McLaren & McLaren, Glasgow
<i>Strathord</i>	1899	McLaren & McLaren, Glasgow
<i>Barden Tower</i>	1900	P. Del Bueno, Port Ferroa

Source: Burrell & Son Fleet Database.

It is much easier to answer the first question than it is to attempt an interpretation of subsequent moves. The timing of Burrell's sales at the end of the nineteenth century coincided with the heavy demand for ships and shipping created by Britain's involvement

in the Boer War in South Africa. The transportation of troops, the requisitioning of large volumes of tonnage necessary for the war effort and the profits accruing to shipowners from the increased freight rates created booming conditions for British shipping. Tramp shipowners experienced rapid appreciation of their assets, with prices for steamers of 7500 deadweight tons soaring to as much as £60,000.¹¹

The Burrells took advantage of the opportunity to dispose of their assets while these booming conditions sustained a strong demand for tonnage. Because the company for the most part operated recently built vessels, they had no difficulty in securing buyers. Table 7.1 provides information on these transactions, giving the name, occupation and location of the buyers.¹² The disposal program began about the same time that tensions in South Africa were rising. And the rising tensions coincided with a boom in British shipbuilding prices, which rose by almost twenty-three percent between 1897 and 1900.¹³ Rising new building prices, of course, made second-hand vessels even more attractive.

There was a clear clustering of sales in 1898 and 1899, with one ship disposed of as late as 1900. In total, twenty-six ships were sold. The majority of the buyers were British, but there were also numerous foreigners. Two ships were sold to French interests, and one each to Greek, Swedish, Basque, Italian, and Spanish companies. Among the

¹¹Ronald Hope, *A New History of British Shipping* (London: John Murray, 1990), 338.

¹²It would be ideal if we had more information regarding the financial aspect of these transactions. We do not know the prices demanded by Burrell for its steamships. We only have an approximate evaluation for *Strathleven*, which sold in 1899 for under £10,000. This is same *Strathleven* that carried refrigerated meat from Australia twenty years earlier. We have no indication about what Burrell paid for the ship in 1876, so we cannot determine whether the company profited from the sale of this elderly steamship. For price information on the sale, see Cage, *Tramp Shipping Dynasty*, 55-57.

¹³K. Maywald, "The Construction Costs and the Value of the British Merchant Fleet, 1850-1938," *Scottish Journal of Political Economy*, 3, 1 (1956), 44-66. Even better would be an index of ship sale prices, but none has yet been compiled.

British buyers, Alfred Lewis Jones, the Liverpool shipowner, bought three vessels, the same number purchased by the British & Colonial Steam Navigation Co. Ltd., a company owned by the Buchnall brothers of London. There was no preference for Glasgow shipowners, with only three vessels being bought by Scottish interests. Shipowners from London, Liverpool and Newcastle appear to be the most important buyers. This reflects perhaps the greater emphasis placed by Burrell during the last decade of the nineteenth century on other British ports at the expense of Glasgow. Shipowners in London, Liverpool and Newcastle were more likely to have an intimate knowledge of tonnage available for sale, with the vessels departing and returning to these ports rather than Glasgow. In any case, some of these vessels were sold to people connected with Burrell through previous co-operation. McLaren & McLaren, from Glasgow, bought two steamships in 1899. These are undoubtedly the same people managing vessels along with Burrell & Son during the early period of the company's history. McLaren appeared as co-manager with Burrell in twenty-one voyages of two ships, *Grange* and *Strathclyde*, from 1869 to 1873.

Burrell's decision to re-invest in shipping after 1905 must have been a well thought-out process. The company maintained three shares in *Strathness*, sold to the Buchnall brothers in 1898. It did not appear to retain an active presence as a manager in the five-year period from 1900 (when it sold *Barden Tower*) to 1905 when it embarked on its ambitious purchase of new ships.¹⁴ The nature of this rapid expansion in the twentieth century implies the maintenance of contacts and interests on a sufficient scale to justify

¹⁴A search of Lloyd's Register for 1904 did not reveal a single vessel for which Burrell functioned as manager. This of course does not preclude the possibility that Burrell maintained some shares in numerous vessels, but it is not possible to establish the extent of such investment without further research.

the launching of so many vessels within such a sort period of time and their employment on transatlantic and transpacific voyages.¹⁵

It is more difficult to explain the decision to re-invest. If the purpose of the sale of their fleet in 1898-1900 was to accumulate profits at a time of increasing demand for tonnage, then the years until 1905 can be viewed as part of a re-orientation process, with Burrell maintaining an acute interest in the shipping industry but wishing to accumulate sufficient capital and distance from day-to-day operation hustles to allow for a mature weighting of possibilities and opportunities. What is troubling is the fact that the first decade of the twentieth century was a period of depressed freight rates, particularly in the North Atlantic trades. New, larger and more efficient vessels, launched since the early 1890s, combined with increased tonnage supply resulting from the good trading conditions prevailing at the end of the nineteenth century, created an oversupply of tonnage. The imbalance of British trade, with imports lagging behind exports, reinforced the supply problems. Operating costs remained fairly steady through the early years of the twentieth century, exerting strong pressures on profits, with rate wars harming shipowners in many areas. All these factors depressed shipping in the Atlantic, demanding greater effort and constant vigilance on the part of shipowners to avoid the most harmful effects of the crisis.¹⁶

This is the environment in which the Burrells decided to re-enter shipping. The North Atlantic remained an area of interest for the shipping company, with numerous

¹⁵Cage, *Tramp Shipping Dynasty*, 11, claims that Burrell acted as shipping agent for other firms and as insurance brokers. The firm also chartered vessels to carry cargo it secured itself.

¹⁶Derek H. Aldcroft, "The Depression in British Shipping, 1901-1911," *Journal of Transport History*, Second series, 7, 1 (1965), 20.

voyages between the United Kingdom and the ports on the east coast of the United States. But they were not the hubs of Burrell's operations, with the bulk directed towards Latin America, Australia and the Pacific, areas which did not suffer from the decline in freight rates to the same extent as the North Atlantic.¹⁷ Indeed, these were all areas in which it made sense to operate. Rates in the nitrate trades from the west coast of South America, for example, rose by thirty-two percent between 1904 and 1912.¹⁸ And wheat freights from Australia did even better, growing by almost forty-three percent between 1907 and 1912.¹⁹ In short, it appears that Burrell became involved in shipping anew because of expectations of exceptional profits in some trades in which the firm had only been involved tangentially prior to 1900.

The outbreak of the First World War changed all the calculations and operational plans Burrell might have had. Within two years of the beginning of hostilities, the bulk of the company's fleet had been sold. Losses through enemy action were not excessive, with only six ships being lost due to hostile activity. Twenty-five steamers, representing almost eighty-one percent of the fleet, were sold, with most transactions taking place in 1915 and 1916. There are certain similarities between Burrell's actions in these years and what happened during the Boer War. It is clear Burrell was particularly attuned to shipping demands created by international hostilities and were willing to take advantage of increasing rates and opportunities to accumulate profits. In the company's operational

¹⁷Cage, "Structure and Profitability," 7-8.

¹⁸Juan E. Oribe Stemmer, "Freight Rates in the Trade between Europe and South America, 1840-1915," *Journal of Latin American Studies*, 21, 1 (1989), 28.

¹⁹John Singleton, "Freight Rates for Australian Wheat Exports, c. 1870-1939" (unpublished paper presented to the International Economic History Congress, Helsinki, Finland, August 2006), 13.

plan, the most secure way to survive the war was by selling assets at inflated prices, accumulating profits and hopefully re-investing during more secure and serene periods.

Table 7.2
Burrell & Son's Vessel Sales during the First World War

Vessel	Date Sold	Buyer
<i>Fitzclarence</i>	30/07/1913	American Levant Line, Ltd., London
<i>Fitzpatrick</i>	13/11/1913	St. Helens Steam Shipping Co., Ltd., London
<i>Strathyre</i>	09/02/1915	Newcastle War Risks Indemnity Association, Ltd., Newcastle
<i>Strathmore</i>	03/03/1915	W. Wilhelmson, Tousberg
<i>Strathlyon</i>	24/04/1915	Redeniantieb Lule Ofater, Stockholm
<i>Strathgyle</i>	14/12/1915	Rome Steam Shipping Co., Ltd., London
<i>Strathardle</i>	21/01/1916	Dollar Steamship Lines, San Francisco
<i>Strathness</i>	08/03/1916	Rome Steam Shipping Co., Ltd., London
<i>Strathblane</i>	13/03/1916	Rome Steam Shipping Co., Ltd., London
<i>Strathdon</i>	27/03/1916	Rome Steam Shipping Co., Ltd., London
<i>Strathallan</i>	31/03/1916	Rome Steam Shipping Co., Ltd., London
<i>Strathclyde</i>	13/04/1916	Rome Steam Shipping Co., Ltd., London
<i>Strathfillan</i>	25/05/1916	Anglo-American Oil Co., Ltd., London
<i>Strathlee</i>	10/06/1916	Commonwealth Government Line, Australia
<i>Strathendrick</i>	12/06/1916	Turner, Davidson & Co., Ltd., Brisbane
<i>Strathairly</i>	13/06/1916	Turner, Davidson & Co., Ltd., London
<i>Strathord</i>	15/06/1916	Turner, Davidson & Co., Ltd.
<i>Strathgarry</i>	17/06/1916	Commonwealth Government Line, Australia
<i>Strathbeg</i>	24/06/1916	Turner, Davidson & Co., Sydney
<i>Strathleven</i>	07/07/1916	Turner, Davidson & Co., Melbourne
<i>Strathspey</i>	15/07/1916	Turner, Davidson & Co., Ltd., Brisbane
<i>Strathesk</i>	27/07/1916	Commonwealth Government Line, Australia
<i>Strathavon</i>	01/08/1916	Turner, Davidson & Co., Ltd.
<i>Strathan</i>	22/08/1916	Equinox Steam Ship Co., Ltd., London
<i>Strathearn</i>	16/04/1919	Shankland & Co., Ltd, Glasgow

Source: See Table 7.1.

Unlike the Boer War era, in 1915 and 1916 the majority of buyers were companies rather than individual shipowners (see Table 7.2). Only one buyer can be identified as closely connected with a government-sponsored line, the Australian Commonwealth Government Line (ACGL), which purchased three steamships (13,143 gross tons). Australia proved a lucrative market for Burrell, with seven vessels being

bought by Turner, Davidson & Co., Ltd. Turner, Davidson, however, was acting as an agent for the ACGL, which means that we can add these vessels, totalling an additional 30961 gross tons, to the Australian line. When we add the Dollar Steamship Lines of San Francisco, which bought *Strathardle*, we have more proof of the importance of Burrell's new trading regions in creating connections between buyer and seller. Just as had happened in the earlier sales twenty years previously, Scottish shipowners did not express interest in Burrell's ships. Only one buyer from Glasgow bought a Burrell ship, *Strathearn*. There was also limited interest expressed from neutrals in the First World War, with only two steamships being sold to Scandinavian shipping companies. Such a low percentage (eight percent) contrasts vividly with the twenty-seven percent of Burrell steamships sold to Europeans during the Boer War.

These sales made even more sense than the disposals during the Boer War because the cost of new tonnage skyrocketed during the Great War. The cost of a new vessel more than doubled between 1913 and 1917, proving a sufficient rationale for Burrell to sell its assets. In this case, though, the firm would have done even better had it waited a few more years, for the cost of newly built tonnage more than doubled again between 1917 and 1922.²⁰ But the Burrells were shipowners, not psychics, and they had no way of knowing what would happen to vessel prices after the end of hostilities.

The similarities between the Burrells' actions in the Boer War and the First World War might indicate a consistent policy on the part of the shipowner. But the massive investment after the Boer War was not replicated in the years after 1918. By keeping two

²⁰Maywald, "Construction Costs," 52.

vessels after the end of the war (*Strathearn* and *Strathlorne*), a move reminiscent to some degree of their earlier policy of keeping a limited number of shares in vessels they sold to other shipowners, Burrell might have been indicating its intention to re-invest at a later date. If this was its intention, however, it never came to pass. *Strathearn* was sold in April 1919, leaving Burrell with a single steamship. Although the boom in freight rates during the 1919-1921 years might have laid the ground for an ambitious expansion program, the post-war bonanza did not last long. The British and international shipping industries were soon engulfed in a serious crisis caused by tonnage glut, which led to the collapse of freight rates.²¹

Faced with such adverse trading conditions, Burrell might have decided that the time was not propitious to embark on an expensive shipbuilding program. There is no way of knowing precisely what Burrell was thinking or planning during the 1920s. The only way to gain some insight is to rely on some reasonable assumptions and comparisons with the actions and behaviours of contemporary shipowners. Despite the obvious difficulties of such an inferential analysis, it is reasonable to assume that the Burrells would have been influenced to a certain extent by general trends both in their business and the social circles in which they moved. While Burrell's case may have been exceptional, there is no reason to believe that it would have been unique.

From the late nineteenth century, there was a clear tendency among the wealthiest members of the British business and merchant community to "substitute leisure or

²¹Stanley G. Sturmev, *British Shipping and World Competition* (London: Athlone Press, 1962), 61-97.

prestige for income maximization."²² Large numbers of entrepreneurs abandoned the preoccupation of running their businesses, instead devoting more time to the acquisition of land and titles and dedicating themselves to "gentlemanly pursuits." Some scholars believe that the pursuit of these interests drained much of British industry of capital and entrepreneurial spirit, allowing international competitors to challenge British dominance in numerous spheres, not least of which was the shipping industry.²³

There are many examples of similar behaviour among Burrell's peer group, as well as among their competitors and business associates. Robert Ropner, another successful nineteenth-century British tramp shipowner, provides an excellent example with which to compare Burrell. By the mid-1890s, at a time when his company was managing thirty-five steamships (77,750 gross tons), Robert Ropner began to hand over the daily operations of his business to his sons. As he wrote in July 1903, he took "no interest in the management of the steamers now." Instead, he became involved in local politics, becoming a country councillor in 1889. Six years later he became a member of the Tees Conservancy Commission and in 1896 was made Deputy Lieutenant for the County of Durham. He also held the post of High Sheriff and in 1898 became chairman of the Hartlepool Port and Harbour Commission. Already a director of numerous public companies, he was elected to the General Committee of Lloyd's Register of Shipping in 1891, and in 1901 he was elected President of the Chamber of Shipping. During the same

²²Carman Miller, "A Knight in Business: Some Aspects of Sir F.W. Borden's Business Affairs, 1896-1917," in Fischer and Sager (eds.), *Enterprising Canadians*, 243.

²³Tom Nicholas, "Clogs to Clogs in Three Generations? Explaining Entrepreneurial Performance in Britain since 1850," *Journal of Economic History*, 59, 3 (1999), 688-713; and Nicholas, "Wealth Making in Nineteenth and Early Twentieth Century Britain: Industry vs. Commerce and Finance," *Business History*, 41, 1 (1999), 16-36. See also Daniel R. Shiman, "Managerial Inefficiency and Technological Decline in Britain 1860-1914," *Business and Economic History*, Second Series, 20 (1991), 89-98.

year, he was elected as the MP for Stockton (he had become chairman of the Stockton Conservative Party in 1889).²⁴

F.G. Dalgety, a merchant who used Burrell's ships to carry goods from Australia to the United Kingdom, offers another example of the potentially negative effects of this entrepreneurial failure. The nineteenth century was an age of "family capitalism" when the support of the family determined many of the actions of businessmen. Capital was withdrawn from the company and reinvested to ensure the financial security of the family, preparing for the possibility that there might not be a progeny competent or willing to assume the responsibilities associated with the business.²⁵ In the mid-1870s, Dalgety was spending large amounts of his company's profits on his estate and purchasing land in New Zealand which, though unprofitable, would provide security for his family. At the same time, he gradually withdrew from the day-to-day running of his enterprise. His actions are better understood when we realize that it was not unusual for a successful businessman to retire at the age of fifty to live the life of a rentier.²⁶

It is likely that such gentlemanly pursuits were not far from William Burrell's mind. In 1888 he was appointed vice-consul for the Austria-Hungary government, and he

²⁴Dear, *Ropner Story*, 26-28. Gordon Boyce, *Information, Mediation and Institutional Development: The Rise of Large-Scale Enterprise in British Shipping, 1870-1919* (Manchester: Manchester University Press, 1995), 293, has argued that being simultaneously active in business and public life had multiple benefits for entrepreneurs. It provided greater reputational deterrence, enhanced signalling power and improved private fund-raising capability. Through political activities, the shipowner extended his range of information channels and contracting options. There is no denying the importance of networking, but such multifaceted activities could eventually result in an unwillingness to remain intimately involved in the mundane pursuit of daily business, turning instead towards more rewarding activities in the spheres of personal pleasure and social recognition.

²⁵Martin J. Daunton, "Firm and Family in the City of London in the Nineteenth Century: The Case of F.G. Dalgety," *Historical Research*, 62, 2 (1989), 94-95.

²⁶*Ibid.*, 98-106.

later became consul. In the early twentieth century, he was elected as a member of the Council of the Glasgow Corporation, becoming the convener of a subcommittee on health.²⁷ His passion and dedication to Chinese art led him to invest large sums in china and other artefacts from China and Southeast Asia, objects that later formed the core of his donation to the City of Glasgow. While we are not in a position to analyze the effects of these pursuits on the well-being of his shipping company, it seems probable that Burrell accumulated the funds for his extensive purchases from Burrell & Son's profits. Regardless of the source of the funds he used in such purchases, it is clear that his behaviour places him firmly within the circle of British businessmen who increasingly disassociated themselves from their enterprises in pursuit of personal pleasure.

We should also keep William Burrell's age in mind. He was born in 1851, meaning that by the time he decided to sell his assets during the First World War he was in his mid-sixties, an elderly gentleman without apparent heirs in whom he could place his hopes for the company's future.²⁸ Unlike other enterprises which gradually shed their familial characteristics and depended upon professional managers to conduct daily operations, Burrell & Son remained a family concern, with William and George maintaining absolute control over every aspect of management and policy development.

²⁷Cage, *Tramp Shipping Dynasty*, 10-11.

²⁸On the problem of "entrepreneurial transition" in general, see Andrea Colli, *The History of Family Business, 1850-2000* (Cambridge: Cambridge University Press, 2003); and Annika Hall, Leif Melin and Mattias Nordqvist, "Entrepreneurship as Radical Change in Family Business: Exploring the Role of Cultural Patterns," *Family Business Review*, 14, 3 (2001), 193-208. For the British context in particular, see Peter L. Payne, "Family Business in Britain: An Historical and Analytical Survey," in Akio Okochi and Shigeaki Yasuoka (eds.), *Family Business in the Era of Industrial Growth: Its Ownership and Management* (Tokyo: Tokyo University Press, 1984), 171-206. For a discussion of the problem in shipping outside of the UK, see Trygve Gulbrandsen and Even Lange, "The Survival of Family Dynasties in Shipping," *International Journal of Maritime History*, 21, 1 (2009), 175-200.

Some secretaries and inferior personnel were their only aides. There was no family member to continue the company business after the passing of the current owners.

When heirs were not interested in taking over the family business, many family-owned companies lost their *raison d'être*. There are numerous examples in British shipping of successful companies being sold or acquired by competitors due to a lack of generational continuity. When Donald Currie died, for example, his heirs sold the Union-Castle Line privately (it eventually became part of the Royal Mail Group).²⁹ Dalgety's sons declined to enter their father's business and the family connection was lost.³⁰ By the end of World War I, George Burrell was in poor health (he died in 1927) and no longer had the energy to supervise the company's development. His brother, Sir William Burrell, without apparent heirs, old, wealthy and socially secure, likely was not inclined to continue to pursue the strenuous career of managing multiple vessels during years of depression and intensifying international competition. His behaviour was strongly reminiscent of Walter Runciman, Sr. In a letter written to his son in 1919, the shipowner said that he wished to dispose of his vessels to gain from the inflated prices characteristic of the immediate post-war years, was unwilling to invest in his aging fleet and was reluctant to spend capital for new vessels in conditions that suggested an imminent "shrinkage in value." Financial and business worries combined with personal ambitions, led him to devote his fortune to the pursuit of pleasure and convinced him to disinvest.³¹ Burrell, operating in a similar environment, likely looked at the future similarly. In

²⁹Gordon Boyce, "'64thers, Syndicates, and Stock Promotions: Information Flows and Fund-raising Techniques of British Shipowners before 1914," *Journal of Economic History*, 52, 1 (1992), 198.

³⁰Daunton, "Firm and Family," 115-116.

³¹Boyce, *Information, Meditation*, 144.

addition, he lacked even Runciman's motivation to protect the company for the benefit of a son.

The booming conditions during and immediately after the First World War offered a good opportunity to profit through the sale of tonnage. The disposal of his assets had the added benefit of protecting Burrell from the Excess Profits Duty, a wartime taxation scheme that led many shipowners to sell their fleets.³² By keeping two vessels Burrell might have been preparing for future expansion when the conditions were more propitious. But as he grew older, such plans must have appeared more futile and would have deprived him of the satisfaction to be gained from the pursuit of personal pleasure. When the opportunity presented itself, the brothers sold their penultimate vessel, probably making a handsome profit as a result of the inflated prices for tonnage prevailing in 1919. After George's death, William kept a single vessel until 1930, perhaps unwilling to totally abandon the business he had followed for more than fifty years.

We may never know for certain the reasons behind Burrell's decision to abandon shipping after the First World War. In the sixty-odd years of its existence, Burrell & Son grew from an insignificant owner of a few sailing ships to become one of the most important tramp shipowners in Britain. The life of the company encompassed the period of British dominance over world maritime trade. George and William Burrell operated

³²The new duty was introduced in 1915 on profits "in excess of a pre-war standard of profits." On the workings of the Act, see William Sanders, *The Practice and Law of Excess Profits Duty (1916)* (London: Gee and Company, 1916); and R.J. Sutcliffe, *Excess Profits Duty and the Cases Decided Thereon* (London: Stevens and Sons, 1919). For its impact on one famous British shipowner, see Collin Brookes (ed.), *The Royal Mail Case: Rex v. Lord Kylsant, and Another* (Edinburgh: William Hodge and Co., 1933). See also Robin Craig, "Aspects of Tramp Shipping and Ownership" in Keith Matthews and Gerald Panting (eds.), *Ships and Shipbuilding in the North Atlantic Region* (St. John's: Maritime History Group, Memorial University of Newfoundland, 1978), 207-228; reprinted in Robin Craig, *British Tramp Shipping, 1750-1914* (St. John's: International Maritime Economic History Association, Research in Maritime History No. 24, 2003), 38.

ships during a period marked by rapid technological change, the opening of new markets and the rise of new competitors, both domestic and foreign. Indeed, there are few aspects of British maritime history which were not reflected in the development and eventual demise of Burrell & Son.

This thesis is one of only a handful of studies to focus exclusively on a tramp shipping firm. This statement reflects both its strength and its weakness. It is a strength because for most of the period, but especially prior to the First World War, tramp vessels moved most of the world's bulk cargoes, so an understanding of the firms which operated these ships is crucial to comprehending the historical development of international maritime transport. But it is a weakness because in the absence of a body of studies of individual tramp firms, it is difficult to know for sure what was unique or "typical" about Burrell & Son's operations.

I have attempted to answer questions in three broad categories: the acquisition of vessels by a tramp firm; the deployment of these ships and the cargoes they carried; and finally, the crew members who manned them. Burrell & Son owned a relatively young fleet, demonstrated a clear preference for new tonnage, avoided technologies that had yet to prove their utility, and maintained flexibility in its choice of shipbuilders, never establishing an exclusive relationship with any particular firm. The fleet was deployed globally and participated extensively in cross-trading, transporting bulk goods, a pattern that is fairly typical of tramp firms even today. And yet there were numerous occasions when Burrell's vessels assumed the attributes of liners, with its steamships following a fairly regular sailing schedule, carrying mixed cargoes and even accepting passengers. The company employed thousands of men, with Asians replacing

British and other European seamen in the late nineteenth century. Although there have been many quantitative studies of seamen in recent decades, most have emphasized either sailing vessels or liners. This thesis attempted something similar for tramps, and the analysis suggests that Burrell's crew members were ordinary seamen who laboured under the conditions of the wider maritime world of the period under study.

The answers provided in this study go some way toward redressing the imbalance in the maritime historiography that has relegated tramp shipping to a marginal position. As more comprehensive studies of tramp firms, their owners and employees become available, the conclusions of this work will be tested, broadened and perhaps revised. Maritime historians will then be able to provide more thorough explanations of the role of tramp shipping in helping to shape the modern world.

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