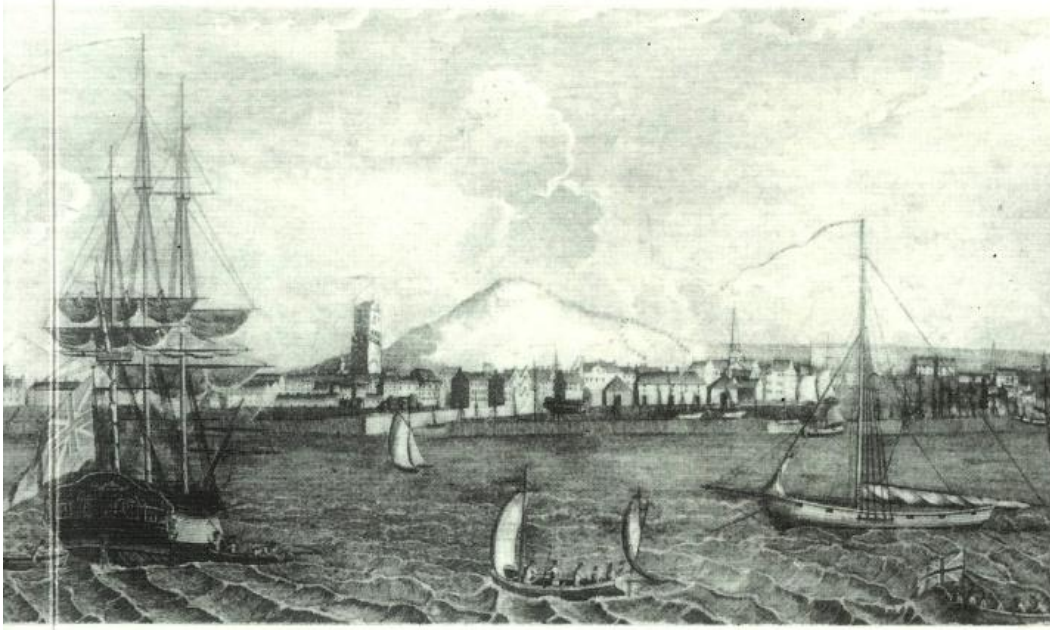
THE TRADE AND SHIPPING OF DUNDEE 1780–1850



Gordon Jackson
with
Kate Kinnear

The Abertay Historical Society

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Gordon Jackson

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Abertay Historical Society
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For

Joan and Edgar Lythe

A token of affection
And respect

December 1990

PREFACE

It is usual in a preface to explain unusual circumstances leading to a book's inception, and to thank those whose generosity and help have succoured it. This book is exceptional in the extent of my debt to the late Kate Kinnear. It began as her work, as the last episode in a long and fruitful devotion to her treasured collection of local books. Having inherited a twelve-volume pocket-sized set of Rollin's *Ancient History*, each inscribed 'Geo. L Hynd, Brig *Eliza'*, she set off in search of this shipmaster, and the ship in which he presumably read his Rollin, through her copy of the *Dundee Advertiser*. This soon led to a general search for ships, shipmasters and shipowners, and the result was an index of all the *Advertiser's* references to Dundee commerce, now available in the Dundee Regional Archives. With her imagination fired, Kate began writing about Dundee trade and shipping on the basis of this *Advertiser* material, but it was soon clear that her terminal illness would prevent her from extending her research and producing a manuscript suitable for publication. At this point I was invited to use her material as the basis for what became a greatly expanded work. I benefited from Kate's hospitality, local knowledge, and trenchant comments on an early version of the work, but sadly she did not survive to see Us final state. Her contribution can be seen in the many footnote references to the *Advertiser*, which represent either her noting of useful information, or my own quarrying in her index. I am grateful to her Trustees for lending it to me for many months following her death. The research outside the *Advertiser* has been my own, and I must be held responsible for the conclusions and the text, though here and there I have retained Kate's phrases as appropriate.

I have endeavoured to set the growth of Dundee shipping against the background of trade growth, tracing inter-relationships between commerce and shipping to a limited extent and showing their contribution to the over-all growth of the economy. However, it is impossible within so small a compass to dwell at any great length on the mercantile sector, and the inadequate attention paid to merchants and agents is owning largely to this fact. A more detailed examination of the relationship between merchants and shipowners will follow in due course and, hopefully, fill in some of the gaps in the present study.

Many people helped me to fill out the story, including the staff of the Scottish Record Office, West Register House, Strathclyde Regional Archives and the House of Lords Record Office. I owe a particular debt to Iain Flett and the staff of Dundee Regional Archives, to Dundee City Library's Local History Section, and to the Officers of Dundee Custom House, in whose Registers Kate's beloved *Eliza* was the very first entry.

I benefited from many discussions about Dundee with Professor S.G.E. Lythe, who also read and commented on the manuscript, while Dr C. Whatley's critical approach as editor was invaluable. Finally I must thank Charlotte Lythe for her generous hospitality during many visits to Dundee; Margaret Hastie for her great help and tolerance in the production of the camera-ready copy of this work; and my wife Hazel for her even greater tolerance over several years of late nights and archive-hibernations.

University of Strathclyde *Gordon Jackson*
28 November 1990

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ABBREVIATIONS

BPP - British Parliamentary Papers
Commn Agent - Commission Agent
CS - Court of Session papers
D&P[SCo] - Dundee and Perth Shipping Company
D&PU[SCo] - Dundee and Perth Union Shipping Company
DP&L - Dundee, Perth and London Shipping Company (and their Sederunt Book in DRA)
DRA - Dundee Regional Archive Office (Dundee)
G'send - Gravesend
Konigbg - Konigsberg
Newc - Newcastle
PRO - Public Record Office (London)
S.R. - Shipping Register (Dundee Custom House)
S/O - shipowner
SRO - Scottish Record Office (Edinburgh)
St P - St Petersburg
St P'burg - St Petersburg
Warden - A.J. Warden, *The Linen Trade* (London, 1864)
WRH - West Register House (Edinburgh)

1. INTRODUCTION

Most ports enjoyed momentous change between 1780 and 1850 as improved transportation extended hinterlands and industry revolutionised them. Dearth of people and deficient communications from time immemorial encouraged a meagre traffic to pursue the shortest route to the coast, where shipping offered the cheapest long-distance carriage. In consequence there were many 'ports' serving tiny regions, and few achieved greatness until trade generated by recent economic activity concentrated on estuaries offering secure water sites and superior communications. Dundee was no exception in profiting from such developments, though her commercial prosperity was unusual in resting first on developments in a restricted hinterland and then on dramatic industrial growth within the town itself. Few ports became their own chief customers.

Although Dundee stands on the eminently navigable Tay, her situation was not initially advantageous. The estuary was too wide for a port on one side to establish networks on the other: Fife had its own ports drawing trade southwards. To the north commerce was inhibited by the Sidlaw Hills, and Strathmore initially favoured the rival attractions of Arbroath and Montrose. A more promising area lay to the west, where the river itself appeared to give Dundee the advantages enjoyed by the great commercial ports: before railways it was the main distribution and collection network for Strathmore, Strathtay and Strathearn. However, its importance was more potential than real. The rise of estuarial ports commonly followed the decline of up-river rivals unable to cope with more trade or bigger ships, but the Tay was too good a navigation to undermine Perth's position as an intermediary in the early stages of agrarian and industrial development. In fact vessels arriving from abroad were increasing faster at Perth than Dundee between 1760 and 1785 (see Table 2.1).

Below Perth the river trade was indisputably Dundee's, and she gained a great deal even in the eighteenth century from collecting and distributing a wide range of basic and luxury goods demanded or produced by a reasonably fertile agricultural region. But there is no denying the extent to which her economy -and therefore her various levels of trade - depended on linen. It was no accident that the rapid expansion of linen production centred on ports. Traditionally spinning and weaving were part of agricultural activity, but spinning was drawn to the ports as native flax failed to satisfy demand in the late eighteenth century,[1] and weaving was utterly dependent on exportation to English, or colonial markets. While manufacturers in Glasgow and Paisley dominated the finer end of the trade, Dundee grew spectacularly as the commercial centre superintending - and drawing considerable mercantile profits from the production of rough linen and hempen cloth of the sort used for slaves' clothing, soldiers' shirting, bagging, sail cloth and the like.[2]

Dundee's potential for cloth production was enhanced by the failure of manufacturers in Perth and other inland centres to recover from a commercial crisis in 1809-11,[3] and by changes in the structure of the industry. The putting-out system, though effective, was based on tedious manual effort. A higher plane of activity came with mechanised flax spinning. However, since early machinery was more impressive than productive (because the dry fibres were difficult to handle), it was not until the Napoleonic war was almost over that the mill triumphed over the cottage (though Dundee still had 1,500 hand-spinners in 1820).

Mechanisation was profoundly significant for Dundee as an industrial centre: water-powered spinning hugged the hills and streams outside the town. Steam mills, with their need for coal, were drawn towards it. The town had its own troubles in 1811 and again when peace upset the coarse linen trade, but mechanisation went on apace. According to Warden there were only four steam spinning mills in 1807, of which two were forced to close for a time in 1811.[4] There were still only five in 1818 but enthusiastic investment in subsequent years raised the number to 17 by 1822, when there were also a further 17 within five miles, and 15 'in the neighbourhood, but beyond five miles from Dundee'. By 1822 the county of Forfarshire had advanced its share of all linen stamped in Scotland to 62.4%, and Fife accounted for a further 21.8%.[5] Rapid - though erratic - growth in linen production in the 'twenties transformed Dundee, and the perfection of steam powered weaving in the late 1830s confirmed her success. She had overcome the potential rivalry of Aberdeen as an eastern Scottish linen producer, and, more importantly, was rivalling Leeds as the principal British linen town.[6]

Dundee became a great industrial city in the first half of the nineteenth century, with all the implications for trade inherent in such a position, and to this local transformation could be added a significant and continuous economic expansion in the hinterland. Perth's social and marketing function was increasingly served by Dundee rather than direct shipments. The riverside villages thrived. The towns and villages far removed from water transport maintained a connexion with the outside world through a growing network of regular carters. By 1834 there were 130 of them maintaining regular links with at least fifty towns and villages both north and south of the Tay, with long-distance runs to Glasgow and Edinburgh. Most places appearing on Map 1 were served twice weekly, Forfar and Kirriemuir more often, and Arbroath daily. While the carters could not compete for bulk transport on the river, by carrying the bales from the rural linen works and distributing imported luxuries or necessities they made a significant contribution to the economic and social wellbeing of both town and hinterland.

Nor should one overlook the contribution of Dundee's own merchants, who were more than passive agents in responding to growth and change. Some at least they initiated, not least in forming the Forfarshire Chamber of Commerce in 1819 to fight the linen regulations of the Board of Trustees and urge the retention of linen subsidies. Their organisation of trade was probably more important than the relatively poor quality of inland transport in fighting off the neighbouring ports of Arbroath and Montrose. As so often happened where industry was established by merchants, 'pre-existent financial strength, or access to it, was an enormous asset'.[7] When the time came the local mercantile community was able to invest in the shipping required for the town's industrial sector: a modicum of mercantile prosperity and experience was a promising base for economic expansion, and Dundee was able, albeit late in the day, to join the ranks If those ports benefiting from the industrial revolution in textiles.

2. FOREIGN TRADE: THE SEARCH FOR RAW MATERIALS

Dundee's eminence in foreign trade is more recent than might be supposed. Flourishing mediaeval connexions had barely survived. Harbour, trade and town all decayed in the seventeenth century,[1] and the Union of 1707 may well have encouraged a move away from continental trading towards a growing dependence on coastal distribution.[2] Dundee ranked as eighth port in terms of tonnage arriving from overseas in 1760 and seventh in 1780, but her exports actually declined while colonial trade and industrialization were gathering momentum on the west coast. Dundee was very much the poor relation, despatching only 584 tons of foreign-going shipping per annum in 1780/84, a derisory share of the Scottish fleet, which thronged the Forth and Clyde (Table 2.1). Exports in 1789 consisted almost entirely of 9,636 quarters of barley shipped to France, some salmon to Campvere, and green bottles to Portugal.[3] The future was by no means assured.

Table 2.1: RELATIVE POSITION OF DUNDEE'S SHIPPING ENTERING AND CLEARING IN FOREIGN TRADE, 1760/4 AND 1780/4 (five-yearly averages) [4]

	1760/64		1780/84	
	inwards	outwards	inwards	outwards
	tons	tons	tons	tons
Aberdeen	4,286	2,644	5,337	2,218
Montrose	2,428	789	2,438	1,011
Perth	1,094	270	2,057	94
Dundee	2,803	1,099	4,373	584
Leilh	11,891	5,680	18,585	5,416
B'oness	3,605	4,231	14,194	12,394
Clyde Ports	24,255	28,954	27,052	22,708
Scotland	72,941	67,885	120,248	83,088
Dundee's %	3.4	1.6	3.6	0.7

Ships entering were fortunately more numerous and growing relatively strongly. In 1789 four brought fresh and dried fruit, wine and cork from southern Europe, and seven arrived from the Netherlands and Germany with Jenever, vinegar, linseed, clover seed, madder, smalts and manufactures such as stone bottles, pencils, paper, mirrors and spectacles. But no fewer than 53 brought textile fibres and wood from northern Europe, and here there was room for expansion. In the years of industrial revolution, c.1780-1840, Dundee was largely a linen port, the core of her

trade the Russian connexion, and its paramount feature the booming imports of flax. (For the details of trading partners, see Appendix 2.1.)

Other Baltic goods, relatively few in number and small in quantity, were designed to support the linen industry or the economic and demographic growth inter-locking with it. Timber was the greatest necessity, but here trade was diverted from its natural source. Dundee was forced to follow the national trend towards British North American timber, a second major theme in our period. It was an important move because transatlantic imports opened the way for corresponding exports, and the third - and perhaps most remarkable - feature of Dundee's trade was the emergence of a strongly growing exportation, first to northern settlements and then to southern plantations, of linens previously shipped through other ports. The Caribbean in particular offered return cargoes which produced a fourth important trend in our period. Finally, there was a revival, rather late in the day, of imports from western Europe, and the wider explorations of the late 'thirties. Dundee was, and remained, a 'Baltic' port, but these other trends, some of little impact before 1850, reflect the broadening of the local economy and the way in which the port was gradually reaching that degree of maturity which enabled it to shift slowly but inexorably from coastal to foreign trade.

These trends add up to a forceful boom in foreign trade. The best available long-run figures show the tonnage of shipping entering Dundee more or less doubling between 1790 and 1815-19, again by the late 'twenties, and again by the late 'thirties, when things settled down.[5] One would, of course, expect import growth as Dundee's contribution to the urgent national search for raw materials. What was more unusual, and certainly worthy of comment, was the spectacular rise in the tonnage clearing in the 'twenties, from 2,297 average for 1815-19 to 10,000 (52 vessels) in 1829[6] and possibly over 40,000 by 1840 (Table 2.2).

Table 2.2: SHIPPING ENTERING AND CLEARING IN FOREIGN TRADE, 1780-1849 (average tonnage with cargo)

Years	Entering	Clearing	Years	Entering	Clearing
1780-84	4,373	584	1830-34	48,857	.
1789-91	9,273	1,991	1835-39	56,407	-
1815-19	14,217	2,293	1840-44	55,532	[44,790]
1823-24	19,947	-	1845^t9	62,616	[40,180]
1825-29	29.481	-			

(years 1780-1819; years ending 30 May 1823-49)

The 1840 figure *may* include movements in ballast, and should not,

therefore, be compared directly with earlier export figures in Table 2.2, but it certainly shows a massive growth compared with an isolated record for 1826, which has an export tonnage of 18,666.[8]

Since this was a period of great national achievement, it is important to emphasise Dundee's exceptional performance. In 1790 and 1826 ships entering were respectively 3.5% and 9.1% of the Scottish total. By 1841 their proportion had reached 13%, and no less than 19% by 1850. In the 'forties, if not earlier, Dundee was ranked third only to Leith and the Clyde ports complex, while in European trade she was second only to Leith. Dundee was no longer an 'average' port. Equally important was her rising exports, which employed almost a tenth of the tonnage clearing Scotland in 1844. Dundee had broken free from tradition and was one of those ports growing rapidly through serving the local sector of the Industrial Revolution.

The transformation began in the seventeen-nineties. Dundee's northerly position bestowed comparative advantage only in Baltic trade, where import schedules were as short as export opportunities. Fortunately for merchants and shipowners the linen industry designed to better the lot of Scottish crofters was heavily reliant on the even poorer peasants or serfs of those northern grasslands where flax grew more readily and was - initially - spun more cheaply. Buoyant demand for linen raised flax imports nationally by almost half between 1785/9 and 1795/9, and Dundee's share rose even faster.[9] Flax, in various forms,[10] was the sole commodity attaining national significance in 1790, when the port paid only 1.7% of Scottish import duties, and, in truth, was little more active than Montrose and Perth.[11]

While the Napoleonic War inhibited commerce, a huge demand for sail-cloth, hammocks and cheap shirtings almost trebled Dundee's flax imports by its end, and though her total was less than half that of Hull, she had 36% of the Scottish trade and 16% of the British. Hemp, used for inferior linens and sacking, as well as rope, rose twelve-fold between 1789 and 1815-19.

Table 2.3: AVERAGE IMPORTS OF FIBRES AT DUNDEE, 1789 and 1815-50 (tons)[12]

	Flax	Hemp	Total		Flax	Hemp	Jute	Total
1789	908	88	996	1830-34	18,628	2,535	0	21,163
1815-19	2,577	1,058	3,365	1835-39	24,909	2,550	0	27,459
1820-24	5,609	2,016	7,525	1740-44	25,464	648	3,704	29,816
1825-29	12,327	1,293	13,620	1845-49	28,400	1,132	9,111	38,643

The abrupt termination of government contracts in 1815 inevitably brought consternation as stocks piled and prices fell, and for a time Dundee suffered the

negative side of a staple trade '...so liable to be affected by political changes'.[13] Sales in Jamaica hardly covered costs, but minimal prices in America had a silver lining: they secured the trade, according to Rintoul, 'as they have checked the rival manufacture in America'.[14] Recovery was fairly rapid, and the speed and substance of Dundee's commercial triumph is revealed in the ten-fold rise in flax imports, from 2,577 tons in 1815-19 to 28,400 in 1845-9.

The third decade was obviously the crucial one as imports entered a new phase of sustained growth. English ports experienced some quickening of interest in fibres, but it was slight compared with that north of the border where Aberdeen, Dundee, Montrose, Arbroath and Kirkcaldy all enjoyed massive expansion. By 1826 Dundee had overtaken Hull as Britain's premier flax port, and two years later her imports were twice those of Hull and a third of the British total.[15] There were only three serious recessions: in 1826, 1837 and 1847. The first, a national commercial panic, hit Dundee hard: 'it seemed as if the trade of the town were to be brought to a standstill.'[16] More seriously, the collapse of flax imports from 41,305 tons in 1836 to 14,298 in 1837 was a consequence of over-stocking - largely by persons dependent on credit - in expectation of increased trade with America which was thwarted by a financial turn-down there.[17] The 1847 depression sprang from 'a passion for speculation that possessed all ranks of people in the country'.[18] Apart from these short-lived disasters, progress was the norm and prosperity the consequence.

If anything, this phenomenal rise in flax imports reinforced Dundee's early reliance on a narrow schedule of commodities and trading partners. Since Russia was the chief supplier of flax and hemp, vessels from the Eastern Baltic rose dramatically from 46% of the total in 1790, to over 76% in 1821. The great flax growing region north east of Moscow, around Yaroslavl, Kostroma and Vologda, originally exported through Archangel. It was excellent flax, partly because of careful preparation and grading at the port, but Arctic conditions closed the White Sea for half the year and a better route was required for progressive trading. St Petersburg offered an easier outlet and was by far the most important of Dundee's trading partners in 1815 (Appendix 1). However, St Petersburg merchants were raising the price and corrupting the quality long before Warden, Carmichael and others began wondering what the trade was coming to,[19] and attributing its relative decline to the superior service offered elsewhere.[20]

The second great flax-growing region covered Estonia, Livonia and Courland, with easy access to the sea through Riga, which, said Warden, who knew about such things, 'has long taken the lead in the superiority and regularity of the quality shipped, as well as in the quantity'.[21] This Riga connexion grew remarkably after the war, and by 1821 she sent 41% of the vessels entering

Dundee, and in 1829 supplied 48% of imported flax and 60% of the hemp (Table 2.4). Other ports in that area also came on apace, particularly Memel and Libau in the 'twenties, and Narva and Pernau by 1836, when 262 vessels brought flax and 41 brought flax and other goods - principally timber - from Russia.[22]

Other trades with northern Europe were more variable. Timber, vital for construction and containers, came chiefly from Scandinavia in the eighteenth century, but was increasingly available from Russian forests. Such supplies were disrupted during the Napoleonic war and subject to political pressure after it. Stringent duties on foreign timber imported to a country which had none would

Table 2.4: IMPORTS OF FIBRES, BY PORT, 1829 (cwt)[23]

Port	Flax	%	Hemp	%	Mixed	%	Total	%
Archangel	12,196	4.1	209	0.8	788	5.2	13,139	3.9
St P'burgh	67,094	22.7	9,163	34.1	1,820	12.0	70,077	21
Narva	8,189	2.8					8,198	2.4
Riga	135,677	45.8	15,990	59.4	8,491	55.8	160,158	47
Libau	26,634	9.0	1,042	3.9	2,360	15.5	30,036	8.9
Memel	27,505	9.3	499	1.9	379	2.5	28,383	8.4
Konigsberg	6,164	2.1	7		1,266	8.3	7,437	2.2
Pilau	9,158	3.1			102	0.7	9,260	2.7
Rotterdam	3,456	1.2					3,456	1.0
Total	296,082		26,910		15,206		388,198	

(Note: minute quantities also from Karreback (Denmark), Hamburgh and Antwerp.)

appear to be a refined sort of economic suicide, but the object was to support the North American colonies vis a vis the United States, and in truth they had little to offer save plentiful timber which could not bear the cost of crossing the ocean. However, with favourable duties British North America replaced Europe as the principal source of wood. Scandinavian trade (centred on Christiansand) collapsed from 19 ships in 1789 to 1 in 1816 and 1821, and though it recovered somewhat, employing 25 small vessels in 1829, it provided only 5% of fir timber imported in that year. In only one commodity did Scandinavia (now principally Drammen) remain noteworthy: in 1829 it provided 97% of imported battens, the principal sawn planks (Detailed sources of timber are shown in Appendix 2.2.)

Under protection, ships from the North American colonies rose from 7 in 1815 to 21 in 1829, when they carried three-quarters of imported fir timber, and almost all the staves and miscellaneous log wood. St John, St Anne's, St Andrew's, Liverpool, Shediac, Richibucto and, above all, Miramichi exported the produce of New

Brunswick. There was a more satisfactory trade round the corner on the St. Lawrence where Quebec and Montreal offered a market for sent over a quarter of that reaching Dundee in 1829. However, duties and Scottish sawmills could not be the *only* explanation for the relative stagnation of Scandinavian trade:[2-5] Memel had also become the principal port supplying sawn deals and lathwood. Since any price advantage in the Eastern Baltic would have been negated by additional transport costs, the most plausible explanation of a flourishing *Russian* timber trade would seem to lie in that imperative interest in flax which sustained the decisive mercantile 'connexion' and offered the customary efficiency of mixed cargoes. Some shippers, especially from Memel, preferred to bring timber as half or even two-thirds of the cargoes of vessels carry-flax: 31 did so in 1836, when only one ship was recorded as carrying only timber from Russia. There was one other advantage which Baltic exporters enjoyed. Oak was still plentiful there, and accounted for 40% of the total importation in 1829.

Forest products were not limited to wood. At the lowest end of the scale oak bark was imported for the tanners; treenails in vast quantities for the ship-builders; spokes and axles for the wheelwrights; and potash for the bleachers. Crafted timber, chiefly from Norway, included corn shovels, oars, bailing scoops, tubs and furniture such as writing tables, work tables and work boxes. The most intricate items in 1829 were a dozen violins, from Danzig. Surprisingly, masts and spars were more noticeable for their absence than their presence. They were chiefly of the smallest dimensions, and commonly entered by the masters of foreign ships on their own account. Archangel tar, that other essential for ship repairing, was equally rare.

Animals also played a part in the northern connexion, as shown in Table 2.5 A handful of horses arrived each year from Russia and Scandinavia, and one ship from Pilau topped off its cargo of flax and staves with thirteen sheep and a lamb, presumably for breeding.[26] However, the carriage of animals or meat was hardly practical, and most animals arrived in pieces. The eastern Baltic in particular specialised in the production of tallow, which could be moved over long distances for the chandlers, while raw calfskins, cow hides and horse hides arrived from Russian knackers for the Dundee tanners; and horns and hooves for the glue manufacturers. Bones, from Norway, Denmark and Germany, nourished the agricultural revolution with fertiliser, and it was even worthwhile to bring skins and bones from the West Indies, though one hopes, for the crews' sake, that they came in barrels. Upholsterers were indebted to Russia for their horsehair and feathers, and thousands of clerks and schoolboys blessed or cursed Russian goose quills, over a million in a single shipment from Riga in

Table 2.5 : DUNDEE: Skins and Bones Imported, 1829 (cwt)[27]

From	Cowhides	Kipskins	Horsehides	Bones
St Petersburgh	337	1046	17	0
Riga	681	160	7	2700
Libau	113	881	106	0
Memel	255	127	13	160
Trondheim	0	0	0	880
Brekke	0	0	0	740
Copenhagen	0	0	0	2994
Karreback	0	0	0	1437
Haderslevn	0	0	0	650
Hamburg	181	0	0	4863
Rotterdam	356	74	0	0
Jamaica	43	0	0	63
TOTAL	1966	2288	143	14487

No amount of fertiliser could produce enough grain, or enough at prices which an expanding industrial working class could afford, but importation from the Baltic corn lands was restricted by 'Corn Laws' until 1846. Only occasional cargoes arrived until a sliding scale of duties, introduced in the 1828 Corn Law Amendment Act, 1828, made it worthwhile to warehouse corn pending price rises. Six cargoes arrived in 1829, with 5,877 quarters of wheat, 1,340 of barley and 2,204 of oats, the wheat coming chiefly from Danzig, the barley from Pilau and the oats from Riga. Russian merchants who sent samples to Dundee in 1829 were clearly aware of a potential market, which began to emerge as prices rose hi the 'thirties, and by 1839 there was 'at present a great demand for vessels here, freights ranging higher than for many years past,...said to be owing to expected large importations of foreign grain, which will give full employment to our Baltic traders.'[28] One optimistic - if ill-informed - Free Trader calculated the difference between a good and bad harvest as 7,000,000 quarters, and reached a persuasive conclusion:[29]

> To import such a quantity would require 5,384 vessels, of 200 tons burden each, or 24 times all the vessels belonging to this port. Were it possible to buy the corn in the Baltic, it would take our whole shipping six years to import it - each vessel making four voyages in the year.

Corn filled ships, but was not often given the chance to do so before the late 'forties. By contrast practically every vessel from Russia carried assorted foodstuffs, usually on the master's account. Caviar was the most common, followed by honey, cranberries, tongues, hams, salt beef, anchovies and spruce beer,

Manna croup (an unground meal for puddings), biscuit and rusk. There were the occasional pictures, for which the British were always on the look-out, those evidences of enquiring minds such as boxes of live plants and, on one occasion, 'one box insects being specimens illustrative of Natural History'[30]. On whole such things were of slight value and were carried only as minor supplements to the real purpose of trade, the importation of fibres and wood.

Cargoes from the Baltic were, to say the least, singularly lacking in excitement. For variety, merchants turned to Germany and Holland, principally to Hamburg and Rotterdam, though their interest in this area was still rather limited. Contact with western Germany had never been great, with only two or ships per annum arriving before the Napoleonic War and during the ties. Rotterdam was a more rewarding connexion showing a noticeable improvement in shipping during the 'twenties, while Bremen, Amsterdam and Antwerp were added to the list of trading partners in that decade.

Many vessels from this region carried goods more usually obtained from the c. Rotterdam and - to a lesser extent - Hamburg were minor sources of bones, oak bark, flax and fir timber, the latter rough sawn in wind-driven before steam-power was applied to mills in British ports. They were also important sources of oak, sending a fifth of the total arriving in 1829. But the interesting consignments were the miscellaneous goods filling the spaces n the flax and the timber, or arriving in the 'General Ships'. Natural commodities included large amounts of linseed and clover seed and small quantities of flower seeds and roots. Among manufactures, in smallish quantities were tobacco pipes and cheap German furniture and wooden implements, marble tables, mirrors, artificial flowers in glass cases, vases, printed books, and stained paper. There were also many paintings, assessed for duty by square foot and charged at little more than their frames and glass. A picture measuring 3 sq. ft., for instance, was charged at 4 shillings, its frame at 3 shillings, and its glass at ninepence: in such important calculations the painter of no consequence.

Foodstuffs were more prominent, including German wines and honey, Holstein butter, and Dutch Jenever, apples, onions, peas, hams, tongues, salt beef butter. Typically, when Thistle arrived on Christmas Day, 1820, Dundee grocers used the next issue of the Advertiser to announce 'direct from Rotterdam superior apples in hampers, very excellent Gouda and Kantar Cheeses':[31] cheese was by far the most important foodstuff, amounting to 2,390 cwt in 1829. Some items obviously came from further afield, despite the Navigation Acts in theory excluded third-party trading. In November 1828 Samuel Brodie, merchant in the Cowgate, announced 'the arrival of a quantity of best new Muscatel and Lexia Raisins, which he can safely recommend to grocers and confectioners, from whom he will be glad to receive orders for Dutch produce, being agent in Dundee for the long-established

and very respectable house of Messrs. T. Van Egmont and Sons, Rotterdam.'[32] For good measure he also offered a parcel of flax from the same source and no doubt he could have supplied furniture, clocks and other manufactured items.

As time progressed the Dutch trade expanded, and a new connexion developed with Harlingen, in the great dairying province of Friesland, from which six cargoes arrived in 1840, one, for example, consisting of 4,800 cheeses, 75 casks of butter, 205 bales of flax and codilla, and 2 bundles of rushes. Hamburg trade was also expanding in the 'thirties, though cargoes remained rather pedestriai and the ships small. By 1839, when more encouraging imports included 'a quantity of elegant household furnishings...chiefly sofas, dining, loo, card and work tables, chests of drawers, a very elegant secretary &c',[33] deliberate attempts were being made to improve the German connexion through the foundation of the Dundee & Hamburg Shipping Company, and in the following year five ships entered from Hamburg with flax, timber and bones; two with flour and grain; and ten with mixed cargoes.

That, however, was about the limit of Dundee's serious European trading. Contacts with the south were negligible. The pre-war trade employed only four vessels in 1789: two from Oporto with the inevitable port wine, oranges, lemons, figs and nuts, onions, cork and sumach; one from Malaga with assorted fresh and dried fruit; and one from Bordeaux with wine. For some decades after the war there was minimal direct contact with the south of Europe (limited to the arrival, once or twice a year, of La Jeune Therese from Gravelines, with apples) though this probably owed more to mercantile inexperience and a desire to conserve scarce shipping than to lack of interest in wine and fruit. Accounts of goods taken from the bonded warehouse in 1829 reveal the coastwise arrival of partial cargoes of wine - and therefore presumably also fruit - originating in Calais, Bordeaux, Cadiz, Oporto, Figuera, Madeira and Tenerife. Great efforts were made by fruit merchants - especially G R Baxter - to establish a direct trade in sweet and marmalade oranges in the 'thirties, but the difficulties involved are revealed by frequent reference to quick passages, fast sailers, and the need for masters - who bought the fruit - to be accustomed to the fruit trade.[34] Apples were commonly sold over-side by tramps such as La Jeune Therese, which remained in port for a limited period, and whose master reported in 1823 'that his sale proceeds so slowly and there is so little demand for his articles here that he means to proceed to Glasgow on Saturday'.[35]

Trade with France suddenly boomed in 1840 when a Dunkirk link was established by the schooners Hawk and Vixen, which brought two cargoes of flax and six of miscellaneous goods from Dunkirk and one of flax from Boulogne; a third ship brought a cargo of flax and another of miscellaneous

goods from Dunkirk. But this was an aberrant trade which soon collapsed, leaving no replacement for some years to come.

3. LINEN, MIGRANTS AND A WIDER WORLD

Dundee shared with other east coast ports the benefit and responsibility of importing raw materials that were used initially to produce goods for the domestic market. When expanding production went in search of export markets was not easy for these ports to gain an equal share even when - as in the case of Dundee - the manufacturing process occurred in or near the port. A major obstacle for those heavily engaged in northern Europe was the reluctance of that area to purchase British manufactures for political reasons. In his review of trade the Dundee banker, John Sturrock, welcomed the removal of penal duties from French wines and advocated freer trade: 'were we allowed freely to exchange our commodities with that country, it is probable that the French would become the best customers of Great Britain.'[1] During the first year of relaxed trading exports of linen and yarns were around £150,000, and France was taking around one eighth of total manufactured exports.[2] By 1840, in a regular traffic, Hawk and Vixen took six cargoes of linen to Dunkirk and four to Boulogne and Abbeville, and others carried a further fourteen cargoes. But the venture collapsed. In the words of Warden

> the trade at once assumed gigantic proportions, showing the advantage to both countries of a moderate scale of duties, with the absence of undue restrictions upon commerce. In 1842 the duties were raised and trade fell off.[3]

It is not easy to refute claims that Dundee's exports were inhibited by retaliatory protection. British manufactures were not welcome in France, where it was felt that 'self interest dictated British policy'.[4] In Germany, heavy British ' duties on Baltic linen, yarns, corn and timber produced a damaging reaction.[5] The situation was no better in Russia where the cry was that Britain's Corn and Navigation Laws thwarted better relations. The historian of Britain's commercial policy concluded that 'in spite of many overtures and negotiations, Britain found Russia and the other northern powers unreceptive markets'.[6] Sturrock expressed the Free Trade view when he argued that with modified Corn Laws

> it is probable that the Continental nations, and especially America, would cease to turn their attention to manufactures....The effects of our present corn-laws are, that we cannot purchase their corn, and we are driving them to become manufacturers.'

Nevertheless, while irksome duties on their own produce may have deterred. Europeans from purchasing Dundee textiles, she was unlikely in any case to find good markets in countries renowned for their linen, yarns and flax. Indeed, the Forfarshire Chamber of Commerce appears to have been hostile to

Free Trade, largely on the grounds that, by admitting cheaper Baltic linen to the colonies, it will transfer part of the industry of GB and Ireland to the Continent'.[8]

There can, then, be little wonder that Dundee found it impossible - with or without trade restrictions - to push Scottish manufactures in the area with which she had the strongest trading links. A pre-war corn trade, involving twenty ships to southern Europe in 1789, did not revive with peace, and only ten vessels cleared for Europe in 1815 (Appendix 3.1). Save for 900 quarter of wheat to Antwerp, 2,040 cwt of sugar to Hamburg, and 834 cwt of sugar and molasses to Danzig, their cargoes were of little moment.9 The following year was disastrous, With only two ships clearing to Europe: to St Petersburg and Christiansand. A recovery in 1817 was owing entirely to the St Petersburg trade, and in 1821 there were still only six ships cleared for Europe. By 1825 it was down to one, and through a major advance occurred by 1829, one can hardly boast of their cargoes.

The totality would scarce fill a middling freighter. Four ships for St Petersburg carried a few boxes of silk and woollen stuffs, 57 tons of West Indian logwood, 60 cwt of coffee, and some pimento. The same number took 30 tuns of whale oil, 1,478 Ib of hard soap and some coffee to Rotterdam. Memel received small quantities of coal tar, whale oil and paint. Trondheim, Drammen and Korsor took hardware, wearing apparel and small quantities of linen and cotton. The ship bound for Gothenburg carried only 'mill work', and that to Riga only *machinery,* not prohibited'.

Disdain for Dundee linen was fortunately limited to Europe. However, the principal effective market lay in the transatlantic colonies with which Dundee had no tradition of trade and for which she was imperfectly located. These dynamic markets were reached through the Pentland Firth, a stormy passage of six to eight weeks, or by the dangerous run down the coast, with delays off Kent awaiting favourable winds through the Channel. Most linen was therefore shipped indirectly, by ports long established in transatlantic commerce. This is discussed in Chapter 4. What follows refers to *direct* trade.

Canada was of mixed - and growing - importance during our period. While New Brunswick timber outlets made poor markets, Quebec and Montreal[10] took about a quarter of Dundee's linen and diaper exports in 1815 (Table 3.1), and shipments rose threefold by 1829, augmented by materials for making and maintaining unsophisticated settlements. Large quantities of cordage and occasional anchors served both loggers and shipbuilders. Ale, coal, paving stones, bricks, glass, sand, cement, lead sheet and cast iron were obviously as important to Dundee ship-owners as saleable ballast as they were to colonists, while the less bulky nails, crowbars, spades, and shovels helped to build dwellings needing paint, cabinet and upholstery wares, hardware, cutlery, earthenware,

scales, and the dozen or so clocks exported each year by Dundee clockmaker William Young. The colonial economy - or its educational system - was doubtless kept going by the parcels of assorted stationary on almost every ship, and by the 45 gallons of ink, 15 cwt of books and a terrestrial globe sent out to Quebec in the Psyche in 1815. Happily work was not everything: the same ship also carried a consignment of children's toys. On a personal level there was haberdashery stockings, hats, mittens, wearing apparel (sometimes 'of inferior quality') and occasional grand items such as elaborate cast iron stoves or the 'Piano Forte British' sent out to St John's, New Brunswick, in 1829.

Settlement colonies - and later the USA - required a constant flow of immigrants and the inevitable commercial travellers. In consequence the carriage of people could sometimes be as rewarding as freight, and ship-owners were willing to invest substantially in the facilities required. Most Atlantic traders were fitted up for passengers, but though Hind boasted excellent accommodation in 1820,[n] and the owners of Cygnet reminded customers that they would be 'entitled to the Government allowances on their arrival in Canada; and will be taken out on very reasonable terms, either to be victualled by themselves or by the ship as may be agreed upon',[12] there was little emigration during the first quarter century. In 1827, however, the Mary was so 'particularly fitted up for passengers' that she had limited space for cargo,[13] and by 1829 several owners followed the example of those who determined that 'should a sufficient number of steerage passengers come forward [Sprightly]will be fitted up very comfortably for their accommodation'.[14] A year later emigration to Quebec and Montreal was 'prevailing to a great extent in various parts of the country, with sixty aboard Sprightly, half under the age of fourteen and most from one extended family, engaged in rural and mechanical pursuits, from Logie Almond in Perthshire. Margaret Balfour carried another eighty, from the same area, while a smaller number travelled in Isabella.[15] Nothing came of a society devised to halve costs by chartering special emigrant ships, but shipowners responded to growing interest by creating suitable accommodation and competing over the quality if not the cost of passage. By 1832 Traveller, Industry, Belina, and Victoria offered experienced surgeons, Isabella, Standard and Heroine (the last two for New York) boasted six foot headroom below deck, and Molson's cabin 'has just been fitted up for passengers with separate and commodious state rooms...the steerage berths are also unusually comfortable with deck lights'.[16] Hecla, lately H.M. Discovery ship, was introduced with 'several of the officers' cabins standing'.[17] Only Hector, with 'excellent accommodation for passengers', thought of the class most likely to emigrate when claiming that 'passage money will be moderate'.[18]

The provision of people and household goods for young settlements flourished with expanding empire, but Dundee could not build effectively on her Canadian experience. Rivalry between shipowners for emigrants in 1832 had been sharpened by the threat that 'a tax of 5s. will be charged on each passenger arriving in British America by vessels sailing from this country after 15 April next,[19] with serious consequences for the trade, while some indication of the limited range of supplies on offer can be deduced from Appendix 3.2, and in particular, from the detailed list of non-textile exports in the first quarter of 1830 printed by the Advertiser (Appendix 3.3). Compared with the stores sent out by Glasgow, Dundee's attempts at civilising settlers was minimal: she came too late in the day seriously to challenge the ascendancy of the major transatlantic ports.

Fortunately Dundee had one valuable card, and her manufacturers played it for all they were worth in the decades following the war. The United States, Warden thought used more linen per head than any other country,[20] was a poor producer of flax and offered Dundee its best market. Before the war was no direct transatlantic connexion and only two ships crossed in 1815, by then New York was already an important market for middle quality linen[21] and took over half Dundee's exports of superior quality cloths such as (a fine linen fabric with a woven pattern) and huckaback (a looped linen towelling fabric), both worth over ls.6d. per square yard. American trade, rising from half a dozen ships annually in the early 'twenties to twelve in 1827, fourteen in 1828, and eight to eleven thereafter, was the principal contributor to die growth of Dundee's exports in the formative years between 1820 and 1840. New York remained the leading connexion, taking half the better linens in the early "twenties and two-thirds by 1829, though the greatest movement was in the middle grade 5d.-6d. linens, which stood at 7.8 million yards in 1829 (Table 3.1). Cotton bagging - of which Sturrock thought 95% was directly or indirectly exported was particularly important, rising from 56,203 pieces on average in 1827-9 to 87,453 in 1836-8, though the latter figure does include the massive speculation of 1836, when enough bagging was sent to the States to hold two years cotton crop.[22]

Whatever the final destination of directly exported textiles, they usually went to agents in the northern ports. The shortage of return cargoes - since New England produced nothing Dundee wanted - was resolved by ships going south to Savannah and other ports where they loaded cotton and other southern produce for European and British ports (though rarely for Dundee). Not until the end of our period was there any serious threat to this market, when reduced Spring shipments in 1840 were attributed to the shortening of credit and, more ominously, 'to the extension of manufactures in that country'.[23]

However, with the popularity of coarse linen for clothing slaves, markets

opening throughout the expanding plantation economies, and vessels ran direct to Charleston and New Orleans by 1821, and Savannah and Mobile by the late 'twenties, when the USA received three quarters of Dundee's direct cloth exports. Markets were similarly developing in the sugar regions of Central and South America. Jamaica was so important in the post war period (Table 3.1 that the Forfarshire Chamber of Commerce petitioned against any reduction in sugar duties:

> The interests of the linen trade of this county are intimately connected with the prosperity of the West Indian Planters as your Petitioners supply Osnaburghs for the whole of their negroes' cloathing....[24]

Table 3.1: EXPORT OF LINENS, by PORT OF DESTINATION, 1815, 1821, 1829 (yards)

		1815	1821		1829
PORT	Linen	Diaper	Linen	Linen	Linen
	6d-l/6d		6d-l/6d	5d-6d	6d-l/6d
Quebec	62,493	56,203	37,037	221,465	158,306
Montreal	-	-	-	54,068	20,873
St John,	-	-	3,526	2,748	2,791
New York	29,315	105,415	1,142,349	7,772,172	5,467,366
Norfolk	11,839	3,103	-	-	-
Charlestown	-	-	266,145	817,445	608,260
Savannah	-	-	-	139,345	201,229
New Orleans	-	-	223,197	160,913	190,159
Mobile	.	.	_	50,000	55.000
sub-total	103,647	164,721	1.672.254	9,218,156	6,703,984
Jamaica	287,834	29,804	689,561	1,207,544	506,872
Haiti	-	-	-	809,228	598,396
San Domingo	-	-	-	130,650	93,898
St Thomas	-	-	127,471	-	-
Pernambuco	-	-	-	31,700	32,947
Rio de Janeiro	.	.	_	211.412	114.598
sub-total	287,834	29,804	817.032	2.390,534	1.346.711
Gibraltar	-	-	-	3,686	2,913
Cadiz	-	-	-	54,104	80,169
Oporto	.	.	.	5,760	5.680
sub-total	_	_	_	63,550	88.762
TOTAL	391,481	194,525	2,489,286	11,672,240	8,139.457

Not surprisingly, Dundee had little enthusiasm for Abolition, which the Chamber of Commerce refused to support on the grounds that it was 'a moral

issue'.[25] The market for cheap slave cloth was certainly upset by emancipation, in the words of a local commentator

> from the difficulties which the exporters experience, from imperfect information, in regulating the supply to the demand. Whether the great change which has taken place in our colonies, by the complete emancipation of the negroes, whose clothing was generally made of this article, will influence this manufacture, can only be ascertained by time. Conjecturing that free labour will not only improve the state of the proprietors, but of the Labourer, we may anticipate an increase.[26]

In fact shipments of Osnaburgs soon recovered to a figure higher than before emancipation, helped also by the expansion of newer markets. As Latin America moved towards independence, Cuba, Haiti and San Domingo began importing slave linen directly, and on the mainland Pernambuco, Bahia and Rio de Janeiro entered the list of promising connexions. So great was the demand for cloth in Haiti that manufacturers were enticed by subsidized transport: 'All goods shipped by this vessel to the address of Messrs J. R. Bernard & Co taken free; & for dry goods to other houses, l0d. per cubic foot will be charged'[27] Dundonians naturally supported the revolutionary movements which destroyed Iberian mercantilism, and were horrified lest governmental attempts to stop British enlistment in them should upset their markets:

> In this present state of commerce when the British merchants scarcely know to what quarter of the world to resort for the disposal of their goods, the shutting of the ports of South America against them would be attended with the most ruinous consequences for the trade of this country in general, and especially to the trade of this district which depends materially on South America as a market for its manufactures.[28]

In many ways the trade with the Caribbean was the most satisfactory in which Dundee engaged. The ships were not particularly numerous but it was the only fully rounded trade, with those important shipments of linens matched by valuable imports. The exact volume of sugar, the leading item, is difficult to ascertain because it was almost always entered to bond and only weighed when removed and duty paid, but an estimate based on the weight of various containers would suggest some 2,000 cwt. in 1829. While tiny by most standards, this was a momentous improvement on the first decade, when Dundee imported none. compared with Leith's total of over 20,000 cwt per annum. Over time the importation of sugar increased, particularly from Haiti, which sent only one or two ships annually until 1829, and then enjoyed a spectacular rise to ten by 1832, distributed between Port-au-Prince, Aux Cayes and Cap Haitien. Unfortunately the volume went unrecorded.

Of the remaining commodities, logwood for the furniture makers was the

most substantial, followed by lignumvitae, while the smallest was probably the latter's resinous derivative, Gum Guaiacum, for the druggists. There was coffee in indeterminate amounts, and a lovely assortment of semi-tropical goodies cayenne pepper and pimento; tamarinds and pickles; preserved ginger and succades; lime juice, castor oil and arrowroot.

Despite the immediate importance of transatlantic trade, both contemporaries and their successors in the middle of the nineteenth century were mesmerized by other new and potentially momentous developments beginning in the Thirties. In common with all provincial ports, Dundee was barred by the East India Company's monopoly from trading to India before 1813 and the Far East before 1833. Access to the China market was particularly desired because

> in consequence of the increase of capital and of the improvement in machinery, the productive powers of the county have increased to such an extent that the British merchants and manufacturers experience the greatest difficulty in procuring markets sufficiently extensive for the consumption o the multiplied and varied products of their industry.[29]

Though Chambers of Commerce up and down the country had argued the case for open trade, few provincial merchants had experience of it, and they and their captains - needed time to explore the possibilities of the Indian Ocean Dundee's first essay in this direction appears to have been in 1827 when the 303 ton brig Isabella arrived in Bengal after a 132-day passage. After a second Indian voyage her owners, or their mercantile supporters, had second thought' about the wisdom of such adventures, and she was diverted to the St Lawrence trade in 1830.[30]

In view of later developments it should be noted that early vessels from India were not loaded to the gunwhales with jute. Sporadic attempts by the East India Company to introduce jute to Britain from the 1790s led nowhere, and despite the local interest in the cheapest possible raw materials, experiments ii Dundee from 1822 with jute brought from London failed until it was discovered that 'batching[1] in whale oil gave the dry fibre sufficient strength to be spun by machinery, and restrictions on the adulteration of linen were removed. Subsequent experiments in 1832-3 led to its use for carpeting, but it was as coffee bagging for the Dutch East Indies that jute eventually emerged as a cloth in its own right.[31]

There was, therefore, no immediate boom in jute or any other component of eastern trade, which was simply too difficult to initiate from such a small port in competition with the experience and resources of London, Liverpool or Glasgow. The necessarily large ships were expensive to operate, difficult to fill and vulnerable to natural disaster in uncharted waters. These were the

exploratory years, and many doubted the utility of perseverance. Not until 1840 did the Advertiser enthuse over

> an important event connected with the trade of our port - the arrival of the barque Selma, Luckie, from Calcutta direct. This is the first arrival of any vessel from the East Indies with a cargo for Dundee. The Selma is the property of Mr. William Davidson, ship-owner, and was built here some years ago. She has a miscellaneous cargo, consisting chiefly of jute, hemp, sugar, rice &c.[32]

However, Selma did not initiate a regular trade with Calcutta, despite the fact that Thebes went there later in the year. Jute had been imported from London since 1833 - six cargoes arrived in 1840, and one from Liverpool - and jute importers preferred this route until 1863, when direct trade at last took off. As late as 1862, 98% of flax but only 2% of jute was imported directly from foreign suppliers[33].

In the 'thirties Dundee also explored the routes to Singapore, though the wreck of the George Fyffe and Sunda in 1840 was discouraging. More immediately significant, the Adelaide arrived in Australia in May 1836, after a 'pleasant and rapid passage of 109 days',[34] with twelve emigrants and a cargo of linen, farming utensils and coal.[35] She returned to Australia in 1837, and was soon joined by other vessels, attracted by the availability of state subsidy for otherwise risky ventures. The worsening economic and social condition of the Highlands was seen as a means of strengthening the New South Wales and South Australia colonies and an emigration bounty was introduced in 1836. Dundee merchants and shipowners were quick to grasp the offer of guaranteed outward freights, and in March 1837 the John Barry, the first Scottish ship devoted entirely to bounty emigrants, carried 323 destitute lowlanders to a new life in the antipodes.[36] After a fallow year, the Georgiana was engaged in 1839 by H. M. Colonisation Commission to carry approved emigrants to Sydney; 342 left in 1841, and a further 205 in 1842, when the scheme ended.

Emigration had played an important part in introducing Dundee shipping to the Pacific, and horizons were expanding already. The 286-ton Harvest Home, launched in 1839 for Australian trade, but with no steerage (a cabin cost £60 and the Intermediate passage £40), was sent to New Zealand, in the wake of the Earl Durham which arrived in Swansea in March 1840 with Chilean copper ore and two slaves acquired from a Maori chief (one as a present, and one exchanged for a blanket). They were a sad disappointment to Dundonians who flocked to gape at them when the ship reached home: they carried on working and refused to exhibit themselves. The Earl Durham left again for Sydney and Valparaiso, typifying a new trade exporting bagging for Australian wool, and importing copper ore, guano and other goods from the Pacific coast of South America, not

necessarily to Dundee. The ships involved were the largest in the port, but we must not exaggerate the overall effort, or underestimate the difficulties of establishing a regular Australian trade in competition with the well established Australian Company of Edinburgh and Leith, which dominated Scottish trade with the southern colonies from its foundation in 1822.

Dundee had come a long way since the seventeen-eighties, acquiring a leading position in the importation of Baltic flax, penetrating the transatlantic linen markets, importing luxury goods that had previously made other ports wealthy, and experimenting, if no more, with Eastern trade. In 1840 she was still overwhelmingly wedded to the Baltic flax and the transatlantic linen trades, and would remain so for another two decades. But there were indications of change in the composition of trade as well as a mighty surge in its volume. Local merchants and manufacturers were establishing the connexions that would lead to massive growth in the later nineteenth century, and ship-owners were vying to build the foundations of a very substantial fleet. Their enterprise and initiative: will be examined in Chapter 5, but in the meantime we must turn to what was only slowly ceasing to be the major element in Dundee's commercial activity.

4. COASTAL TRADE

Although the rise of direct foreign trade was the most dynamic element in Dundee's mercantile experience after 1815, coastal trade remained an abundantly obvious constituent of the economic progress of both town and hinterland. Its continued dominance after 1815 arose from two conditions common to north-eastern ports. On the negative side, Dundee's region was only slowly gaining the wealth and population needed to fill ships with direct colonial and other valuable imports, while London monopoly ensured that Indian and Far eastern products arrived coastwise until 1813 and 1833 respectively. Direct exports only slowly overcame the limitations imposed by lack of international experience and reciprocal trading, and large quantities of finished yarn and linens continued to go for exportation from more favourably and universally needed ports.

However, it is nonsense to treat coastal trade solely - or even largely - as a dependant of foreign trade. It had its own intrinsic worth and positive vitality. It was above all, diverse. For each load of colonial luxuries there were many of manufactures, materials and food. Coastal trade, like foreign trade, reflected regional specialisation. Before the railways it was the principal mechanism allowing local production to exceed local demand, especially in the case of linens and agricultural produce. In return the accelerating local demand for factors of swelled coastal imports beyond all reasonable expectation, and the failing cost of coastal freight - a constant complaint among the coastal ship-owners - made its own valuable contribution to the local economy. it simple terms, coasters accounted for four-fifths of total tonnage active in Dundee in the late eighteenth century, and though foreign trade increased in importance after the Napoleonic war they were still around 70% of ton-is late as 1850. The actual growth of the trade is, however, somewhat more

Table 4 1; COASTAL SHIPPING, and its PERCENTAGE of TOTAL SHIPPING, 1760-1850[1]
(average tonnage, as available)

	ENTERING		CLEARING				ENTERING		CLEARING	
	Tonnage	%	Tonnage	%			Tonnage	%	Tonnage	%
1775-9	14,624	78	9,046	92		1830-4	133,446	73	n.a.	n.a.
1780-4	17,586	80	9,465			1835-9	198,749	78	n.a.	n.a.
						1840-4	183,356	77	91,906	67
1823-4	96,112	83	n.a.	n.a.		1845-9	221,404	78	92,963	70
1825-9	116,686	80	n.a	n.a.						

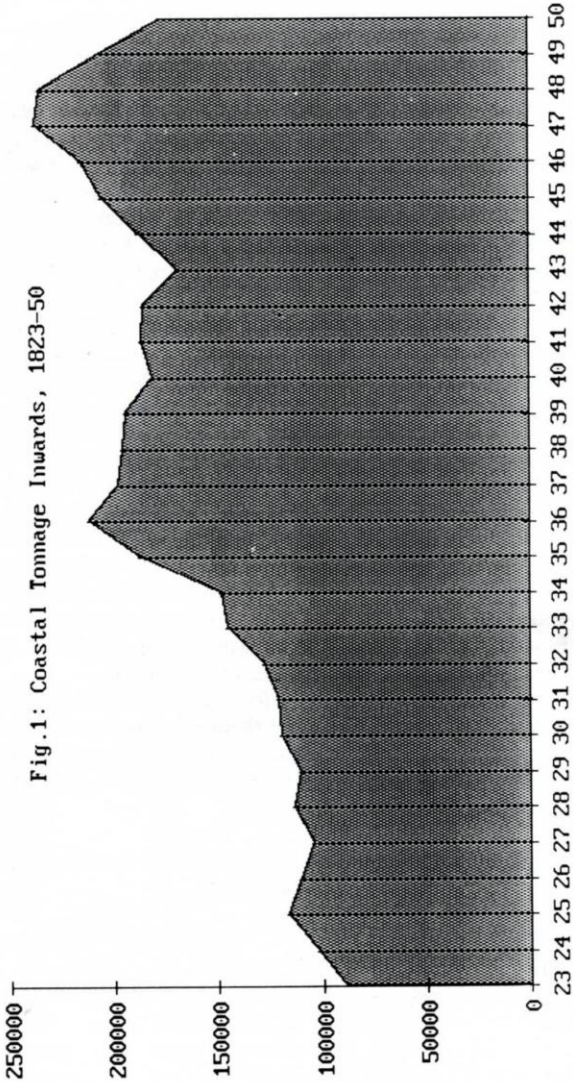


Fig.1: Coastal Tonnage Inwards, 1823-50

What Table 4.1 reveals is that a huge growth in tonnage entering the port occurred between the seventeen-eighties and the early 'twenties, corresponding with the earlier growth of the linen industry and the drawing in of materials, particularly coal, from other regions. Figure 1 shows sustained growth through-out the twenties that was hardly touched by the troubles of the early thirties, and the acceleration after 1833 is doubtless associated with the introduction of coastal steamers and the healthy demand for coal. However, the thirties were also years of expansion in foreign trade, and this may well explain the absolute decline of the trade from 1836. It may also owe something to the thinning out of under-used capacity created initially by excessive competition. Recovery in the 'forties came partly, at least, because of the general quickening of activity which always stimulated coastal distribution and the passenger trade, while the apparent collapse of the late 'forties may be attributed to the building of the railways and the greater emphasis on direct overseas trade: it was no greater in the seventies.

Within this over-all pattern of activity coastal trade fell naturally into three broad categories. The first, the short-haul importation of bulk cargoes, was confined to Scotland and the north of England, where it employed many small tramps; one or two regular, if transient, liners; and larger foreign-going vessels moving coastwise and often owned outside the town.[2] The second the longer routes to the major entrepots, with a wide range of commodities in both directions and progressively handled by regular liners owned within the port. The third was passenger traffic, growing in unison with coastal lines to Leith and London, and greatly encouraged with the adoption of steam

Trade with the west and north-east of Scotland embraced four interlocking interests, in fish, slates, lime and coal. The north-east was the chief source of Herring with Wick sending four cargoes in 1820, and around a dozen per annum between 1825 and 1835, when Peterhead appeared as a rival with another eleven. There were always a few from other sources, and some of 'dry fish', usual from Orkney and Shetland. Cargoes of kelp also arrived from time to time. In return went empty barrels, staves and fishing gear. The extension of these voyages to the west coast was principally for Ballachulish and Easdale slates, fluctuating around the dozen cargoes mark depending on the state of the building trade. As an indication of volume, fifteen cargoes in 1829 contained 654,120 slates.[3]

The relationship of these trades with each other and with the coal trade can be seen in a couple of illustrations. There appears to have been only one regular trader to Wick in 1820: the new-built 41-ton, three-man sloop Mind, of which David Watson was master and sole-owner. After a maiden voyage south for coal, she shuttled back and forth with herring and barrels, occasionally diverting

to Aberdeen with other goods, before returning to the winter coal run. When opportunity arose she carried grain to Leith and Alloa, returning with coal or bricks. By 1830 she had been joined by three other sloops, including Hope, belonging to McLeod & Wright, fishcurers and coopers.[4] Having arrived in February with slates from Ballachulish, she departed for Wick with staves, returned with herring, and then went to Ballachulish for more slates. She next departed for Portree, Isle of Skye, with salmon cobbles and fishing gear, returning with more slates before settling down for the rest of the year on the Wick run, with empty barrels and herring. She met her end in 1831 bringing slates from Ballachulish.

These northern activities were slight compared with the southern trades in coal, lime and agricultural produce. A phenomenal five-fold increase in coal imports between 1820 and 1840 reflected the growth of steam spinning and weaving; the creation in the 'twenties of two gas companies; the success of the sugar refinery and Greenland houses - the latter boiling whale blubber; and, of course, the rising demand for domestic coal from an expanding population Almost half the coasters entering the port in 1830 carried coal, and perhaps two-thirds by 1840.[5]

Initially imports were largely Scotch coal, with 140 tons from England in 1789, and 28,021 tons 'from the Forth' in 1791,[6] but the two sorts followed diametrically opposite trends during the war, partly because of the need for specialist coals, partly because of more efficient organisation south of the Border but chiefly because of the removal of tax advantages which made Forth coal cheaper than Tyne coal until 1793.[7]

Table 4.2: COAL IMPORTED COASTWISE, 1791 and 1800-1849.

(average tonnage, '000 tons)

	Scots					Scots			
	Scottish	English	Total	%		Scottish	English	Total	
1791	28,021	0	28,021	100	1825-29	28,105	34,512	62,617	45
1800-04	16,052	7,020	23,072	70	1830-34	51,161	40,297	91,459	56
1810-14	11,569	14,772	26,341	44	1835-39	74,212	60,659	134,871	56
1815-19	n.a.	n.a.	n.a.	-	1840-44	69,011	71 ,556	140,567	49
1823-24	20.373	32.005	52.378	39	1845-49	44.172	105.907	150,079	29

(years ending 5 Jan 1791-1815, 31 May 1825-49)

From its lowest point, in 1812, the Scottish contribution rose - with a more enterprising spirit among its producers - to a third of the total by 1820, and it was apparently Scotch coal which was chiefly used for steam power in the mills.[9] A concerted attempt by Scottish coal owners to raise prices in the

mid-'thirties forced flax spinners and others to use English coal, which drew ahead strongly, and was 71% of total imports in 1845-49, despite reductions in the price of Scotch coal and an optimistic forecast by Sturrock that Scotch coal would regain its market share.[10] (Table 4.2).

English coal was almost entirely from Newcastle, but there were many coal 'ports' on the Forth, ranging from Alloa, with its superior facilities, to some no more than piers.[11] They proliferated as demand rose and colliery proprietors improved their assets in competition with English suppliers. St. Davids, for instance, served Fordell collieries, and Inverkeithing the Halbeath colliery. Limekilns and its successor Charlestown were outlets for Lord Elgin's coal and lime, while Bridgeness arose in the late 'thirties when the Duke of Hamilton tried to avoid increased harbour dues at Bo'ness. Their growth and relative importance is apparent from Table 4.3:

Table 4.3: PORTS SUPPLYING COAL to DUNDEE, 1820-40 (Number of cargoes)[12]

	1820	1825	1830	1835	1840		1820	1825	1830	1835	1840
Burntisland				52	7	Bridgeness				2	29
Wemyss	2	19	29	97	141	Cockenzie				50	14
St Davids	5	115	16	34	50	Brucehaven	-	-	38	-	7
Inverkeithing	5	32	38	44	107	Morrisonshaven	-	-	3	34	107
Limekilns	4	81	12	1	1	'Forth'	89	6	15	19	21
Charlestown	1	.	20	121	104	Scottish Total	116	409	570	900	984
Kincardine	-	-	-	-	23	Newcastle	191	273	292	359	418
Alloa	10	156	395	375	226	'No. of England'	-	17	22	7	62
Clackmannan	-	.	.	69	146	British Total	307	699	884	1266	1464
Grangemouth	.	.	5	2	1	Scottish %	38	59	64	71	67

The coal trade was closely associated with that in lime, essential for plaster and mortar in building work, and for improving the quality of agricultural land. It is easy to overlook the reliance of an expanding economy on this humble commodity, too little to record in 1791, but rising rapidly after the war to average 26,600 bolls[13] in 1823/24 and over 40,000 between 1825 and 1850, with a peak at 70,000 in 1836/37. Every March owners advertised the lighting of kilns on the Tyne and Tees, inviting orders (with payment deferred to January),[14] and soliciting 'vessels...to engage immediately for the season'. Forty-eight entered in 1829 from Sunderland and Shields and 11 from Fife, and 72 and 7 in 1830.[15] Whether it was popular with shipowners is, however, doubtful. Liable to spontaneous combustion, lime was banned from the harbour and unloaded at the

Eastern Protection Wall. Such caution was justified: at least one vessel exploded after shipping water in the roads.[16]

Apart from coal and lime, bulk cargoes from England were infrequent: only nine arrived in 1820 and 42 in 1830 (out of 2,000 entries coastwise). In the latter year they included six cargoes of salt from Liverpool and one from Newcastle, two of whale oil from Hull, four of manganese from Plymouth, seven of iron from South Wales, three of herring from Yarmouth, three of grain from Newcastle and London and four of oak from the south coast (Appendix 4.2). Half-a-dozen tramps selling East Anglian, Kent and Jersey apples over-side were secure from local import substitution, but the same cannot be said for the trade in 'bone dust'. No cargoes were recorded in 1820, but there were half a dozen annually by the middle of the decade, mainly from Hull and Newcastle. Local interest was aroused, and in 1829 James Anderson erected an extensive crushing mill in 'Peep-o'-day'. Two years later Robert Sandeman of Wellgate also announced his intention 'to commence to grind and sell Bone-Manure for the ensuing turnip season',[17] and coastal bone dust was overtaken by Baltic bones.

Turnips did not appear among bulk exports, but agricultural produce of one sort or another was the only commodities to fill ships leaving Dundee. In this respect the port was part of the inter-regional food chain, though its hinterland was relatively small. In the fertile and rapidly improving Carse of Gowrie every riverside village but one had its pier, and every parish report in the New Statistical Accounts for Perthshire and Fife (1837-43) emphasised its importance. Inchture was typical in having 'a harbour at Powgavie...frequented by a considerable number of vessels laden with coals, lime, seed, grain, manure, etc., for importation, and with grain, potatoes, wood, fruit, etc. for exportation.'[18] Coal and lime were normally the chief commodities landed at river piers: the optimistically named Port Allen, in Errol parish, received some 1,000 tons of coal and 5,000 bolls of lime annually,[19] and lime shipments to Bridge of Earn were valuable enough for Charlestown to advertise 'free berths reserved for small vessels trading to the Bridge of Earn.'[20] At Kingoody, in Longforgan parish, there was 'a sort of harbour....Lime from Sunderland is frequently landed at it....Grain too is shipped from it...and of late years large quantities of potatoes for the London market.'[21] Local facilities were usually included in notices of farm sales in the Carse: The shipping ports of Mylnefield and Powgavie only 3 miles' was a typical selling point,[22] and an advertisement of a farm at Mains of Gray (in 1829) summed up the river trade: 'within about a mile from the shipping port of Mylnefield where the greatest convenience is afforded to the tenant for importing and exporting all necessary articles.'[23]

In this way foodstuffs for industrial regions and London were mobilized, often carried in specially chartered vessels. In 1821, for instance, freight for London - at reduced rates - was solicited for the Van Egmont, 'in every respect equal to the regular traders, and grain shipped by her may remain on board two Monday market days after arrival'.[24] Contrary to expectation, the chief recipient of cornstuffs was not London, which received only nine cargoes in both 1820 and 1830. Most went to the Scottish industrial regions and Leith in 1829 and 64 in 1830 (Appendix 4.1).

Table 4.4: PRINCIPAL NAMED CARGOES CLEARING COASTWISE, 1820 and 1830[25]

	1820	1830			1820	1830
Potatoes	9	32		Timber	12	15
Grain	37	82		Flax	8	18
Fishing Stores	10	20		Pavement	5	2

It is clear from Table 4.4 that grain of one sort or other was by far the leading named cargo leaving the port, but the greatest novelty was the potatoes, introduced in the seventeen-seventies and gaining popularity during the French Wars. Local soils were ideal for Perthshire Reds, and so great was the boom that by 1828 Robert Rintoul of Balmerino, 'sole agent of one of the most extensive houses in the trade in London', was offering a local regulatory function 'so as not to glut the London market, which caused so much loss last season'.[26] Nine cargoes were despatched in 1820 and 32 in 1830, all to London. The most valuable foodstuff was probably salmon, and the most troublesome live cattle, though these travelled on coastal liners rather than chartered vessels except during times of extreme seasonal pressure. The shipment of animals was increasing so rapidly in the 'twenties that the Dundee, Perth & London Shipping Company had two smacks fitted up for that purpose in 1830, and later boasted 'of carrying, at moderate rates of freight, by their smacks to London, sheep and lambs, stowed in cribs, in numbers of from thirty to fifty in each vessel'.[27]

Apart from foodstuffs, there were few export cargoes worthy of notice. Timber went to the northern Scottish ports, and pitwood to the Tyne. Flax went principally to Kirkcaldy and Hull. A handful of ships carried paving stones to the Forth and Tyne, and there were a few unique cargoes: slates to Crail, iron to St Andrews, machinery to South Queensferry, linseed to Hull, dried fish to Leith and bark to Fisherrow and Arbroath.

By contrast, the chief manufacture, linen, was not a product that went coastwise by the shipload. It was carried in the holds of coastal liners whose rapid rise on long distance routes was a notable post war feature in all major po[r]ts. That very considerable quantities were exported to or via other ports is

beyond dispute. In 1791 some 7.8m. yards left the port. By 1817 - the next available figure - around 21m. yards passed over the quay, and 378,000 pieces -around 55m. yards - on average in the years 1825-29. The subsequent rapid growth and shifts in the relative importance of various cloths can be seen in Table 4.5.

Unfortunately no continuous record disaggregated direct exports and coastal shipments subsequently exported. The Chamber of Commerce declared that the former doubled between 1819-20 and 1821-23, though they still represented only a fraction of total shipments. In 1823 some 2.35m. yards of linen and sailcloth were exported direct, whereas cloth 'shipped coastwise and exported' included 12.0m. yards of Osnaburgs alone, and the total was over 42m.[28] In 1829, when something over 65m. yards paid shore duties, only 20m. cleared Customs outwards. This was an impressive rise in direct exports, from c.5.6% of the total to 30.8%, and the booming foreign trade doubtless raised it further in the next quarter of the century, but it does not detract from the assertion that coastal shipment was imperative for the health of the linen industry for the period under review.

Table 4.5: TEXTILES EXPORTED, five-yearly averages, 1825-9
('000 pieces; years ending 31 May)[29]

	1825-9	1830-4	1835-9	1840-4	1845-9
Osnaburgs	81	104	93	70	70
Sheetings	103	139	18	218	259
Cotton Bagging	53	47	76	35	6
Other Bagging	7	12	18	17	25
Sailcloth	59	82	122	135	163
Sacking	36	55	79	95	149
Dowlais	5	52	67	84	66
Sundries	33	14	17	24	33
TOTAL	378	506	660	678	771

Linen (and, of course, other goods, both inwards and outwards) followed seven reasonably well defined and developed routes: northwards to Aberdeen; southwards to Leith, Newcastle, Hull and London; and westwards to Glasgow, Liverpool and Ireland.[30] Each had its own specialist shipping line or lines.

The northernmost liners ran to Aberdeen, carrying general goods, barrels, and fish. Linen was carried in both directions, depending on the availability of foreign-going shipping. In the immediate post-war years John Kennedy began a

service with his sloop Guthries, which he skippered himself. Throughout the 'twenties he maintained a fortnightly service with Guthries and Juno, increasing to once every ten days in 1829. Success added another vessel - Dame - in 1836, and occasional rivals appeared, most notably in 1830 when an Aberdeen smack, the Marquis of Huntly, 'well known on the coast as a superior sailing craft', began a weekly service (lasting for four or five years) in conjunction with transatlantic voyages from Aberdeen, offering free carriage northwards in a futile attempt to avoid Aberdeen ships having to complete their loading in Dundee.[31]

Connexions with the Tyne were close, quite apart from the coal trade and not least because of the availability there of salt which was in great demand for Scottish fisheries. At least by 1824 James Laing's Newcastle Shipping Company had two sloops plying once every ten days, carrying linen and yarn down, bottles, glass and salt back, and passengers - at 10s.6d. a head - in both directions. Ten years later, when three larger vessels were operating a weekly service, the rival New Newcastle Shipping Company entered two vessels on the same run. Competition was no more economic here than elsewhere, and a merger around 1837 created the Tay & Tyne Shipping Company, whose five vessels also served Stockton,[32] a better port than Newcastle or Hull for south Durham and north Yorkshire.

A more significant trade was maintained by the Dundee & Hull Shipping Company, established in 1799. In 1824, when it was reorganized for expansion,[33] it had two smacks, *Fame and Fife Packet,* making the round trip at least once a fortnight.[34] *Humber and Tay* had been added by 1829 when a weekly sailing look advantage of Hull's superb connexions with the industrial heartland of England

> Messrs Thompson [their Hull agency] forward goods with the utmost dispatch by their regular traders to and from Manchester, the intermediate places on the line of the Rochdale Canal, viz. Rochdale, Sowerby, Halifax, Dewsbury, Wakefield &c.; and by river vessels to all inland places communicating with the rivers Humber and Trent...[and have]... recently established a steam and fly boat conveyance through the Huddersfield line of canals.[35]

rough linen and hempen bagging and sacking, indispensable for packaging natural and man-made commodities, reached Manchester in ten days via Rochdale, eight via Huddersfield, though doubtless some also supplemented Yorkshire linens exported from Hull.

In general coastal trade London was predominant. It received the bulk of exported potatoes, corn and cattle, and in return the great imperial entrepot was the easiest source of goods in great profusion. Pacific whale oil, China tea,

Indian spices, West Indian sugar, African gum and "elephants' teeth" and all manner of European goods were available in Thames-side warehouses. Thomas Miller, bookseller and binder in Overgate, was able to offer 166 cheap titles in 1830, 'being a consignment from London and Edinburgh'.[36] Peter Dalquairns was not alone in advertising 'direct from Oporto...a large quantity of very superior Ports, and lately by way of London and Leith from Bordeaux and Cadiz, some first growth Clarets and very fine old... Sherries'.[37] Regrettably, coastal ledgers have not survived, but extant records show the original port of importation for goods removed from bonded warehouse. According to these, London supplied wine from France, Spain, Portugal, Madeira, Figuera and Tenerife; Jamaican rum; molasses from Demerara, Dominica and St Vincent; unrefined sugar from Jamaica, Grenada, Berbice and Mauritius; some French clover seed; and 33 tons of Honduras mahogany.[38] Paradoxically, the most interesting and least expected feature of these statistics is London poor showing compared with major Scottish ports.

Groceries brought into Dundee served both the city and the wide area covered by the carters (Map 1), who were more likely to be carrying coastal than foreign imports. The Dundee, Perth and London Shipping Company offered a discount to encourage grocers in Forfar, Kirriemuir, Cupar, St Andrews and elsewhere in Fife to import via Dundee.[39] But groceries also shared holds with the manufactures of the metropolis itself, with oak, and with other imported raw materials. Nowhere was the importance of traditional connexions so obvious as in the fibres trades. Of course there were occasional parcels of Baltic flax or hemp brought up from London, and Dundee Directories quoted Baltic-London freight rates; but only five per cent of flax arrived coastwise by 1850. In contrast the mounting imports of Indian jute came via London between the 'thirties and the 'sixties, largely because economies of scale were not realised in direct importation, and mercantile connexions were still inadequate.[40]

Despite the attraction of 'luxuries' spicing a richer life, London principal role was forwarding the linens on which Dundee's prosperity was founded. She offered long distance - especially colonial - shipping, and a congregation of merchants with world-wide connexions. John Moir, manufacturer in King Street, was typical in maintaining there a range of agents who stocked his sheetings, cotton bagging and hop-sacking, and provided essential market intelligence (and emergency supplies of hemp).[41] That engaging with appropriate shipping was hardly less important than securing orders is illustrated by a letter to his principal agent, suggesting a reverse flow of goods[42]

> This is now to acquaint you that there is a very fine new ship, the Mary Hope, coppered and copper fastened, laid on here for New York. She will sail early in the beginning of April, and if you have any intention of sending

your bagging there, the present would be an excellent opportunity.

Mercantile connexion, together with the capital's economic, social and political attractions, meant that a central and rewarding function of the London trade was the carriage of passengers; and this, for obvious reasons, was chiefly the province of the coastal liners also responsible for most of the general cargoes. Here the indisputable leader was the : the 'DP&L'.[43] Founded in 1798, as the Dundee & Perth Shipping Company, it was successfully employing eight smacks (allowing for loading and unloading time) on a twice-weekly service to and from Downe's Wharf on the Thames after the war. Subsequent developments were absolutely typical as the rising costs of expanding coastal traffic engendered a desire for cheaper freights and a futile expectation that another shipping line would bring prosperity to merchants and shipowners alike.[44] In 1819 the rival Dundee & Perth Union Shipping Company introduced four smacks on a weekly service to and from Hoare's Wharf in London, attracting custom from the older company by knocking 6d. off the 3s.6d. per barrel-bulk freight to London. Two years later they reduced it to 2s.6d., and D&PSCo. had, perforce, to follow suit. Passenger fares were also reduced, from around 3 guineas to£2.12s.6d. 'cabin class[1], £l.5s.0d. 'steerage' andfil.ls.Od. for common soldiers and seamen who were described as deck passengers, but were sometimes accommodated in makeshift huts. At the same time the quality of first class accommodation was increased in the D&PSCo's 'fine new fast-sailing smack London', 1825, which had two 'large and commodious' cabins containing ten state rooms, dressing closets and the water closets.[45] For shippers and travellers the gains were obvious: lower freights reduced the price of linens and deepened the market, while lower fares brought long distance transport within reach of a wider spectrum of the population. But for shipowners it was a ruinous game wherever it was tried, and the inevitable happened: in 1825 both companies intimated, in identical words, that

> 'in consequence of the high rate of seamen's wages, provisions, and almost everything connected with shipping, they have found it necessary to make a small advance on the freight of goods carried by their vessels between this place and Perth, London and Glasgow'.[46]

And, not surprisingly, the companies amalgamated in 1826 as the Dundee, Perth & London Shipping Company, promptly taking measures to recover lost income. First class fares were restored to£3.3s.0d., and others pro rata. Parish paupers were charged half steerage (instead of gratis); convicts sent for transportation from London were refused 'unless a civil officer go along with them and take charge of them',[47] and they were charged at £3.3s.0d. each on the deck and £ 1.5s.0d. for their 'keeper', 'the keepers getting accommodation in the cabins only when convenient'.[48] Regrettably there is no record of how many

passengers travelled the coast, or how much income they generated. We only know they were on every smack in summer time, but lost interest somewhat during winter gales.

The second major passenger and cargo terminus, Leith, was initially served by the Dundee & Leith Shipping Company, owned and managed by George Clark, whose two sloops, Gypsy and Dame, sailed there and back every ten days. In 1829 DP&L acquired Clark's business and began a weekly service with Gypsy and Dame and one of their own sloops, the Newcastle & Berwick Packet. Within a month they had increased to two departures weekly from Dundee and Leith, and had five vessels operating by 1840. Such effort maintained the vital connexion - in the days before estuarial bridges - with Edinburgh, the focus of Scottish law, church, banking, polite society, and crafts serving the Scots elite, including those of Forfarshire. Leith naturally imported more luxuries than Dundee, and the Customs records of warehoused goods for 1829 show brandy, claret and 4,798 gallons of Spanish and Portuguese wine arriving from there in Gipsy, Dame and Newcastle & Berwick Packet. Very little sugar was available, but 1,725 gallons of rum compared well with London offering in that year.

The third critical trade carried on chiefly by DP&L was with the Clyde ports, through the Forth & Clyde Canal. They were the primary source of sugar, molasses and rum, of which 6,687 cwt, 7,544 cwt and 3,745 gallons, respectively, were drawn from bond in 1829. In this way imports could be had from Jamaica, Demerara, Trinidad, Grenada, Antigua and St Lucia. Important as this was, especially for the Dundee Sugar Refining Company, plantation produce from the Clyde was already supplemented on the one hand by pig iron and industrial goods, and on the other by St Rollox vitriol, bleaching powder, soap and soda for the textile finishers. The Forth & Clyde canal itself ran through endless industrial districts, and DP&L freight rates were eventually adjusted because Vessels...were often inconveniently stopped for a considerable time to take small lots on board'.[49]

In the absence of adequate statistical evidence, it may be assumed that the growth of direct exports, noted in Chapter 2, only slowly modified Dundee's reliance on the Clyde as a major outlet for rough linen, brown sheeting and bagging destined for North America. 'A great proportion of the manufactures of this part of Scotland', it was reported in 1824, 'is carried through the Clyde and Forth Canal for reshipment at Glasgow and Liverpool'.[50] It was handled by Glasgow agents, at their own or the manufacturer's risk, and sent to related houses or agents in New York for further distribution, sometimes on 'sale or return'. This, for instance, was the route used by John Moir in attempting to diversify after lucrative military contracts came to an end. His agents included William Baird, Aitken & Orr, Adam Ferric, Walter Lindsay, William Irvine &

Co. (and their New York house, Thomas Irvine & Co.) and John Bell. Goods sent to Bell alone amounted to £43,000 between 1822 and 1827.[51]

How much westward traffic originated or terminated in Liverpool shipping is hard to say. It was certainly important for exports, though bonded imports via Liverpool were of no consequence. In view of the time and expense involved in transhipping goods between vessels on the Clyde, one would expect a through-trade to Liverpool to have been successful. In what was apparently a trial run in May 1825, D&PS Co's sloop Martin took bale goods and coal on to Liverpool and returned with a cargo of salt in 21 days.[52] Outward demand was sufficient for the newly formed DP&L to place two sloops on this run, but return freights were too heavily dependent on salt, 'to be sold here deliverable from the ship's side or stored for sale', and since freight rates could not be raised because of the introduction of the new Glasgow-Liverpool steamers, direct shipments were abandoned in 1827 in favour of transhipment at Glasgow's Broomielaw.[53] Dundee-Liverpool trade was greatly enhanced by 'an almost daily departure of steamers from the Clyde to Liverpool', and not until cholera quarantine caused a sudden rise in coastal steamer charges in 1832 did DP&L re-introduce Liverpool traders lest 'the direct Liverpool traders which had previously been driven out of the trade would get a footing in opposition to the Company.'[54] In fact two rivals survived for some time: Robert Tosh, with two sloops, and William Adam with three (see Chapter 5).

The Clyde was also the most popular route from Ireland, and flax could be had this way when demand rose after 1815. It was usually transhipped into the Glasgow liners, but there was some call for through traffic, and by 1834 Anderson & Cathcart had begun running their appropriately named sloops Erin and Belfast and the schooner Shamrock, to Belfast and Drogheda.[55] Other vessels -not necessarily liners - were to be found in Dublin, Newry and Cork. However, the time was hardly propitious for such ventures. Firstly, there was a booming local demand for flax in the early 'thirties with the triumph of wet-spinning in Belfast.[56] Secondly, and perhaps more importantly, movements in the price of flax compared with transport charges were such that by 1836 DP&L reckoned that it was losing money on practically every cargo of Irish flax carried through the Forth & Clyde canal.[57] There were, however, other possibilities. In 1837 Anderson & Cathcart were advertising 'New Irish Oatmeal...this year's crop, on the way from Drogheda by the Erin and Shamrock', and wisely offered to run their vessels via Kirkcaldy (to which they also ran a couple of sloops) if a reasonable quantity of goods offered.

With the Glasgow, Irish and Liverpool business, there was sufficient freight to employ four smacks on a regular weekly run to Glasgow in 1820, six on a twice-weekly run in 1830, and seven in 1840.[58] Nevertheless, the cost of

indirect shipment, in handling charges and dues, was a cruel disincentive. The rates charged on the Forth & Clyde Canal are so heavy', it was reported in 1824, 'that they have long been felt by the trade of the East Coast of Scotland as a severe burden on their industry.'[59] Experimental voyages had revealed that a 73-ton vessel with a 60-ton cargo faced charges of £6.17s.3d. via the Caledonian Canal compared with £31.11s.2d. via the Forth & Clyde, and Irish produce was certainly taking the longer route.[60] The trade', it was reported of linen exportation, 'has begun to look out for other cheaper ways of carrying their manufactures. Amongst others of exporting them direct from Dundee to Foreign Ports.' It was an important recognition of the comparative advantages of direct versus 'coastal' exportation, and, given sufficient growth to achieve economies of scale, explains the expansion of direct foreign trade discussed above.

The development of direct trading in no way upset the bounding growth of the coastal trade, which more than doubled between the early 'twenties and the late 'thirties. In terms of tonnage it was always the coastal trade which made the greatest demands, though there are important qualifications to be discussed in Chapter 5. The purpose here is to examine the impact of steamers on coastal trade.

Steam power is often seen as a prodigious engine of revolutionary change in nineteenth century transport. It was certainly dynamic, but progress was slow and in some ports, including Dundee, it was neither universally applicable nor gratefully received. It started as a curiosity, for river boats and pleasure craft. The Tay had had its share of steamers since at least 1820, when there were only fourteen registered in the whole of Scotland.[61] The first was the ferry boat to Newport, the 74-ton Union, 'of the construction called a twin boat'.[62] In 1820 the 45-ton SS Caledonia was advertised as commencing a run from Perth (where she was owned) to Dundee, and a fireman was sought 'for the management of the engine'.[63] By 1824 the Tay Steam Packet Company's SS Hero and SS Atholl were making daily trips between Dundee, Newburgh and Perth, and SS Caledonia was demoted to plying between Dundee and Broughty Ferry, which she did four times a day and twice on Sundays 'during the bathing season'.[64]

The Tay steamers, which increasingly carried cargo as well as passengers, were much faster than the lighters by which the coastal companies transferred goods between Perth and their depots in Dundee. In a scramble to remain efficient, DP&L hired the SS Atholl for £23 a month in 1828, and when charges were 'greatly advanced' in 1829 ordered 'a steam-vessel built expressly for this department of their trade'. SS Sir William Wallace was launched from Adam-son's boat-yard in Seagate in January 1830, and fitted with two 15 horse-power engines by Dundee Foundry Company. 'Steam', it was said, 'has furnished great facilities for the carrying trade between Dundee and Perth, the passage being regularly made in three or four hours while sail frequently

requires as many days'.[65]

River steam was practical, but coastal steam was doubtful. The boats were small, engines weak, back-up sails - and therefore double crews- advisable, and, relatively speaking, the costs were out of this world. For operational and economic reasons coastal steamers could only be run by wealthy liner companies, but DP&L doubted their sea-worthiness, and when faced with a rumour of 'steam opposition' from London the manager reported very little desire among the merchants that the company should furnish them with this kind of accommodation and a very general impression that the steamers out of the Thames had done no good to their owners and that steamers would in particular be no good to this company.[66] A dithering DP&L was overtaken by events when Martin & Burns' Glasgow & Liverpool Steamship Company, under pressure from west coast rivals, moved its oldest steamers - SS Liverpool and SS Glasgow - to the Dundee-London run in June 1832. Liverpool carried only 'twelve passengers, nine oxen, a number of sheep and hogs and a quantity of bale goods' on her first passage,[67] but DP&L responded quickly after initial panic. Within three months the company was restructured, and two 640-ton, 260 horse-power steamers ordered from Robert Napier of Glasgow, arguably the best engineer in the country.[68] It would appear that competition - 'an improving element', according to a later DP&L manager[69] - had introduced new ships and forced modernization on the reluctant local company. The coastal service certainly improved, but then, as on other occasions, competition acted only as a stimulus to local shipowners: not relishing a fight, the Glaswegians offered to hire their steamers to DP&L and quietly withdrew from the scene.

Dundee's own steamers were delivered in fine style amid much publicity. The official cargo on Dundee's maiden voyage from Glasgow, on 21 March 1834, was as much coal - for the engines - as possible and some sugar for Baxter's refinery, but it was advertised as 'a pleasure voyage round the north of Scotland to Dundee, by steam', for three guineas a head, including provisions.[70] The local trial of the 'magnificent and powerful steam-ship the Perth', in July, was more generally offered, at 7s.6d. excluding provisions, but her lustrous progress was somewhat tarnished 'when her engines gave way'.[71]

With the addition of a third steamer to ensure a regular twice-weekly run from both directions in the summer months, DP&L were in fine fettle to accommodate expanding trade, especially since its sailing vessels continued to run. Indeed, steamer owners had to make their own trade by a judicious assessment of what the market could bear. Shippers would pay over the odds for speed and reliability, especially for cattle, salmon and superior textiles, but not for rough textiles, cheap raw materials or the miscellaneous cargoes from London, though oil from London, for example, paid 50% more by steamer than by schooner.[72] With prices generally falling in the 'thirties and 'forties shippers of

coarse goods were reluctant to pay steamer rates even during the summer when DP&L ran twice a week to London. So, to avoid losing to independent schooners, 'a sail vessel would be kept on the berth to receive goods and sail for London when she gets a suitable cargo'.[73] The overall result was a greater range of vessels and freight rates, and this was important in periods of trade depression, when there was a definite bias towards smacks from London, leaving steamers to carry water ballast.[74] Even so the regular liners charged more than independent schooners, and 'many merchants and manufacturers complain how heavily the company's rates bore upon the small profits they were obliged to do their business on.'[75]

Steam owners were, therefore, always on the look out for new opportunities, and one soon appeared. Animals lose weight alarmingly when stressed - up to a quarter of body weight sailing from Dundee to London - and the faster and smoother the voyage the better. In May 1835 'the steam-ship Dundee sailed for London on Wednesday with a full cargo of goods, 55 fat cattle, a number of sheep and 40 to 50 passengers', and it was said that 'the number of fat cattle carried this season is very considerable beyond that shipped last season'.[76] A contract system, whereby freight was payable whether or not cattle were actually shipped, helped to secure a stable footing for the trade, and DP&L advertised, 'to show the public that the company are anxious to keep their steam ships free and open to all and sundry who are in the way of shipping cattle for London, and that no undue preferences were given.'[77] By the 1837 season steamers carried no fewer than 1,474 cattle, 2,020 sheep, 3,460 lambs and 42 horses to London and some 600 assorted animals to Hull. In contrast, shipments by sail totalled 46 cattle and 80 sheep.[78]

The most valuable capture of the steamer was arguably the human passenger, for whom the saving of several days - steamers still took four or five - was a matter of comfort and convenience, if not actually of life and death. Six-hundred-ton steamers were big enough to provide first and second class cabins for men and women, kitchens and eating accommodation, washing facilities and w/cs. Libraries were provided, with lists of suitable titles handed on from one company to another: all large volumes, to prevent theft. Cutlery was Berlin metal for the same reason.[79] Fares were not cheap at around £4. 4s. first class, and £2. 10s. second, but the poorer classes could sometimes travel on deck for around £1. 5s. Deck passengers were unpopular with shipowners - 'many respectable people go...that way trusting to their making friends with the stewards or other and getting stowed below' - and in 1833 DP&L restricted the deck to those having charge of cattle, common sailors and soldiers, paupers and convicts.[80] It was maybe just as well, as crewmen found: 'could they all be accommodated below...it would be much better as the deck berths arc really not fit for sleeping in - the bed clothes being almost constantly saturated with wet'.[81]

In winter the deck was a dangerous place: in 1839 DP&L temporarily eschewed responsibility for death of cattle and 'deck risk' on carriages, horses, game and 'killed meat bestial'.[82] The number of passengers, of whatever class, is again unknown, though an isolated account suggests that 570 were carried in 'seven voyages up and down' in 1844 and 418 in the same period in 1843. If the flow of passengers was anything like uniform throughout the year this would represent somewhere between 8,000 and 10,000 in 1844.

The decision of DP&L to move into steam was followed closely by the formation in March 1835 of Dundee and Hull Steam Packet Company. 'It is a surprise to many', read the Prospectus

> that steam navigation has never been applied to the trade between the East Coast of Scotland and the North of England. The trade between these quarters is at present, with the exception of the London trade, perhaps as extensive as any coasting trade in Britain.[83]

The company was successfully floated and its 450-ton, 200 horse-power Forfarshire was launched from Adamson's yard in Dundee in December 1835.[84] Forfarshire was expensive - £11,000 - to build and run, and the company looked for profit in undercutting DP&L's rates - especially for cattle - by a working agreement with the Hull-based Humber Union Steamship Company. They proposed to land cattle and livestock brought to Hull by the Forfarshire and 'place them immediately in excellent pasture until one hour of the departure of the Vivid on Tuesday afternoon and to land them at Fresh Wharf, London Bridge, on Wednesday afternoon'.[85] There is no record of commercial success, while the wreck of the Forfarshire, in September 1838, passed into folklore because of the rescue attempts by the Darlings.[86] In the 'forties a similar transhipment arrangement was attempted by General Steam Navigation Company, hitherto excluded from Dundee. An independent steamer, Loch Ryan, offered to take passengers to Newcastle for 10s. and General Steam Navigation charged the same from Newcastle to London, a total of only one third of DP&L's top fare at the time. Again there is no record of success. In the 'forties it was still dangerous to venture with steamers into a port with pronounced local loyalties.

A more satisfactory alternative to DP&L's London run would have been to tranship at Leith, but local agreements minimised fare differentials. However, the potentially lucrative Dundee-Leith trade was itself open to strong competition between a mixture of smacks, 'clippers' and steamers which kept fares and freights between the two cities about as low as was economically feasible. DP&L did not initially wish to run steamers on this route, but there were two Leith-based companies: the Leith & Dundee Steam Packet Company and the Dundee Leith & Charlestown Steam Packet Company. In 1835 a local Dundee

and Leith Steam Packet Company[87] was formed, purchasing the old Rothesay steam packet and ordering two steamers of 220 tons burden and 120 horse-power, Modem Athens (in honour of the capital) and Bonnie Dundee. The former was launched in June 1836 and Bonnie Dundee a year later. The Leith companies immediately began a price-cutting war of growing intensity, culminated in the summer of 1839 with 'GLORIOUS NEWS to Travellers, Tourists, Pleasure Parties and Visitors: Great reduction of fares to Edinburgh',[88] and 'Immense Reduction. Sixpence to Edinburgh!!' The Advertiser declared that 'the opposition in steam navigation is doing wonders for the benefit of the public (in low fares): hundreds are every day transported to and from Dundee'.[89] It was true, but there was also a cost to the town in lost capital: it was the Dundee company that went into liquidation.

This price war coincided with another on the Dundee-Perth steamers, and hundreds of passengers, according to the Advertiser, were every day taking advantage of this plethora of cheap vessels, though they ran the risk of being 'hauled and pushed about by the porters connected with opposition steam boats'.[90] Both Leith operators, in the summer months, ran one of their steamers beyond Dundee to Montrose 'calling at Broughty Ferry, the Ha'ens, and Arbroath'.[91] They also augmented earnings by applying under-used steamers to such increasingly popular diversions as 'a Short Pleasure Trip (weather permitting) round the Bell Rock', or the more ambitious adventure advertised in the summer of 1840:

> Pleasure Sail to the Island of May. The Modem Athens, on Saturday 1st August, will leave Dundee, at 10 a.m., and land a party on the Island of May on her voyage to Granton, and call for them on her return to Dundee about 6 o'clock, - giving about six hours for Fishing, shooting, &c., upon the island. Tickets for the trip 4s.[92]

The most adventurous cruise never came off. SS Bonnie Dundee was advertised for a voyage to Rotterdam, with two or three nights there, and fares were calculated for a party of 60, 70, 80 and so on, with 60 as the minimum for a paying trip: it was not attained.[93]

Pleasure trips were a means of boosting income that would soon be required as all sections of coastal traffic were threatened by the building of the railway network in the 'forties. However, the mercantile sector gained as well as lost, particularly in the early years. It certainly increased the transport options for local manufacturers when goods and passengers could be carried more easily between Dundee and the interior, to the common benefit of both port and railway, as the latter's opening advertisements imply: The Dundee & Arbroath Railway Coaches start from Arbroath every morning at half past 8 o'clock and arrive in Dundee in time for the Edinburgh steamer'.[94] The shipping monopoly to the west coast was undermined by 'a new route to Liverpool and the inland

towns in England via Newcastle that many of the shippers of goods for those places took the advantage of.[95] However, so far as Clyde and west country traffic was concerned, greater advantages were engendered through working arrangements between DP&L and the Edinburgh & Glasgow Railway Company, whereby

> individuals in a hurry for their goods would get them by this route in two or three days less time than via Port Dundas; at a higher rate of only 10 to 15 per cent. This would satisfy the Railway Company and keep them from encouraging others to oppose the [Dundee-] Leith Trade: which at the same time, it would be a check on the great Canal Company should they raise their dues.[96]

The through-passenger trade to Liverpool was also threatened following the extension of the Glasgow railways southwards. In 1844: DP&L resolved that

> Some inducement must be given to Passengers to prefer going by Steamer to that of Railway travelling, and at present the fares are so much reduced between Glasgow, Liverpool and Fleetwood that many passengers from this quarter prefer that route as they thereby avoid sickness and are conveyed much quicker although the fare is somewhat higher.

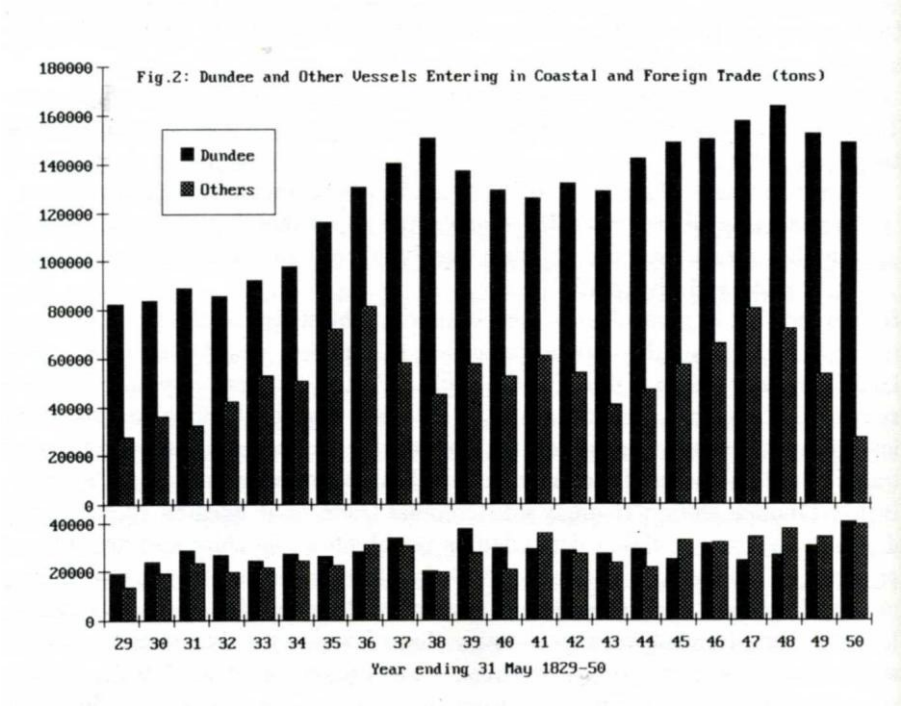
In April 1845 the various steamer companies met in Edinburgh to discuss the 'threat' from railways, and resolved that 'a considerable reduction in the fares must be made so soon as the projected railways were opened to the public',[97] but it was some time before the more serious effects were felt, and they lie outside the scope of the present work.

The overall contribution of steam to the coastal trade is beyond dispute. The Parliamentary committee examining the depressed state of shipping in 1844 asked one witness[98]

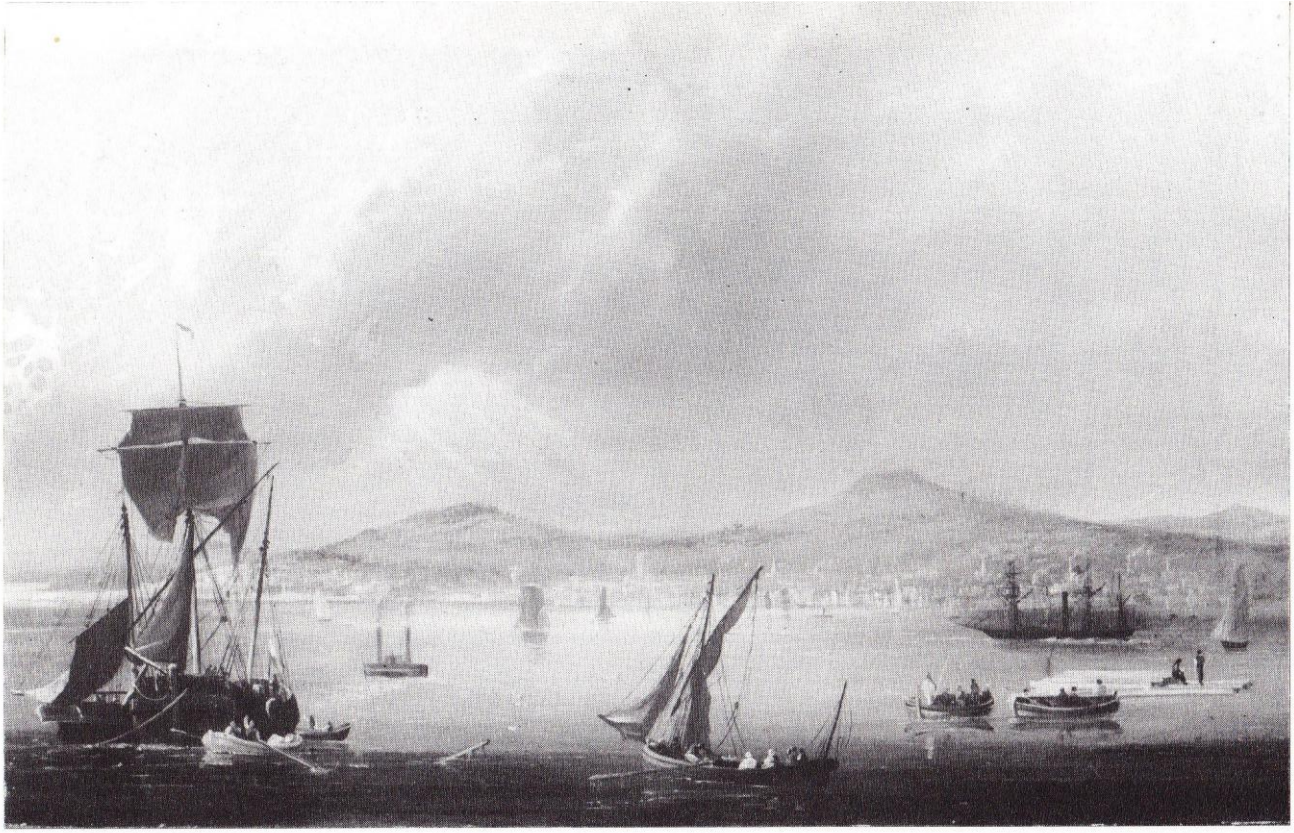
> Are you aware that the coasting trade has been much increased since the introduction of steamers, for many small ports that used to receive their supplies direct from the colonies, receive them from the larger ports, such as London and Liverpool?

He agreed that 'a great deal of that is supplied by steam'. However, caution is required in applying this general assertion to Dundee, despite the build up of DP&L's regular steam traffic. Firstly, while DP&L's steamers may have induced an over-reliance on London there is no evidence that it inhibited the growth of foreign trade, even in the case of jute, for which economies of scale and London traditional dominance of Indian trade may have been more to blame. The point is that Dundee shifted strongly into colonial trade as it became economically desirable to do so, and that depended on the ability to fill ships and direct them properly, as will be seen in Chapter 5. Secondly, there is no obvious reason why most of Dundee's trade should have responded disproportionately to the stimu-

lus of steam shipping; on the contrary there is evidence that many industrial shippers actually preferred sail because it was usually cheaper. Thirdly, while it would be ridiculous to deny the advantages of steam, they were felt chiefly by passengers and cattle. It is important to stress that as late as 1850 only 10 per cent of coasters entering the port were steamers, though they accounted for 16.4 per cent of the tonnage entering and 38.8 per cent of the smaller tonnage clearing. In this respect Dundee was very much behind the times: a quarter of coasters entering all Scottish ports were steamers, and they made up roughly half the total tonnage." So far as Dundee was concerned the largest group of coasters carried coal, as they probably always had, but that does not detract from the value of the non-coal trade or deny its vast contribution to the economic development of Dundee from a very minor position in Scottish trade in the late eighteenth century to one of the major ports by the middle of the nineteenth. Foreign and coastal trade should be seen as complementary servants of the main purpose, which was to arrange the transportation of food, materials and products in the most efficient and cost effective way.



1. Dundee from the River, 1824. I. Clark.



2. Dundee from the River, 1836. Attributed to D.A. Andrews.
(Dundee Museum and Art Galleries)

5. DUNDEE SHIPS AND SHIPOWNERS

1. The growth of the Dundee Fleet

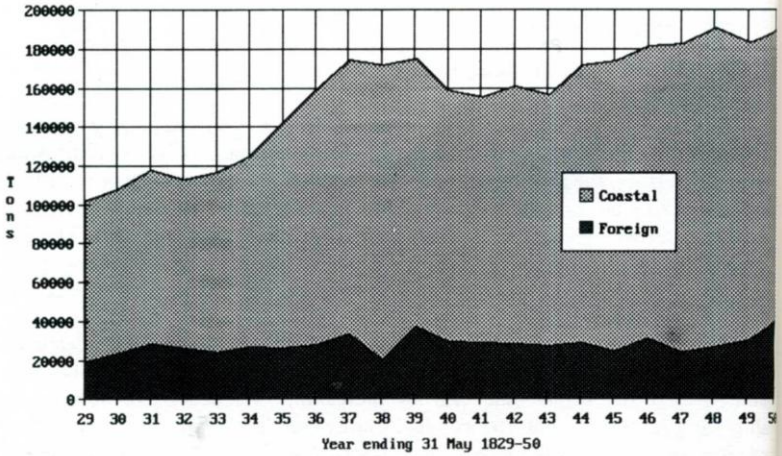
Rapid advances in trade made enormous demands on shipping, promoting new levels of enterprise and inducing large inputs of capital. Three options were available. Firstly, the town could make greater use of foreign shipping or attract exogenous capital from the British shipping community. Secondly, the rising industrial sector could divert investment from production to transport. Thirdly, those especially concerned in shipping could re-invest profits and develop an independent sector with interests and earnings beyond the narrow confines of the town's economy.

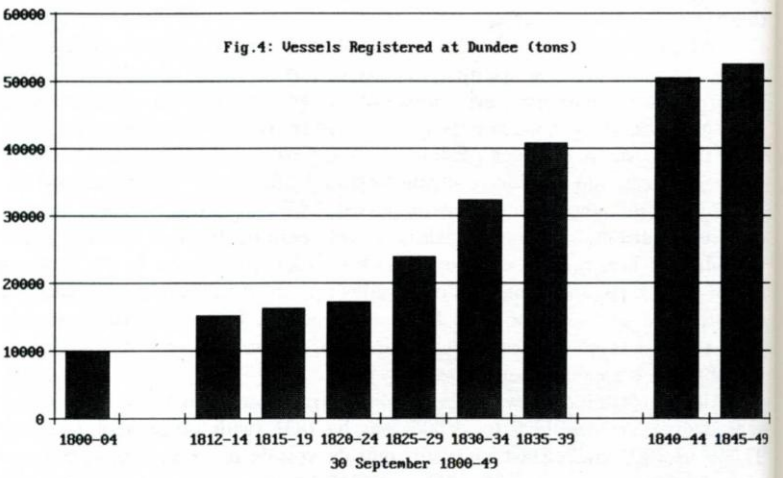
The first course was attractive. With many calls on local capital, resources were increased cheaply by employing foreign vessels, though their number was limited after the Napoleonic War by mercantilist restrictions on third-party ships, and tariff preference for colonial timber (carried in British vessels) at the expense of Norwegian timber (usually carried in foreign vessels).[1] However, reviving imports of European wood raised the foreign total to 36 in 1829,[2] and subsequent growth - to a third of overseas entries and a quarter of their tonnage by 1840,[3] - was encouraged by the 1830 Dock Act's abolition of a 50% dues surcharge on non-Dundee vessels.

Fortunately the whole burden of providing the British vessels did not fall locally. Dundee could supplement her small foreign-going fleet by siphoning resources from a national marine inherently mobile and ever watchful for profitable freights. Exogenous vessels drawn in after the war reached 40 by 1818, when flax arrived in north-east fish transports, Forth and Tyne colliers, London: general traders, and in oddities - from Boston, Lyme Regis, Weymouth and the like - whose unknown ventures encompassed the Tay.[4] Two ports made an outstanding contribution: Arbroath, whose vessels were deployed at Dundee to the detriment of her own direct exports;[5] and Aberdeen, far ahead in the previous century, when nascent American connexions conceived the vessels and schooled the expertise that later boosted Dundee's progress. Eleven Aberdeen vessels were almost a tenth of inward tonnage in 1818, and half the vessels from America, of which Dundee herself owned only three.

Although Dundee's own foreign-going entries rose from 19,573 tons in the year ending 31 May 1829 to 29,006 tons by 1831 (with subsequent peaks of 37,846 in 1839 and 40,964 in 1850), outside vessels more or less kept pace, exceeding local ones in 1836, 1841 and 1845-9.[6] (Figure 2) The reason is not hard to find. Despite unprecedented ship-building from the 'twenties, Dundee could not provide all the capital to service the more demanding foreign trade in the 'forties.

Fig 3. LOCALLY OWNED VESSELS ENTERING DUNDEE





Moreover, it is a mistake to expect that she should. In any bilateral trade both partners can provide vessels, though we are used to them being predominantly British simply because many of the founding trades of the Industrial Revolution were with undeveloped areas. It was not in the interest of British owners to cover every aspect of Baltic trade, and the 1844 Shipping Enquiry was told that British shipping there was declining

> because other trades are better worth following; the Baltic trade is one of labour not capital - here is no inducement for our ships to go.[7]

With their interest in flax Dundee shipowners had more inducement than most, but in practice operational efficiency demanded the use of the most appropriate and easily available vessel, whatever its port or country of origin. Indeed, the development of the shipowning industry, separate from merchanting, implied benefits from the deployment of shipping in diverse ports, both at home and abroad, as will be seen below. In the short term Dundee's additional resources were more obviously productive in the intimate domestic affair of the coastal trade, in which local activity rose dramatically between 1829 and 1838. Non-Dundee vessels played a smaller part here, and their more volatile movement suggests that Dundee vessels moved in a pattern determined by increments to the fleet and greater efficiency, while rapid or serious trade fluctuations were accommodated by outsiders. Taking foreign and coastal trade together (Figure 3), the import work done by Dundee vessels rose from 102,410 tons in 1829 to 175,144 in 1837. Unfortunately the town did not escape the shipping depression in the early 'forties, and though revival in 1844 took total Dundee shipping to a new peak in 1848 the growth rate of the early 'thirties was unattainable.

The growth of local tonnage active in a port is by no means the same as that of tonnage owned there, and we must now examine the local fleet which actually did the work. When registration began, in 1788, Dundee had 113 vessels and 8,205 tons, and no serious additions occurred before the turn of the century. By 1815, however, the fleet had grown by 50%, and then rose very slowly before accelerating again after 1825 (Figure 4). 'Although the shipowners still complain loudly of the unprofitableness of their trade,' it was reported in 1828, 'there appears to be no slackening here in the building department.'[8] Sturrock, in his survey of the years 1836-8 said nothing of troubles in the early 'thirties but emphasised that

> during the last three years, whilst other branches of trade have been far from yielding profits, the returns from shipping have been very fair. Hence the increase in the number of vessels, which are still said to be insufficient for the trade of the place....From the constant increase of shipping, we may therefore reasonably infer that this important branch of our trade has been lucrative, and has added, considerably, since [1792], to the wealth of the place.[9]

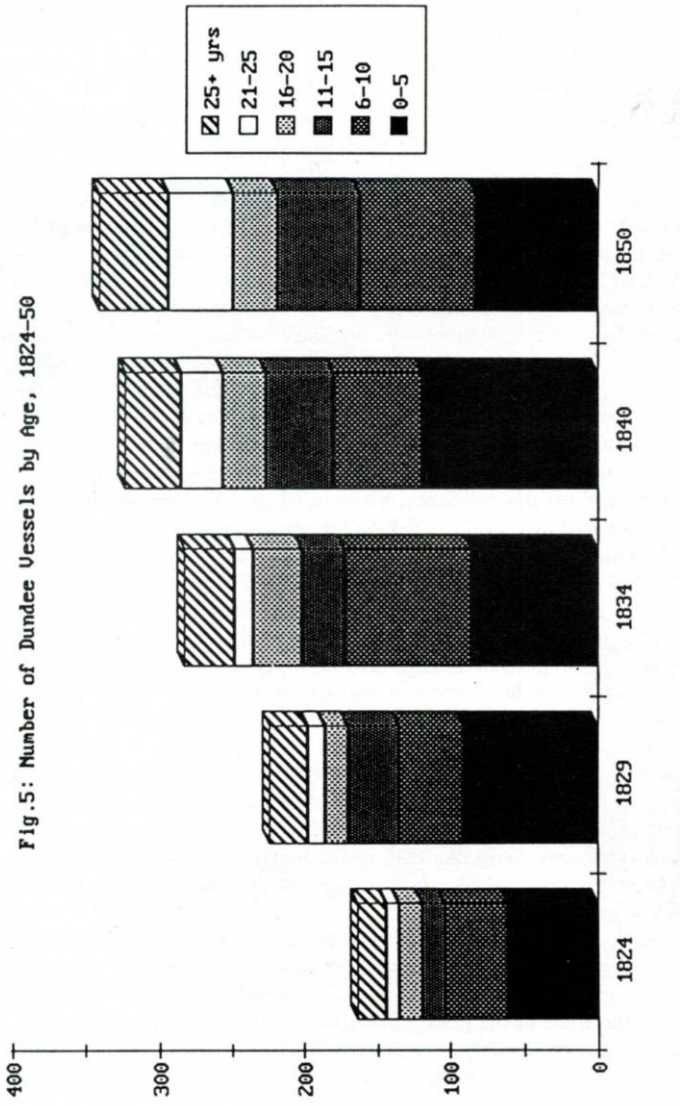


Fig.5: Number of Dundee Vessels by Age, 1824-50
25+ yrs
21-25
16-20
11-15
6-10
0-5
400
300
200
100
0
1824
1829
1834
1840
1850

Not until the depression of the 'forties' was there a noticeable dampening of an enthusiasm which, between 1805 and 1850, raised the fleet from 138 to 339 vessels and from 12,220 to 57,088 tons, an outstanding achievement of local enterprise which was obviously contributing to economic growth in its own right and ceasing to be a mere adjunct of linen-led growth.

Apart from a few antiques (the oldest vessel in 1824 dated from 1766), this rush of building produced a remarkably youthful fleet, with 41% of vessels and 47% of tonnage no more than five years old in 1829 (Figure 5). Additional vessels kept the average age low until the 'forties, and there were corresponding gains in efficiency and reductions in running costs, particularly repairs and insurance. 'Al coppered' was no idle boast. Unanticipated problems could spoil half the annual employment of a long-distance seasonal trader, and leaky vessels upset unsuspecting shippers. Low freights in old vessels could be deceptive, as John Moir found when 'very reasonable' charges from Glasgow to Charleston were offset by insurance premiums fifty per cent higher than Al rates and obtainable on only £3,000 of a £3,600 shipment: 'it would have been cheaper', he wrote, 'with a first class [Dundee] vessel at 20s. per cent premium and ls.3d. per piece freight'.[10] Such things encouraged Tayside owners in their quest for foreign-going tonnage.

There was nothing simple in building a fleet. Although in theory total tonnage serviced expanding trade, it was the number of appropriate vessels which determined progress: extra tonnage in three vessels could not serve five routes. Diverse trades required various sizes, hulls and rigs, and it was important to establish the right mix. A vessel's size and complexity was generally proportional to the length of its intended voyage, and some routes had specific problems or dangers: nothing deeper than 8ft 9in could pass the bar at St Petersburg; anything under 300 tons might be crushed by ice in the Arctic. The Atlantic was more dangerous than the Baltic: Fairy, the first Spring ship for Quebec in 1833, 'being doubled for the whale fishery,' it was said, 'is more to be depended upon for safety'.[11] To the Pacific Ocean and China Sea went the largest ships, often armed. So, when Thomas Neish laid on Jean Wilson for Rio in 1831 he prudently advertised: 'If sufficient goods do not offer for Rio, a freight will be taken for or from any other foreign port her size may suit'.[12]

The word 'ship' is commonly used to designate almost anything that floats. It is avoided here because Dundee had few ships, and those were employed chiefly in the Arctic and Pacific. Their complex sails required too great a crew, and their large holds took too long to load, for the competitive shuttle to Europe. The standard foreign-going vessels were brigs of 130-150 tons, cut-down ships of smaller size and simpler sail, amply capacious and easily worked. They made up 71% of foreign-going vessels in 1824, 77% in 1829; and 79% of their tonnage in both years (Table 5.1). For coastal or nearby-European runs

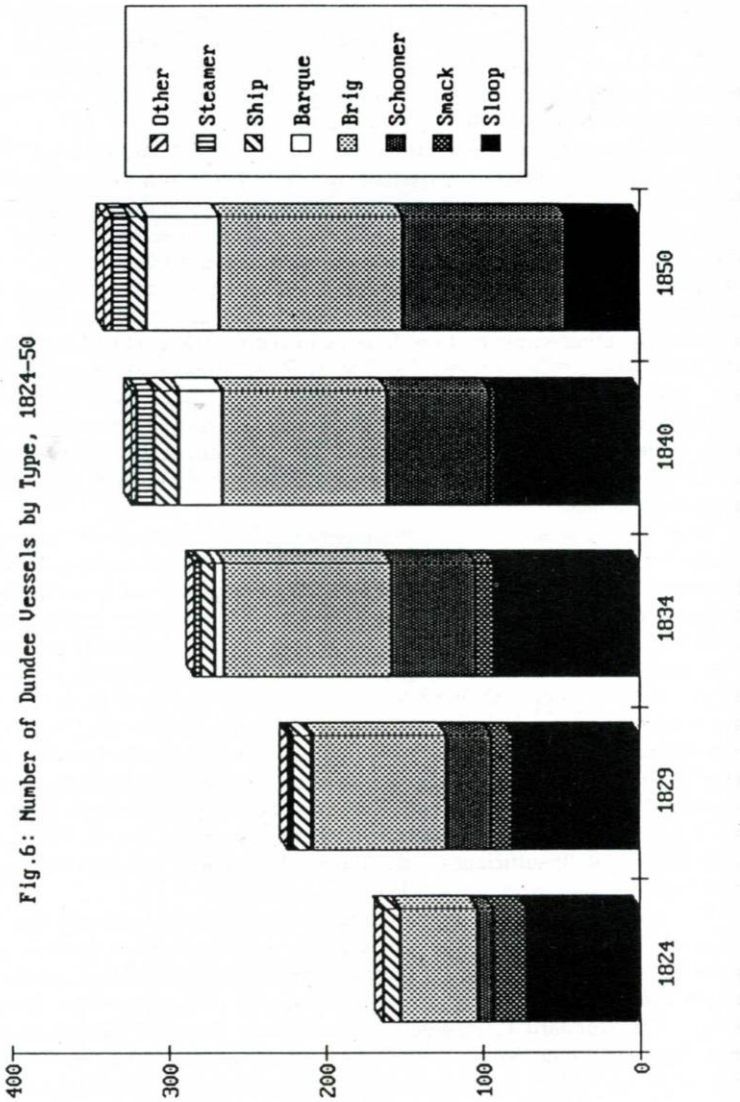


Fig.6: Number of Dundee Vessels by Type, 1824-50

they were slow and cumbersome compared with the smaller schooners (whose name means 'to skim along the water'), but on the high seas brigs did rather better. For example, of eight vessels racing for best prices and prestige in 1832, and taking between fifteen and twenty-three days from the Sound, the first six were brigs, led by James Justice Jnr's *Eliza*, with a reputation for speed, while the laggards were a schooner and a sloop (William Hynd's 77-ton *Euphemia*, a 'fast sailer', but obviously struggling in competition with the big boys).[13]

Table 5.1: TYPES OF LOCAL VESSELS WITH USUAL TRADE, 1824, 1829[14]

	1824						1829					
	Coastal		Foreign		Whaling		Coastal		Foreign		Whaling	
	No	tons	No	tons	No	tons	No	tons	No	tons	No	tons
Sloop	60	3159	12	885	-	-	81	4641	-	-	-	
Smack	22	2320	-	-	-	-	12	1628	2	234	-	
Schooner	3	190	7	622	-	-	7	567	21	2459	-	
Brig	1	138	48	6760	-	-	1	138	85	13429	-	
Barque	-	-	-	-	-	-	-	-	-	-	1	356
Ship	.		1	257	10	3347			3	747	8	2681
TOTAL	86	5807	68	8524	10	3347	101	6974	111	17069	9	303

Sloops were the commonest, smallest, vessels, averaging 74 tons in foreign trade and 52 on the coast, where most were employed in 1824 and almost all thereafter. With simple sail and tiny crew, their size, manoeuvrability and low operating costs guaranteed a universal role as carriers of smallish cargoes in major ports or shallow creeks. By contrast, the grand performers were the coastal smacks, something over 100 tons, resisting storms, sturdy and fast for their size. Though forming a negligible part of the fleet, they operated on the timetabled runs to London, Leith and those other ports with which a regular connexion was maintained. They were the most expensive of all vessels and carried the largest crews.[15]

The fleet's composition naturally changed as new trades and technologies developed (Figure 6). Smacks virtually disappeared in the 'thirties when DP&L introduced fast, reliable and work-hungry steamers. Sloops proliferated till the 'forties brought serious competition from both steamer and railway. Schooners replaced them as the dominant small vessel because their speed, flexibility and cheapness still gave them the edge in such things as the southern fruit trades.

As late as 1824 Dundee owned more 'coastal' than 'foreign' vessels, but by 1829 the latter had begun to draw ahead (Table 5.1).[16] Expanding foreign trade required proportionally more shipping than expanding coastal trade because the aggregate capacity of foreign-going vessels was inversely proportional to the

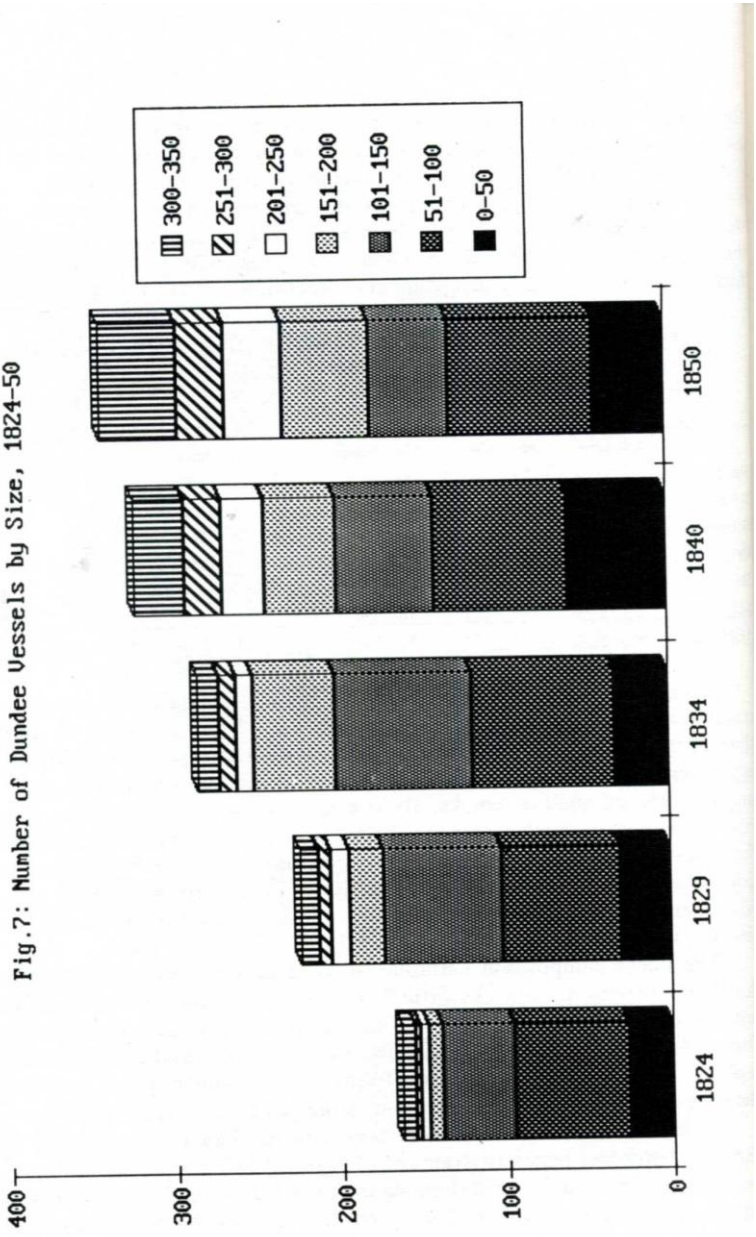


Fig.7: Number of Dundee Vessels by Size, 1824-50

length of voyage: the further they went the fewer times they loaded. The great boom, therefore, was in brigs for the linen and flax trades. They, and the coastal schooners, made up over half the fleet by 1840 and considerably more by mid-century. Ships were still of little account outside the Arctic, though a growing number were built in the 'thirties and 'forties for the long-haul Pacific trades demanding larger holds and generous passenger accommodation. In fact the majority of larger vessels were barques rather than ships, but there was little to choose between the two in practical terms.

The type of vessel was only a rough indication of size. No two vessels, even of the same sort, were ever alike: if builders used rule of thumb there were some very strange hands in the local shipyards. With price by the ton, owners estimated the smallest appropriate size: anything more was a hostage to fortune in an industry where under-used assets were probably more common than elsewhere. This does not, of course, mean that average tonnage was static. Certain trades encouraged owners to think big, and there was a 50% rise in average size between 1824 and 1850, particularly noticeable in the 'forties. However, within this average things did not go quite as might be expected (Figure 7).

Since great size was not an advantage on the coast, vessels under 100 tons increased right into the 'forties, and a down-turn then was accounted for by the loss of vessels under 50 tons. It was the 100-150-tonners which were squeezed in the late 'thirties, and, perhaps more remarkably, those in the 150-200 range also declined. It looks as if the emergent trading patterns after 1829 were best served by vessels under 100 or over 200 tons, though Figure 7 shows clearly the inexorable growth in the importance of that portion of the fleet over 150 tons.

Unfortunately there is almost no information on which one can estimate the gains to efficiency generated in the changing physical structure of shipping: in other words, the contribution to the economic development of Dundee arising from the transport sector rather than from the purely industrial sector. However, it seems reasonable to infer that changes in the size of vessels represent a search for cost-effectiveness in the face of falling freight rates. Operating costs were certainly proportionally lower for larger vessels. In 1824, for instance, a brig of around 100 tons could operate with a crew of seven, representing 15-16 tons per man; one of around 200 tons would carry 12-14 men, representing 17-20 tons per man. Whether or not this was significant, given the complexities of under-utilization of tonnage, is a matter for conjecture.

2. The Shipowners

With some qualifications and exceptions, it is fair to say that different types of vessels had different types of shipowners, with considerable variations in capital commitment and background. The most easily available source, the Directories, in fact list 'owner or agent',[17] who might be, or act for, the sole owner, but who was more commonly the

managing owner of a vessel of which he owned only part. In so far as managing-owners controlled a ship's business, they are the best indication of the men who deployed the fleet, organised its building and raised the necessary capital. In other words, these were the men normally called shipowners.

There were 95 individuals listed as shipowners or agents in 1821, ranging from John Bain with his 16-ton two-man sloop Elizabeth, to Patrick Crichton, agent for the 18 coasters (1557 tons) of the Dundee, Perth & London Shipping Company. Sixty-four shipowners were responsible for a single vessel, and 45 of these were master-owners. A handful plied brigs in the foreign trade, but most were masters of sloops, at the 'sharp end' of maritime activity, working out their salvation through regular work or scouring the coast for the meanest of pickings. They lived, sometimes hand-to-mouth, on seasonal products and building materials, and sometimes had fairly predictable patterns of trade with specific ports (as seen in Chapter 4), which made their operations easier and their expansion probable.

Single sloops owned by one man and mastered by another amounted to 19 in 1821. Often they were owned by relatives of the master, commonly the father or father-in-law, sometimes the brother, occasionally the son, on rare occasions the mother. The Toshes are a good example. In the post-war years Charles was master-owner of the 59-ton Myrtle, running to Newcastle until expanding exports through Liverpool encouraged a move to that route in the early 'twenties. His son Robert was trained as shipmaster, taking over Myrtle for a time in 1827 before the delivery of the new-built 67-ton Edward, jointly owned by father and son and skippered by Robert. By the death of his father, in 1837, Robert became the owner of two sloops (now Robert and Mary) and master of neither, thus attaining the more exalted rank of shipowner. Even among single-ship master-owners there were links which are not always apparent, when relatives held vessels in their own names but worked them in conjunction. Vessels with masters sharing a surname often arrived together, both coastwise and from the Baltic, suggesting collaborative working. The number of master-owners of sloops increased over time, as one might expect when sloops were growing in number. There were probably 42 of them in 1829, but the trend changed, and those remaining in 1840 had, in general, the smallest and oldest vessels in the port.

By contrast, master-owners in foreign trade had greater responsibilities, and, presumably, greater rewards. The tradition that men held shares in the brig or ship of which they were master led naturally to the successful ones increasing their holding. To any respectable person qualified to command her', it was said of the 237-ton brig Venerable in 1820, 'the owners would dispose of the one half by private bargain.'[18] It was a short step to a master exploiting his expertise by soliciting investment in 'his' vessel. Many left the sea in middle age as 'shipowners', managing vessels and with sons (or nephews) as

masters following in their footsteps. Among the leading owners in 1850 David Martin, David Stewart, George Leighton Hynd and John Fyffe had sailed the more exotic routes.

Table 5.2: SHIPOWNERS, GROUPED BY NUMBER OF VESSELS OWNED, 1824-50.[19]
(Owners, their Vessels and Tonnage per group)

	1824			1834			1840			1850		
No. of Vessels	No. of owners	Ves-sels	Total Tons	No. of owners	Ves-sels	Total Tons	No. of owners	Ves-sels	Total Tons	No. of owners	Ves-sels	Total Tons
1	69	69	5,700	94	94	8,151	133	133	16,629	121	121	15,033
2	20	40	4,774	33	66	10,166	35	70	11,416	35	70	10,674
3	4	12	2,385	11	33	5,512	11	33	5,453	15	45	9,415
4	2	8	1,231	8	32	4,699	4	16	2,349	10	40	7,627
5	1	5	459	4	20	2,239	3	15	2,798	3	15	2,964
>5	3	31	3,207	3	39	5,649	6	57	9,191	6	52	11,777
Tota	99	165	17,756	153	284	36,416	192	324	47,836	190	342	57,384

Success, as so often happens, bred success, and the trend in the second quarter of the century was definitely towards larger 'owners', by number of vessels, tonnage, or both. A third of them in 1824 managed more than one vessel, accounting for 58% of total vessels and 68% of their tonnage (Table 5.2), and ten years later 39% had more than one, owning 67% of vessels and 78% of tonnage. The trend changed dramatically in the late 'thirties, with single-vessel owners' tonnage doubling when that of the rest rose by 10 per cent, but this reflects the rapid growth of large ships employed as single adventures by men such as John Fyffe. Their success was soon followed by the purchase of sister ships, and the importance of single-vessel owners consequently dropped in the 'forties. While not decrying the achievements of men such as David Spence and Robert Tosh, who ran five or six coasters, those more obviously recognisable as shipowners were the men at the top of the scale, of whom thirty controlled over 500 tons and ten over 1,000 tons by 1850. Allan Edward, who had been steadily expanding his business since the 'twenties, led the way with 10 vessels and 3,522 tons, more even than DP&L, whose 14 coasters made only 2,264 tons. James Soot, from an old whaling family, had six vessels and 2,022 tons, and John Thain, one of the greatest merchants, was close behind with seven and 1,944.

In certain forms of enterprise the move to bigness had sound operational as well as financial advantages. This was, above all, the case with the coastal liner and the whaling companies. To run a regular time-tabled line to London, with two vessels in both directions and allowing for delays and repairs, required at

least half-a-dozen vessels. Since their passenger accommodation also put them among the most valuable vessels in the port, and their crews were the largest of any vessels, it was advisable, if not essential, that they should be shared between many subscribers. It was of course possible in law for a vessel to be owned by a multitude of shareholders, but their shares were individual pieces of property, and to build up a collection of vessels in such a way was inconvenient, to say the least. Fortunately Scottish law permitted the establishment of joint-stock companies which were able to own multiple vessels as common property, registered in the names of the company's trustees. The chief of such shipowners was Dundee, Perth & London Shipping Company, formed in 1826 with the merging of the long-standing Dundee & Perth Shipping Company, led by James Gray. James Soot and Robert Stirling, and its erstwhile rival Dundee & Perth Union Shipping Company, led by George Wyllie and William McGavin, merchants, and Blinshall Small, a grocer. On the eve of amalgamation the former company had eight smacks in London trade, five sloops in the Glasgow run, and four lighters; and the latter had four smacks for the London trade, four for Glasgow. and two lighters on the Tay. The new company owned 13 smacks and 10 sloops, together worth almost £34,000.(Table 5.3)

The amalgamated company therefore declared its capital to be £38,045, held in 1,200 shares of £31.14s.ld., 713 for members of D&PSCo and 487 for members of D&PUSCo, Assets of this magnitude reflect the local feeling among a wide range of interests that a regular London connexion was essential for the district's economic welfare. Their optimism seemed justified when, relieved of ruinous competition, return to capital was running at approximately £6,400 for the first three years and, allowing for depreciation and sinking fund provision, producing a dividend of £4 per share, approximately 13% per annum. For technical reasons the capital was 'increased' to £50,000 in 1830, but in practice the company was operating without reserves (its capital .being its vessels), borrowing heavily to provide liquidity, buy new vessels (such as Clark's Dundee-Leith fleet), and even to pay dividends.

High profits could not survive the return of competition and the move into steam. The latter was accomplished with an exceptional degree of care and competence on the part of the directors, especially George Duncan who did much of the negotiating with the builder, Robert Napier of Glasgow. But the £36,000 required in 1832 for two steamers *(Dundee* and *Perth)* was raised only by more heavy borrowing against future income, and by restructuring the company. Of existing shareholders, 103 bought a total of 369 £50 shares, and 107 newcomers bought a further 266.[20] The list reveals the extent to which the company could make use of external funding not easily available to normal ship managers:[21] 44 shareholders resided in Perth, 46 in other local towns

and nine in London, though the largest, with 30 shares, was, as might be expected, Robert Napier.

Table 5.3: DUNDEE, PERTH & LONDON SHIPPING COMPANY ASSETS, 1826.[22]

DUNDEE & PERTH S Co.	Tons	£
SMACKS		
London	158	3860
Dundee	152	2866
Perth	137	2347
Lord Kinnaird	122	1253
Bridport Packet	117	1169
Union	113	1447
Osnaburgh	104	1199
Defiance	93	821
SLOOPS		
Liverpool	99	1391
Jane	85	1200
Mary	75	685
Newe/Berwick Pkt	64	587
Fishers	43	416
Perth	43	313
Tay	45	327
Total Vessels	1450	19980
Stores at Dundee		291
Stores at Perth		45
Miscellaneous		13
D & P. TOTAL		20329

DUNDEE & PERTH UNION S Co.	Tons	£
SMACKS		
Forfarshire	145	3091
Glasgow	145	2472
Courier	142	2225
Elbe	139	2188
Olive	120	1767
SLOOPS		
Anna	88	837
Mersey	73	791
Friends	38	274
Total Vessels	890	13645
Stores at Dundee		204
Stores at Perth		17
Stores at Dundee		204
Stores at Perth		17
Miscellaneous		7
D & PU TOTAL		13873
D & P Ships etc	1349	20329
D & PU Ships etc	891	13873
Dundee Property		3500
Perth Property		345
TOTAL ASSETS	2240	38047

Those shareholders who had no local loyalty were probably disappointed when renewed competition forced share prices down to £47 in 1835, following three years of dividends averaging only £2 6s 8d per share. 4.7% on face value.[23] The ‘thirties and ‘forties were hard on shipowners learning their business. Local trade was so bad in 1844 that the manager informed the directors that nothing but the strictest economy and saving can enable us to meet the deficiency occasioned thereby...[24] Fortunately, as always DP&L survived, but only by the most stringent attention to management detail.

DP&L was, then, a major capitalist enterprise, efficiently managed, and directed by men with great and growing experience in both coastal and

foreign trade and shipowning. The majority of the company, said Lord Balquery in a counsel's opinion, 'are wealthy shipowners...'.[25] It was not true, of course. Not one of the *new* subscribers in 1832 was described as shipowner, though there were plenty of master mariners and merchants and a typical spread of tradesmen and professionals. On the other hand the directorate certainly contained some very influential names in shipping (John and James Thain, James Hay, Andrew Low, William McGavin and John Baxter, first chairman),[26] and the trustees for holding property included James Soot and John Symers. Moreover, the day-to-day running of the company was in the hands of a new class of professional shipping managers, of whom there were perhaps half a dozen in the town by the 'forties. Their initiative and astuteness in overcoming novel complexities made DP&L one of the first modern shipping companies in Britain.

DP&L was a joint stock company because that was the best way of bringing together substantial funds necessary for regular and inter-locking trades demanding a large number of sailing craft and some very expensive steamers. The Dundee & Hull Shipping Company employed much less capital, but was organized along similar lines, with many subscribers and headed by an influential directorate, four of them - George and Peter Duncan, Andrew Low and David Martin - in common with DP&L in 1834, By contrast, most of the other coastal lines were privately owned, though the largest, George Clark's Dundee & Leith Shipping Company, was taken over by DP&L in 1828, when Clark's expertise was added to their councils.

The other area of company activity was the whaling trade, where again there were distinct advantages to be had by departing from the traditional system of ownership. Dividing a vessel by the company-share rather than the ship-share spread prime and re-fitting costs wider than was possible in England, and at the same time enabled multiple-whaler companies to balance profit and loss between vessels and so maintain a more stable business in a fickle trade. In the 'twenties the original Dundee Whale Fishing Company had two whalers, Dundee New Whale Fishing Company (managed by the ubiquitous James Soot) had one, Tay Whale Fishing Company had three, Union Whale Fishing Company (managed by the formidable J G Russel) had two, and two further companies had one each. The comparative success of Dundee whaling says a great deal for the company system, and it may be of significance that the same names crop up across the management of various companies. John Sime and John Thain were trustees of whalers and DP&L; George Miln, a major shareholder of DP&L, was also a director of the Dundee & Hull Shipping Company, and trustee of Dundee Whale Fishing Company; Andrew Garland, trustee of Dundee Union Whale Fishing Company, was the member of DP&L whose very substantial loans ensured that company's liquidity whenever expenditure ran ahead of income in the 'twenties. It is

possible that this represents a movement towards capitalist shipowning of a more modern sort, with both managers and shareholders establishing their position in the 'twenties. Although we known almost nothing about the private affairs of individual shipowners, references to the estates of two men illustrate the way things were possibly moving. When Samuel Matters, flesher, died in 1828 he left eight sixty-fourth shares in four brigs and four shares in two.[27] Shortly afterwards James Gray, 'shipowner', left eight sixty-fourths of only two brigs, but assorted shares in six shipping companies, and Dundee Sea Insurance and Fire Insurance companies, as well as Dundee Gas Company.[28]

Despite its success, company structure was not appropriate for all vessels and trades, given contemporary operational methods and organization. Elsewhere, particularly in foreign trade, the managing-ownership system continued, and merchants predominated among managing-owners throughout the period 1824-1850. Managing a vessel was not a serious burden for a large merchant house, and certainly in the early days of new trades it may have been an advantage to have overlapping interests. However, some merchants changed then-designation with - presumably - a shift in their principal source of income, and this may well have come with their retirement from active trading. In other cases, sons of merchant shipowners who had been put to sea came ashore as shipowners rather than merchants, and the designation of the firm, rather than of the individual, changed. Andrew Low and George Kidd, among the larger owners in 1850, had long been known as shipowners and many lesser men were beginning to think of shipowning as an independent economic function. However, it must be confessed that many vessels, and not just small ones, were bought by men with no apparent experience of the sea. There were blacksmiths, druggists, cabinetmakers, grocers and vintners among the sloop owners. In a higher class, Thomas Pitcairn was a surgeon;[29] James McEwen Scott, sole owner for a time of the 109-tons Fox, was a teacher;[30] and Alexander Low, sole owner of the 142-ton Comely, was a messenger-at-arms. In 1850 John Borrie, eighth largest owner in the port, was still principally a tobacconist.

What has not yet been established is the extent to which these non-maritime owners left the deployment of their vessels to specialists. They were doubtless avid readers of advertisements for seasonal shipping, competing for specific contracts' - for instance, the carriage of Newcastle coal to the Dublin gas works[31] - and for time charters: 'Wanted...two vessels of 4-6 keels burden to carry coals from Newcastle to Arbroath for the space of one or two years'.[32] In reverse, time charters were, then as now, a method by which a shipowner could extend the range or depth of his operations. Alexander Rentoul was not alone in seeking 'for the coastal trade, two first class vessels of 60-100 tons register – to hire by the month'.[33]

Whatever their origin, these men were figureheads. Sometimes they

owned the whole of a vessel, more often they did not. The important issue was not how many shares they owned, but how many ships they operated. As the prospective purchaser of 37 shares in Broughty Ferry was assured in 1835, they 'will give the purchaser the complete control of the vessel';[34] but control ab initio or by agreement could be had for a much smaller holding. It is still necessary to examine the origin of the capital invested in shipping by the various owners of the sixty-four shares into which vessels were divided.

3. Sources of Capital

Unfortunately very little can be said about the real value of capital in shipping. In the early 'twenties a new sloop cost around £5.15s.0d. to £6 per register ton, 'with all masts, fittings, etc', approximately £337 for an average sloop and £24,250 replacement cost for the 72 sloops registered in 1824. A new schooner would cost between £ 6.6s. and £7 per ton.[35] By comparison a new smack for the Hull run cost £ 10 per ton in 1824, and a new brig cost upwards of £ 17 per ton, ready to sail.[36] The most valuable of all vessels, relatively speaking, were DP&L's passenger smacks. With competition hotting up in the 'twenties, and expressed in terms of speed and luxury, these were coming into service at over £24 per ton. Forfarshire cost £3,091 in 1823, London £3,860 in 1824, sufficient reason for the company to look favourably on steam once it appeared safe and reliable.

But this was prime cost: value fell with age and wear, though depreciation should not be exaggerated, especially for ships in the Al insurance category. When Thomas Small bought the new 44-ton sloop Janet for £253 in 1821, he traded in his 26-year old 40-ton Martha for £ 120, .which represents depreciation of around £4 per annum, or 1.7% of prime cost.[37] The valuation of twenty-two DP&L vessels in 1826 suggests that size - and possibly condition or the specific trade - was more important than age: sloops between 38 and 44 tons were valued at approximately £7 per ton between five and 19 years of age, while sloops over 60 tons were roughly £9-10 except for the only one under five years, which was set at £ 14 per ton.[38] In fact in its May 1827 accounts DP&L actually appreciated its vessels, on the grounds, as it later argued, that while 'their shipping and stores are every year becoming naturally and intrinsically less valuable.-.a sudden rise or depreciation may take place in the value of shipping in the course of the year....'[39] Supply and demand, war and navigation laws could certainly raise the value of shipping, but DP&L could not sell vessels for upset prices considerably below book value in 1827,[40] and fortunately both depreciation and a sinking fund were quickly introduced, though for some years there was no proper differentiation between them.

Fragmentary evidence regarding foreign-going vessels indicates a substantially higher prime cost, both overall and per ton, but evidence of

depreciation is again fragmentary. The eight year old brig Spring was valued at £7 per ton in 1S24, but upset price was £5.14s.[41] Twelve year old Salamanca had an upset of £ 4.11s. a ton,[42] but£3.2s.6d. per ton was still thought to be low enough 'to insure competition' for the thirty-five year old Hector in 1836.[43] We know almost noth-ng about investment strategies in shipowning, but there are hints in the case of the 230-ton brig Scotsman, which was valued at £4,000 at the end of her first year (1826), having made £747 profit on her 'last voyage' alone.[44] Six years later 16 shares were advertised, 'to ensure a sale', at £425, representing a fall from £ 17.7s.10d. to £7.7s.10d. per ton for a vessel which had paid a dividend of £320 in 1330 and £464 in 1831, an average of £1.14s. per ton.[45] It would be interesting to know if a potential 23% return on capital was - or was thought to be - the level below which investors would not purchase the shares. With depression in the air, the upset price might have been set rather low, but at least it indicates that the mercantile community was sufficiently sophisticated to assess values in terms of returns on capital, and that on the down-turn of the market a small man slight just be able to buy himself into a vessel that had passed its prime.

Bearing in mind these various qualifications, it is impossible at the moment even to guess at the real current value of capital invested in shipping, but we could make a very rough estimate of the replacement cost of the fleet if prices remained as indicated by the few examples available. (This unfortunately eliminates any serious consideration of the impact of supply and demand - most obviously during the two major depressions - or of long term trends in prices.) However, if, for the sake of argument, we count sloops at £6 per ton, smacks at £20, schooners at £7 and brigs, barques and ships at £17, we arrive at a very approximate replacement value (ignoring depreciation) of £250,000 in 1824 and £650,000 in 1840 (Table 5.4). Sturrock estimated the value of the fleet at £510,000 on 31 December 1838, but his universal multiplier of £10 per ton does not do justice to the preponderance of the more expensive brigs.

Table 5.4: ESTIMATED REPLACEMENT COST OF DUNDEE SHIPPING, 1824-40.[46]

		1824		1830		1840
Type	tons	value	tons	value	tons	value
Sloops	4,044	24,250	5,343	32,000	4,458	26,750
Smacks	2,320	46,400	1,588	31,750	334	6,750
Schooners	812	5,750	5,950	41,750	6,428	45,000
Brigs/Ships	10.502	178.500	22,083	375.500	34,661	589,250
Total		£254,900		£481,000		£667,750

Since ships and brigs made up 88% of total investment, the principal task of the managing owners during the years of expansion was clearly the assembling of capital for the foreign-going fleet. Unfortunately a complete analysis of the origin of this capital was impossible for this work (though it will eventually be available), but the years 1824 and 1825, when 173 vessels and almost 17,000 tons were registered, provide a reasonable sample data set of shareholders of all vessels, coastal and foreign.[47]

A superficial scanning of the Register suggests a continuation of the traditional contribution from a wide cross-section of society, with approximately forty occupations ranging through the alphabet from baker to Writer to the Signet, as well as minors, spinsters, spouses, widows, and various trusts. However, while there was certainly a useful movement of surplus funds from the town's shopkeepers, craftsmen and professions, their actual contributions were small, and compared badly with subscriptions from farmers and 'residenters' in the surrounding countryside (Table 5.5). But the biggest surprise was not the relatively small contribution of the general public so much as the minimal investment by manufacturers. Admittedly it was not in their interest to divert capital away from manufacturing, but a significant investment had been expected, if only to secure raw materials and markets. In fact they owned around 500 tons, some 3% of the total investment in the years 1824-25, and the 21 individuals concerned did not spread their interests very widely. Seven of them invested in two ships managed by William Hynd, who had business connexions with a range of manufacturers, and another six held shares in Fame, three of them having the same name as the master, implying a furthering of his marine ambitions rather than their own.[48] It cannot be argued that manufacturers were diverting capital from production to distribution.

Over-all, the non-mercantile sector accounted for only a fifth of the tonnage registered in 1824-25: in other words, the fleet was already largely owned by men directly or indirectly interested in its deployment. Shipowners provided the seed corn for their own adventures, and over a third of the tonnage was actually owned by them. There is, however, some skewing of the sample data caused by the re-registration of much of the company-owned coastal shipping, with DP&L's forebears registering 25 vessels with an aggregate tonnage of 2,430. George Clark's Dundee & Leith vessels were also registered, and though only one of the whaling companies appears (Tay Whale Fishing Company), its three vessels (at 1,002 tons) were a sixth of the tonnage attributable to 'shipowners'.

Because of these coastal companies with relatively small vessels, shipowners in the sample years held an average of only 1.68 tons per share, whereas merchants attained well over 2 tons per share,[49] and had almost a quarter of the registered tonnage. Like their ships, these men were chiefly

concerned with flax and timber, and the same names appear in Port Books and Shipping Registers with greater regularity over time than in our sample. However, surprisingly few merchant-shipowners were engaged in the export of linen, which called for the careful deployment of shipping in transatlantic trade. In 1829 only James Watt was a leading exporter, with over two million yards; William Hynd came second with 641,000 yards, and the only other firms of note were Bell & Balfour (464,000 yards) and Kinmond & Hill (290,000 yards), both more prominent as leaders in the transatlantic timber trade.

Table 5.5: OCCUPATIONS OF OWNERS OF SHARES IN DUNDEE SHIPPING REGISTERED IN 1824-25.(Showing the Number in each occupation, their aggregate shares and tons, and % of total registered)('000 tons)

Occup'n	No.	Shares	Tons	% of Total tons	Occup'n	No.	Shares	Tons	% of TotalTons
NON-MERCANTILE									
Baker	1	8	13	0.08	Stationer	2	16	36	0.22
Banker	2	40	69	0.41	Surgeon	3	61	76	0.45
Blacksmith	1	4	11	0.06	Tailor	3	140	163	0.97
Bookseller	2	22	48	0.28	Tanner	1	16	64	0.38
Brewer	2	12	14	0.08	Teacher	4	74	102	0.61
Cabinetmaker	2	22	13	0.08	Tobacconist	2	36	82	0.49
Carter	1	64	63	0.37	Vintner	1	48	48	0.28
Clergyman	1	5	7	0.04	Weaver	1	32	31	0.18
Coachman	1	4	6	0.04	Writer	5	26	71	0.42
Coalbroker	4	161	220	1.31	Trusts, etc	10	192	278	1.65
Cooper	2	64	47	0.28	Unknown	15	609	523	3.10
Dentist	1	5	7	0.04	Subtotal	123	2643	3315	19.66
Farmer	10	229	254	1.50					
Fishcurer	2	16	24	0.14	MERCANTILE				
Flesher	1	14	34	0.20	Comm'n Agent	1	128	83	0.49
Glover	2	12	37	0.22	Mariner	47	1850	1793	10.64
Grocer	1	8	19	0.11	Mariner +S/O	4	66	123	0.73
Haberdasher	1	4	16	0.10	Merchant	81	2013	4103	24.34
Innkeeper	1	64	67	0.40	Roper	3	52	76	0.45
Labourer	1	4	8	0.04	Shipbuilder	4	130	221	1.31
Manufacturer	22	342	506	3.00	Shipmaster	25	740	1144	6.79
Mason	3	54	64	0.38	Shipowner	25	3340	6000	35.59
Nailer	1	32	7	0.04	Subtotal	190	8319	13543	79.87
Postmaster	1	16	34	0.20					
Residenter	10	187	255	1.51	TOTAL	313	10962	16858	100.00

Finally, there were the shipmasters, mariners and those few calling themselves - either from proletarian modesty or proto-capitalist optimism - 'mariners & shipowners'. They were the second largest group of share owners, and their average holding of 35 shares indicates a high level of single-ownership or half-ownership of vessels, not necessarily small and worthless ones.

Investment by mariners and by others of supposedly lowly origin was supported by the wider community through the mortgage system. When the Valentine of Dundee was seized for smuggling in 1820 her registered owner, William Dalgliesh, assured the Customs of his innocence

> All the interest I ever had in that vessel is as follows: at the time she was originally purchased, I, in order to accommodate Easson [the master], joined him in a Bill for the price, and in relief of my engagement he conveyed the Vessel to me in security. The bill however was regularly retired by Easson and of course my interest in his ship ceased....[50]

The Shipping Registers refer with increasing regularity to sales 'only as a security for Payment of a Debt'. This was how Boyd, Baxter & Co bought their 380-ton Hudson for the American trade, in 1826, raising the money in Liverpool; and John Caiman, shipbuilder, 'sold' the brand-new 387-ton Heroine to Dundee Banking Co. for over a year before he could dispose of her to Dundee New Whale-Fishing Co.[51] But more often it was small owners who started this way, buying their sloop with its earnings, indebted to long-suffering shipbuilders accepting payments over six months or more, or to Alexander Buik, the roper.[52] The entrepreneurial skills of local Writers such as William Allen Flowerdew and Walter Shaw introduced their clients' funds into this sphere, and Dundee Commercial Bank and Dundee Banking Company accepted ship shares: as security. Temporary support was available from a wide range of merchants, grocers, shoemakers, confectioners, customs officers and other private individuals. More surprisingly, mortgages were offered by larger merchants or shipowners such as George and William Nicoll, Alexander Webster, Kinmond & Hill, Keay & Rat-tray, John and James Thain, and James Justice, Junior, who facilitated the progress or survival of smaller men. These do not appear to have been advances to secure shares or controlling interests cheaply, since shares falling by default were usually disposed of quickly. By the late 'twenties there was a well developed system of mortgage finance for small vessels and small owners, to cover both initial outlay and subsequent repairs and trading losses.

4. William Hynd and the art of shipowning

William Hynd, on the borderline between merchanting and specific capitalist enterprise in transport mechanisms, may serve as a typical example of a new

breed of shipowner, rising to prominence by assembling rather than owning capital, and thus able to apply enterprise and experience to extensive assets at that point where initiative forged ahead of funds. He is first noticed in March 1805,[53] taking in linen for Meigle Bleach Fields at Leighton & Guthrie's, Cowgate, where he trained as a merchant and apparently married the boss's daughter his sons all bore the middle name Leighton. His early career is unknown, but he was an independent merchant in Wellgate by the time his first vessel, the new-built 75-ton sloop *Bruce,* entered from Riga in June 1816.[54] It was followed shortly by the 141-ton brig *Hind,* one of the earliest New York traders, sailing 5or the first time in June 1818. Success, both in shipping and the export of linens, led in 1824 to a more substantial 258-ton brig, *Eliza,*[55] and in 1832 to a sister ship, the 252-ton brig *Victoria,* built for the Quebec/Montreal trade, with steerage accommodation for emigrants: she carried 130 on her maiden voyage, besides the usual linens. Another sloop - the 77-ton *Euphemia* - followed in 1829, and by 1837 he also had the 166-ton brig *Thetis,* and the 197-ton *Premier* was added before 1840, when there were five vessels and 925 tons, making William the seventh largest shipowner in the *Directory.* As one might expect, his four sons were brought up to take complementary roles in the business. James Leighton Hynd became a bakers (in this context provisioning ships rather than households), and it may be no coincidence that there was a David Leighton, baker, residing in Wellgate beside the Hynds.[56] John and Alexander were, like their father, apprenticed to merchants and became clerks respectively to Peter Kinmond, flax merchant and mill-spinner, and John Sanderson, merchant, another Wellgate neighbour. George was the only one sent to sea, and he became master of *Eliza* in 1824, the year he was admitted burgess.[57] With a wealth of experience on the Atlantic and Baltic, he had retired from the sea by 1836, calling himself shipowner, and probably running the business. The vessels were listed in his name in the 1846 *Directory,* though William still appeared as a shipowner; four years later William was dead, and George had taken his place.

As with entrepreneurs in all fields, William Hynd could build a fleet without actually owning it if his name was associated with profitable returns on investment. At first registration of his first four vessels Hynd owned 70 shares, representing only 268 tons out of a total of 728.[58] While it would be too much to suggest that his career reveals a nascent shipowning company, it appears that like-minded men were coalescing into loose associations that might form the backbone for a number of different vessels. The original share-ownership of *Bruce* is unknown (though one assumes William Bruce, the merchant, was involved[59]), but in December 1817 Hynd followed a common pattern by offering for sale three-quarters of the shares, for which he may or may not already have paid. In *Hind* he sold all but 12 to a leading merchant (Patrick Whitson), six manufacturers (including Peter Kinmond, closely associated with the merchant house of Kinmond & Hill), a mariner, a tailor and Samuel Matters, a flesher interested

in shipowning.[60] Two share holders (Kinmond and James Small, a manufacturer) also shared in *Eliza,* of which Hynd retained 34 shares and his son George had four. The rest were owned by Alexander Bulk, the roper, W.A. Flowerdew, the prominent Writer to the Signet in the marine sphere, David Lighten, a merchant (not to be confused with David Leighton, the baker), two manufacturers (James Gilroy and James Small) and a haberdasher (Alexander Bruce). The subsequent purchase of Gilroy's and Lighton's shares by John Sanderson and William Bruce strengthened the 'family' nature of the ownership groups. For the sloop *Euphemia* Hynd introduced another son, James (the baker), and William Nicoll, the prominent sloop owner, but the most interesting subscriber was James Gregory, master and part owner of *Bruce* since 1818, and now master of *Euphemia,* who actually owned no fewer than 40 shares, but who did not become managing owner of the sloop until the 'forties. For *Victoria,* Hynd brought in both Peter Kinmond and Kinmond & Hill, together with William Bruce from *Bruce* and *Eliza,* another writer and - as usual - the master. With *Victoria* Hynd reached the ultimate in ship operating in 1840 when he transferred his 16 shares to his son Alexander Leighton Hynd, and continued to receive income as agent for a ship in which he had no shares of his own. Whether similar inter-related groups of share holders will be found around other leading owners is a matter for conjecture, but there is no reason to suppose that Hynd's business methods were exceptional.

In a volatile situation a man might make a fortune buying and selling ships, but during the long expansion of Dundee's trade Hynd turned himself into a shipowner by maximising earnings through more efficient deployment of tonnage, chiefly by inter-weaving trades with diverse seasons, routes and distances. The Baltic trade, for which *Bruce* was acquired, was highly seasonal. Sub-Arctic winds which freeze the northern lakes make highways for sledges where ships need to go: navigation is more or less impossible from late November or early December to late March or early April, depending on the severity of the winter. Climate paid no regard to the needs of commerce or the burden of damage and delay. For instance, the worst winter since 1814 kept the ice closed till the end of May in 1839,[61] and the same thing happened in the following year, when raw material prices were so far ahead of cloth prices that 'the want of an adequate return for the labour and capital expended on the staple articles of our trade is much complained of by the manufacturers'.[62]
In 1835 winter came early, and a Dundee ship clearing for St Petersburg at the beginning of November returned a fortnight later having found the Gulf of Finland frozen over and many ships, not a few belonging to Dundee, caught at St Petersburg and Riga.[63] On the other hand it was common for Dundee ships, like those of Hull and London, to over-winter in the Baltic in order to be first home with the eagerly-awaited new season flax. Carmichael,

running Baxters' mills in 1852, rejoiced at 'the arrival of the Baltic fleet with flax, causing no small stir and anxiety to learn whether or not we were to have a good spin for the ensuing season'.[64]

Baltic trade was therefore concentrated in the third and fourth quarters of the year, when three voyages were possible. The problem however was what to do with the ships for the rest of the year in a port where Baltic trade was so dominant. In Atlantic trade vessels such as *Hind*, might achieve two round trips (depending on the weather), arriving at the middle and end of the year. The operational problem was to fill idle tune by meshing the two long hauls, or by sapping in trips to near-by Europe or along the coast. In practice, coastal trips were ideal for a month's employment, and a firm favourite was always the coal trade, reaching a peak in the Autumn and early part of the year, when Baltic traders were looking for work. But a more satisfactory solution might be to avoid the home port periodically, reducing or eliminating ballast working and laying-up by triangular trading. In this complex jig-saw of complementary freight opportunities, a specialist shipowner was likely to gain over a merchant owning tonnage for his own - often highly specialised - trade, and concentrating on round trips to and from his own port. It is, perhaps, worth emphasising that not all shipowners acted with Hynd's sense of urgency. In 1822, for instance, Neish & Smart took so long to unload a cargo of oats that Customs Officers became curious before informing headquarters that 'we rather think they were not in any particular hurry with the discharge, the season being then over for sending the vessel out again to the Baltic'.[65] Greater attention to the deployment of their vessels expedition may, perhaps, have saved Neish & Smart from eventual bankruptcy.

Bruce was on the small side for the Baltic, but ideal for coastal operations, since she could go anywhere, and was easily filled. So, in 1817, she carried coal from Newcastle to Helvoetsluis, flax from Riga to London, and two cargoes of flax from St Petersburg to Dundee (see Appendix 5.1 for *Brace's* full deployment pattern, 1816-27). In 1818 there were two importations of Newcastle coal, a ballast voyage to Libau to fetch goods to Newcastle, a coal cargo back to the Baltic, and then two cargoes - St Petersburg flax and Riga grain - for Dundee herself. Some of the grain went on to the Forth, and was there exchanged for coal, the last cargo of the year. This pattern of deployment continued until 1822, when, perhaps because of *Bruce's* size, Newcastle coal replaced all but one of die Baltic runs. However, the degree of ballast working was more acceptable to specialist coal-sloop owners than to Hynd, and *Bruce* explored the Glasgow run late in 1824. West-bound linens balanced agreeably with Clyde manufactures and colonial goods, and by August 1825, when *Bruce* was re-registered by James Gregory, Glasgow runs predominated, proving so profitable that Gregory and Hynd joined to purchase a new sloop, *Euphemia*, in 1829, when Hynd and William Nicoll launched a joint bid to capture the

Forth & Clyde trade from DP&L with a reduction in rates.[66]

Although Hynd's interest in internal trade with Glasgow and Liverpool came almost by default, his involvement in transatlantic trade dated back to the beginning of direct exports to America. But obstacles to efficient management were greater on this undeveloped and more distant route. It could take three months to assemble linens for the Spring sailings, and as long to reach New York. *Hind's*, first round trip in 1819, out to New York in March and back from St John's with wood, took over five months; and though she was advertised immediately for New York, 'if sufficient freight offers', she went in ballast for Riga flax, taking two days less than two months. In both 1820 and 1821 she managed only one round trip, and the voyage to New York commencing in September 1821 took 135 days. It was presumably uneconomic, for a new pattern was established in 1822/23: one transatlantic voyage followed by either a Baltic voyage or one or two trips to the Tyne.

Hind, which was too small for Hynd's liking, was replaced in 1824 by the more substantial *Eliza*, purpose-built for the Atlantic with larger cargo space and four 'state cabins' for passengers.[67] It was the sophisticated deployment of this vessel that really established Hynd as a specialist shipowner. From July 1824 to December 1832 she made a succession of inter-locking voyages between America and Europe, starting *or* finishing in Dundee on only 26 out of 86 occasions, and starting *and* finishing in Dundee only twice, both being voyages to St Petersburg,[68] her first and almost her last adventures. On ten occasions she sailed from Dundee to New York, but never returned directly and only once entered from America (Virginia), finding freight more easily for Rotterdam, Antwerp, Ostend, Hamburg, Liverpool and London, as shown in Table 5.6.

Table 5.6: SEQUENTIAL PORTS OF CALL OF THE BRIG ELIZA. JUL 1824 to DEC 1832

Dundee	Dundee	Savannah	New York	London	Dundee
St P'burg	New York	Newburgh	Rotterdam	St P'burg	New York
Dundee	Liverpool	Dundee	Newcastle	London	Ostend
New York	Dundee	New York	Dundee	Dundee	Dundee
Baltimore	New York	Hamburg	New York	New York	
London	Hamburg	New York	Antwerp	Virginia	
St P'burg	Dundee	London	Dundee	Dundee	
Grangemouth	New York	Dundee	New York	St P'bure	

4. Acts of God and Inefficiencies of Man: some obstacles to profitable deployment of shipping

It is beyond the scope of this work to track deployment by other owners, but sampling reveals most large and expensive vessels justifying their purchase through similar diversification. John Thain, for instance, regularly ran vessels out of Liverpool in the 1830s,[69] and advertisements for ships laid on in Dundee for the Americas almost invariably show them arriving from the Baltic or Europe, often by way of Newcastle.

The inter-play of coastal and foreign voyages, and the time-scale involved in both, are well illustrated in the log-book of the Gellatley family's 170-ton brig Gratitude for April - December, 1830.[70] It begins, on 20 March, with her in King's Dock, Liverpool, loading salt and mending sails and ropes, before leaving in thick fog, on 27 March. On 13 April, after a rough run involving hard pumping, she arrived at South Shields and delivered her cargo, on 15-22 April, before moving to North Shields to take on coal. However, the vessel 'was found to be damaged' and was in dry dock, 26 April - 5 May. After rapidly loading coal she sailed for Stockholm on 12 May, arriving on 28 May and finishing unloading on 11 June. Ballasting began on the next day and she sailed for St Petersburg on 18 June, arriving in Kronstadt on 22 June and clearing ballast in time to allow the loading of bar iron on 29-30 June. Then followed a day loading dunnage boards and dunnage mats on top of the iron, and then hemp and feathers were slowly assembled, 5 - 22 July. Even then various problems delayed sailing until 26 July, but she made good time to enter the Pool of London on 1 September. By the ninth she was loading a mixed cargo for St Petersburg, leaving on 25 September and arriving on 19 October. This time, because it was not in bulk, the cargo was replaced by dunnage and hemp as it was unloaded, but even so it took until 9 November, and then her departure for Dundee was delayed until 26 November by bad weather and other misfortunes. The log ends on 6 December 1830, when she anchored off Elsinore, to begin her quarantine.

The wealth of detail in the Gratitude log is sadly a rare survival. It is one of the ironies of this search for freight that its success is revealed all too often in accounts of shipwreck in far-away places. When James Whitton's 310-ton ship Robert was launched - 'amidst the cheers of thousands' - in 1829, the Advertiser commented that 'a few more of such vessels will render it unnecessary for our townsmen to employ those belonging to other ports for the increasing trade of the port with America',[71] but she did not return from her maiden voyage to New York. In 1832 she arrived in London from Mauritius; in 1833 she grounded, though with little damage, in the Hooghly, in India.[72] Such long-distance voyaging between America and the Indian Ocean was not uncommon: Orion was wrecked carrying coffee from Haiti to

the Cape of Good Hope; Jane disappeared sailing from St Domingo to Cowes 'for orders'.[73] Nearer to home, Melona, Ant and Everton were lost carrying Newcastle coal to Copenhagen,[74] Gibraltar,[75] and Constantinople,[76] and *Anna,* unbelievably, carrying coal from Dublin to Toulon;[77] *Hannibal,* with Odessa linseed for Chester, was 'overtaken by a whirlwind in the Dardanelles';[78] *Dorothy,* one of the port's whalers, was waterlogged carrying wood from New Brunswick to Hull[79] and *Jean Laing* carrying wood from Narva to London;[80] *Maria* was lost between Tenerife and Amsterdam,[81] *Thomas* between Malaga and Antwerp.[82] While Dundee's economy could not support transatlantic or Baltic shipping lines because there was too much ballast working involved, the deployment of vessels in more than one trading region reduced the overall cost of exporting linens and importing flax, and encouraged the emergence of the specialist as opposed to the merchant- or master-owner.

It is argued here that shipping gradually emerged as a specialised sector of the local economy when those chiefly controlling it increased the returns to capital through their skilled response to international market forces, raising efficiency by sending ships to the most appropriate places, and loading the most profitable cargoes. Some men, backed by good market intelligence and expert shipmasters, developed a positive genius for assessing opportunities, buying ships and stores, and balancing attractive freight rates with a generous profit. But there were many whirlpools to sink the unwary, and luck was a vital ingredient of success, as Neish & Smart found when theirs ran out in the financial crisis in February 1826 and losses in the Baltic and Caribbean left them with debts of £5,873 net, over half of them to shareholders in two of their brigs *(Scotsman* and *Scotia),* to the master of a third *(Astrea),* to St Patrick Assurance Company of Leith, for whom they acted as brokers, and to various tradesmen for work on the vessels.[83] The flow of international trade was erratic, and political interference could be damaging, as Neish had implied in 1823 when urging the Chamber of Commerce to petition against the admission of cheap East Indian sugar 'as a shipowner and deeply interested in the prosperity of the West India colonies'.[84]

The well-known risks of the sea could also ruin a man who was not fully insured, and only the richest or most foolhardy carried their own marine insurance. But the greatest problem for a man lacking liquidity was not so much a lost vessel as damage and subsequent loss of earnings. Again, William Hynd's vessels may serve as examples. *Hind* was stranded in the Tay in 1818 and at Rattray Head in 1820. Her voyage to New York commencing on 13 September 1821 lasted 135 days, with the worst part graphically described by her master[85]

> On the 1st January we were taken by a heavy squall, which made us cut away our square mainsail, foresail, fore-topsail and main-topgallant sail, after every exertion had in vain been made to furl or reef them. After we

were hove to, two tremendous seas broke over us which carried away two of our standing stanchions, all the rails and bulwarks, drove the longboat out of the chocks, washed the jolly boat overboard, stove the cook house and did other damage which rendered the vessel a wreck on deck. On the 11th we lost our main yard in a gale. On the morning of the 20th, the ice carried the vessel right out from her anchorage. We then let go our best bower anchor; but the safety of the ship obliged also to let it go and run on the safest point of Sandyhook.[86] The following morning a large mass of ice carried the ship right off, after the tide had fallen 3 feet. We reached New York however on the 1st February. The cargo is not materially injured and the crew though they suffered from the cold are all well.

Hind's replacement, *Eliza*, was also overtaken by a fate worse than loss, in 1832. Having cleared Pentland Firth only 52 hours after sailing for New York on 20 January, she was twice forced back to Orkney by adverse gales. 'On 19 February[1], wrote one of the passengers[87]

we again put to sea. For 16 days we struggled against contrary winds and a tempestuous ocean, gaining a little way daily. When we were about 21 deg west longitude and 58 north latitude, lying to in a dangerous and boisterous cross sea and a gale of awful violence, we were struck, about 7 o'clock in the morning, by a tremendous wave, which, bursting over the vessel, swept our unfortunate bark, bearing into the ocean everything above deck, driving in the stern window, tearing up a portion of the deck itself and hurrying into eternity 3 of our unhappy companions....The water forced its way through the broken deck into the hold, and through the sky-lights and stern windows into the cabin. We now directed our whole attention to the lightening of the vessel; and by throwing overboard a large portion of the cargo and working incessantly at the pumps whenever any abatement of the violence of the storm permitted us to maintain a precarious footing on deck, we succeeded in relieving the ship, and enabling it to weather the tempest with somewhat more security. On the 8th March we were able to erect a jury mast,[88] and, setting a part of the storm try-sail[89] we drifted before the wind.

Eliza was eventually spotted by a Peterhead whaler and towed into Scalloway wreathed in a cloud of steam from the remnants of her wet and overheating cargo. A conference of owners and underwriters sent a Newcastle steamer to bring her to Dundee, where she arrived on 29 April. In three months she had done nothing for her owners but run up bills which insurance was unlikely to cover in full, if at all; and though she was advertised for New York on 21 June 1832, she did not actually sail until 28 July. In this year, at least, *Eliza* did no more than half a year's work.

High seas drama was newsworthy, but so, too, were recurring outbursts of

nature that upset the best plans of the most efficient owners. 'Storms almost without interruption for a fortnight previous to Friday last', noted the *Advertiser* in April 1829[90]

> had occasioned a great accumulation of vessels in the river. On that day, however, the weather becoming moderate, and the wind having veered round to the west, they all proceeded to sea, closely followed by a great many more from the harbour, amounting altogether to between 50 and 60 sail. Shortly before high water the expanse of the river, from the harbour to its confluence with the ocean, appeared studded with sails....

The situation was worse in December 1830, when

> Long continuance of south and west winds prevented any vessels from going out of the Tay these 2 or 3 weeks past: and there were this morning in the harbour and roadsteads about 70 loaded vessels ready for sea. The same cause has brought together in the Tay the whole of the London smacks, besides 4 Leith traders, and 4 out of 6 Glasgow traders belonging to DP&L - so this company had in the river no fewer than 22 out of their total number of 24 vessels.[91]

It might be argued that a few weeks' delay meant little to long-haul vessels, but weeks mounted up and should not be ignored in understanding the business of shipowning. They were certainly more serious in the coastal trade, where delays might be several times the normal voyage time. In January 1830, for instance, smacks coming north from London took over 24 days on a passage for which the average was just over five.

Expense for shipowners - and catastrophe for crews - sprang also from 'fevers' endemic in the regions where flax was bought and linen sold. One of the more heroic tales of local shipping involved Neish & Smart's brig *Neilson,* on a round trip carrying linen to Jamaica, sugar from Havana to St Petersburg, and flax and hemp back to Dundee. She reached the Caribbean in two months, but was struck by sickness, losing an apprentice, a seaman, the master and mate. John Wesley - 'a very young man' - not only took over, but took her from Havana to Elsinore in just two months. There *Neilson* was quarantined, her cargo unloaded, 'the bandages stripped off the cases and washed, and the vessel fumigated[1], before being allowed to proceed to St Petersburg. Again she made good time at sea, only to be delayed in Dundee when the Customs found three cases (in which John Wesley had injudiciously stored the effects of the dead), now emitting such a 'disagreeable effluvia' that they were sunk in the deepest part of the Tay, and *Neilson* was further quarantined and repeatedly fumigated. Despite Wesley's best endeavours, the round trip had taken nine months, when it might have been achieved in six or seven,[92] and a serious loss of earnings doubtless explains *Neilson's* exposure for sale on her return to Dundee.[93]

Similar troubles struck Hynd's *Eliza* in Savannah, where five seamen fell sick and two died. After she sailed another three men became sick and two died and 'their corpses, with all their body and bed clothes were immediately consigned to the deep'. Fortunately the sick recovered enough to bring the vessel home, but she was then subjected to three weeks' quarantine in Inverkeithing Bay.[94] More seriously, when cholera appeared in the Baltic, the Customs, Navy and Army were used to prevent its arrival in Britain, and the whole flax trade slowed down under general quarantine. In August 1831 there were 54 vessels quarantined at Broughty Ferry, and as they continued to arrive - including *Eliza,* in November - the overflow were sent to Inverkeithing Bay and, worse still, to Cromarty Bay, losing anything up to two months in the general confusion, to the great chagrin of the mercantile community

> The merchants and shipowners of Dundee have suffered great loss in consequence of the way in which the Quarantine laws have been enforced. Instead of two sheds in the Lazarette, there ought to have been at least six. Sometimes there have been 50 or 60 vessels at a time lying in utter idleness.[95]

To make matters worse, flax deteriorated aboard ship, as local Customs officers explained to their superiors in November

> a considerable number of vessels from Russia and ports within the Baltic bound for this port with cargoes of flax, hemp and corn, which are daily expected to arrive, are known to have left their ports of loading upwards of five weeks ago, and to have passed the Sound homewards, so far back as the middle of last month, and it is supposed have from adverse winds been either forced into Norway or are beating about in the North Sea....The importers are more particularly anxious that no interruption should take place as to the immediate discharge of these, being apprehensive that from the length of time the goods will have been on board and the boisterous nature of the passage that there may be considerable damage in their cargoes.[96]

Mercantile anxieties were not lessened by the flat-rate £5.14s.6d. quarantine fee and the *Advertiser,* arguing strongly that there was no medical evidence to associate cholera with flax and justify a longer quarantine period,[97] quoted a case -presumably the worst - in which the fee paid by a small Hamburg galliot amounted to a third of its gross voyage earnings. Shipowners heaved a sigh of relief when general quarantine was lifted in March 1832, though by then their principal concern was surviving the cholera already raging through the Scottish ports.

Acts of God were unavoidable, and seasonal delays were, to some extent, built into deployment patterns, though they were unpopular in raising costs: This is the lowest I could get it done for', Alexander Pitkethly's insurance agent told him in September 1834, 'in consequence of the advanced state of the season.'[98] Owners were probably more frustrated by delays brought about by other sectors of the mercantile community. The Russians' handling of fibre

cargoes, for instance, was a source of much complaint. One captain attributed invoice discrepancies to

> the manner in which Hemp is taken aboard at Kronstadt out of large lighters containing goods for a number of different vessels, having the Bundles in many instances broke loose for the purpose of stowing;[99]

and when two Very expeditious' voyages - 36 days to Narva and 37 to Riga occurred in 1833 *the Advertiser* commented that

> voyages to the same ports were made in less time by vessels employed in the importation of grain owing to the rapidity with which that commodity can be shipped: but seldom, if ever, by vessels bringing cargoes requiring so long to load as those of the *Isabella* and *Hermes.*[100]

Nevertheless, when six first-class vessels were sought to load Riga wheat in 1831 it was thought best to add that 'there will be no detention in loading as the cargoes are on the spot'.[101]

Nor was loading in Dundee much better in the early days of direct exporting. Optimistic departure dates were constantly revised with assertions and promises ringing the changes on 'positively first vessel', 'greater part of cargo engaged', 'bound by charter party to sail on or before...', and 'will sail by...or forfeit freight'. To get away in 1831 *Heroine* tried to fill up with linens at half freight,[102] and some voyages were abandoned altogether. One way round this problem was to attract custom from more than one port. In 1828 James Justice Jnr's *Broughty Castle* was typically 'ready to receive any goods that may offer for Rio de Janeiro, when she will proceed to Newcastle to take in the remainder of her cargo, which are light goods and will be loaded in a few days'.[103] Vessels for Australia followed the movements of *Anne,* in 1840, which 'will remain in Dundee until 8 April, when she will proceed to Leith and complete her cargo. Being a chartered ship she will have a quick despatch.'[104] Recalcitrant importers could also delay vessels, as owners of *William,* from Rotterdam, found in 1825, when neglected top cheeses preventing the rest from being unloaded, while damage spread through the whole cargo.[105]

Unloading implies labour, and here too shipowners were somewhat less in control of their own prosperity than perhaps they once were. Neither dockers nor seamen were content for long with their share of the rising mercantile prosperity of the place, and murmurings followed the abolition of the Combination Laws as a range of workers flexed their muscles. In January 1825 seamen in the Dundee-London trade struck for an advance of wages considered reasonable, by the radical *Advertiser,* for 'that hard-working class of mariners'.[106] When employers conceded 10s. per month disaffection spread through the foreign trades and resulted a year later in the formation of Dundee Seamen's Provident Union, whose aims were said to be partly benevolent, but chiefly to dictate to their employers the rates of their wages and secure a monopoly to their number of the most lucrative posts which the trade of the port

affords in their lines. Their intentions have been so far developed, by the refusal of some of them to sail with certain vessels, because they found individuals employed on board who did not belong to the Union.[107] Seamen continued to delay the departure of vessels at critical times until 1829, when shipowners began to appeal to the law threatening imprisonment for desertion. Dockers were on safer legal ground in enforcing the rights of the traditional Harbour Porters, and they too used the threat of delay to support their case. However, there is little evidence of prolonged damaging conflict over either wages or conditions, and so far as the operational efficiency of shipping is concerned labour problems pale into insignificance compared with Acts of God and the shortcomings of the port. The greatest enemies of mercantile capitalists were not mercantile workers but land-based and land-owning bourgeoisie, and against these the shipowners in particular struggled for dominance.

An amateurish approach to port facilities, all too common in eighteenth century ports, was prolonged here by a non-mercantile oligarchy on the Town Council responding inadequately to early signs of economic progress. The harbour, it was later said[108]

> had been originally constructed on no regular plan; but consisted of a series of patchings, stuck together without science or taste. Its quays were becoming ruinous; its depth was diminishing; and it was too small for accommodating the increased shipping of the town.

Minor works in the seventeen-eighties merely repaired storm damage to the old pier harbour, though the Council admitted, in 1789, that it lacked both size and safety.[109] Unfortunately Shore dues - levied for the use of the *port* - had for generations been misapplied to the *town*, and there was neither reserve nor adequate income to fund the necessary works. In any case, the radical mercantile community had no faith in the ability or probity of an oligarchy - led by Alexander Riddoch - more interested in property speculations than port facilities. Arguments over size and sites of docks were powerful engines for splitting towns, and rival plans and allegations abounded for years before a compromise produced the Act of 1815; and even this nearly miscarried because Thomas Telford, the merchants' choice for engineer, was more responsive to the town-oriented penny-pinching of the oligarchy than to the expansive optimism of the merchants.[110] However, the latter gained the majority of places on the new Harbour Commission, and used Telford's fluid plans to provide a tidal harbour (by almost enclosing the old Craig harbour), and a small 6.5 acre wet dock to the east of it. The fact that nobody thought it necessary to establish proper financial arrangements indicates the inexperience of the shipowners, who should have learned from major ports which had already gone through the trauma of erecting modern docks.

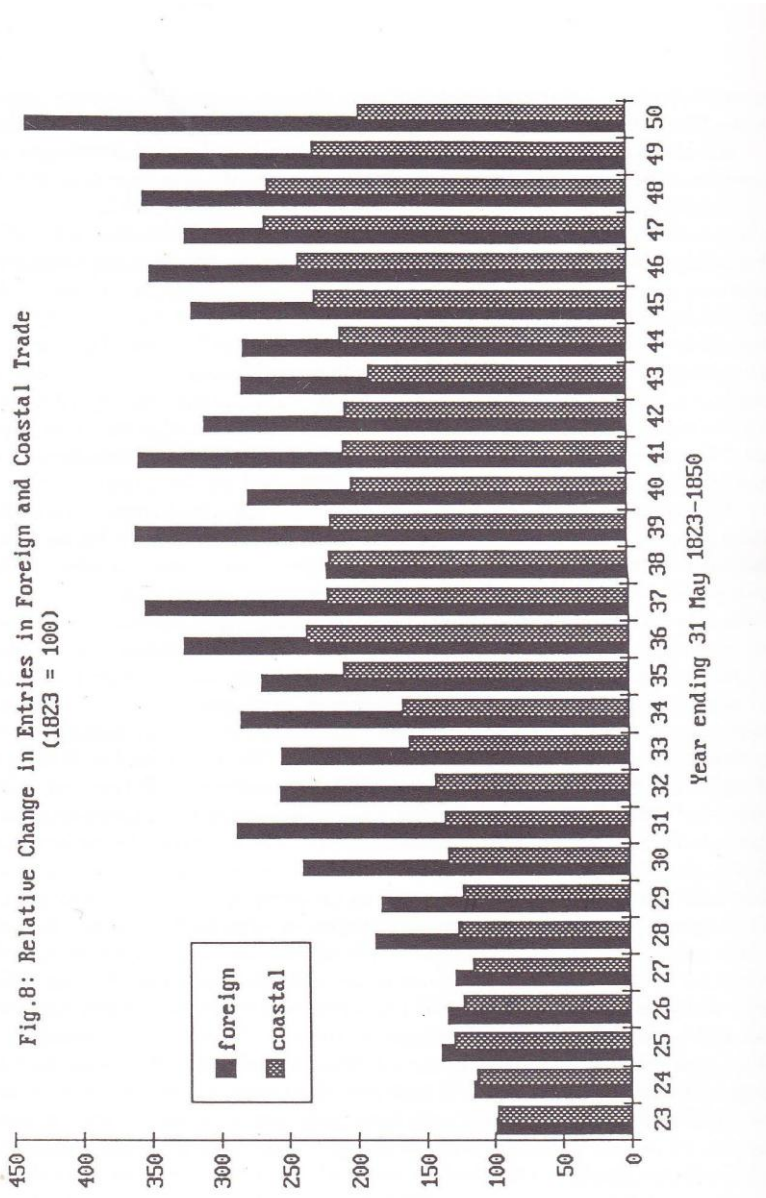


Fig.8: Relative Change in Entries in Foreign and Coastal Trade
(1823 = 100)
foreign
coastal
450
400
350
300
250
200
150
100
50
0
23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
Year ending 31 May 1823-1850

Shortage of money certainly appeared to justify the scepticism of oligarch and engineer, and thoroughly demoralised the Commissioners, who debated abandoning work on the harbour in 1821.[111] Only by frequently renegotiating state loans, selling land and borrowing from the town (which had put no money at all into the new works) did the commissioners survive and finally open King William IV Dock in 1825. It was only just in time.

The importance of dock works has long been emphasised, especially by those seeking mono-causal explanations for Dundee's economic miracle in the second quarter of the century. The New Statistical Account summed it up nicely in 1833[112]

> It was only in 1815 that the first great impulse was given to the manufactures and commerce of Dundee, by the renovation and extension of the harbour....From the moment this superior accommodation was begun to be provided, the number and tonnage of our ships increased, and, of course, the extent of the trade and commerce of the port was greatly enlarged.

This broad chronology is undoubtedly true: the port was improved, and shipping increased, though chiefly after 1824/5. Figure 8 shows a much greater relative growth hi foreign than in coastal shipping entering the port, and this might be taken as indicative of better facilities encouraging larger vessels. There is, however, little to justify the view that short-run post hoc - propter hoc relationships were the prime or only encouragement for direct foreign trade between 1815 and 1825, and nothing to justify the implication, in the old official history of the Harbour Trust, that the Town Council initiated the proceedings.[113]

Belated dock building might be seen more appropriately as a victory for the mercantile sector in its bid to eliminate obstacles and inefficiencies, rather than the provision by 'the town' of facilities which then produced trade initiatives. In fact, after initial euphoria the shipowners saw the new works not as agents of progress but as obstacles to efficient deployment. They were so long in building that theoretical excess capacity hi 1815 had become practical over-crowding by 1825, and both merchants and shipowners were vociferous in demanding more accommodation for the foreign and coal trades. In 1830, amid further civic wrangles, the Commissioners secured an Act authorising the conversion of the tidal harbour into Earl Grey Dock,[114] but in 1829 the Advertiser had already spoken for many who thought it long overdue[115]

> Our Harbour has of late been so crowded with shipping, the vessels have been detained for weeks before they could get berths to be delivered in. Instead of being premature in proposing to erect a new wet dock, we suspect that the Commissioners have been too tardy. If the trade goes on increasing as it has done within the last few years the greatest inconvenience and annoyance must be suffered by our shipping long before a new dock can be erected.

For some years delays of a month might be expected at the most crowded tunes, and the Trust began work on the eastern dock - Victoria - and extensive sea-walling in 1833, well in advance of the opening of Earl Grey, in November 1834. Fortunately the situation eased in the mid-'thirties, and there appear to have been far fewer complaints about delays in the harbour. The Advertiser, never tardy in castigating authority of any sort, was positively euphoric when assessing the situation in 1836[116]

> Our harbour is in the course of being greatly enlarged - additional railroads are in contemplation to connect it more closely with the surrounding districts - new and extensive works are building - and the demand for our staple manufactures is advancing. It is not, therefore, to be doubted that the shipping will augment at a rate unprecedented.

There were plenty of reasons for major shipowners to be joyous after 1836, but it is almost axiomatic that contentment with port facilities springs from decelerating trade growth as often as from multiplying docks. In this case the aggregate tonnage of shipping entering the port was comparatively stagnant between 1835 and 1850 (Table 4.1). The first great boom in Dundee's enterprise, based on linen and reflected in the trade expansion of the 'twenties and 'thirties, was already slowing when Earl Grey was opened (November 1834), and Victoria Dock was eventually left as a shallow basin (not fully excavated until 1875). Only in the 'fifties did the second transformation, based on jute, once more encourage an expansion of shipping and require an extension of the docks. So far as shipowners were concerned there were certainly problems with berthing and general delays until the 'thirties, but there is no reason to suppose that the situation in Dundee was any worse than in other ports, and it may just have been a little better. Dundee's abiding problem was the exceptional seasonality of its dominant trade, and to this problem there was also, fortunately, a seasonal answer

> The Harbour is becoming much less crowded that it has been for some months past: as the ships are now rapidly leaving it, to diffuse our manufactures over the world, to expatriate the hardy sons of our soil, or to bring the produce of other climes to our shores.[117]

CONCLUSION

The period 1780-1850, and more particularly the years after 1815, witnessed a huge growth in Dundee's industrial enterprise, revealed not least in the increase in the number of both large and small factories and workshops devoted to the manufacture of yarn or cloth from flax and hemp and, towards the end of the period, from jute. Such industrial progress was by no means unusual at the time. Textile towns abounded throughout Lancashire, Yorkshire and the west of Scotland. But Dundee was unusual in being both a manufacturing town and a port. In consequence she had to provide or secure the capital, labour and initiatives to operate a full commercial system, entering into the distribution as well as the manufacture of goods. During this period Dundee confirmed and strengthened her role as market or shipment centre for a large hinterland that was increasingly weaned away from its earlier dependence on Perth, and even the sector remaining in Perth's orbit was indirectly dependent on Dundee as a transhipment centre where river craft exchanged loads with coastal and foreign-going vessels.

So far as foreign trade was concerned, Dundee was called upon principally to secure supplies of raw materials and general commodities servicing the linen industry and the whole community depending upon it. In consequence she remained pre-eminently a Baltic port, continually raising the volume of flax and hemp and constantly searching for new supplies. There was also a large importation of timber, though that was not so special in itself: every creek that could float a ship handled timber at some stage or other.

Direct importation from abroad was feasable only for cargoes easily available and greatly in demand. Overseas connexions and experience could obtain Baltic materials and Dutch manufactures and foodstuffs, but not the more exotic goods from Southern Europe, the colonies and the East Indies. A great miscellany of goods arrived coastwise, important for improving the quality of life and employing shipping, though never equal in the latter respect to the huge demands of the trade in coal, building materials and foodstuffs.

The transformation of Dundee's commercial and shipping sector between 1780 and 1850 was not based on imports, which remained roughly on long established lines. It reflects, rather, the gradual capture by the port of its own export trade in manufactures. In 1780 Dundee's merchants were comparatively few and her oceanic shipping of little account. The all-important disposal of manufactured linen was a matter for coastal men shipping it in diminutive low-valued sloops to long established and well connected places for transhipment into vessels destined principally for America, where the better sort clothed settlers in the north and the poorest served slaves in the south. Indirect trade through London, Glasgow and Liverpool was an indication of the small size of Dundee's

exports and the paucity of her mercantile connexions with opportune markets. Cloth could only be sold if customers were known or Agents secured. But above all there had to be enough goods to fill ships on the outward journeys and enough demand for return cargoes to avoid the lengthy delays in assembling catch-cargoes or the even more serious obstacle of a return trip in ballast. Unless these things were reasonably sure, there was no point in local capital being diverted into shipping, but on the other hand if there was no regular local shipping the necessary connexions and experience - not least in simple things such as navigation - were unlikely to develop. Dundee was, then, at a critical stage in the evolution of any port, when trade flows were only just reaching a size and complexity sufficient to engender a move into self-sustaining growth. It was indeed a marine variation on the 'economies of scale' argument. Gradually the volume of sales to America increased to the point where direct shipping became economic, and though this did not preclude continued shipping through London and Glasgow agents, it did mean that there were new opportunities for those interested in cutting out agency commissions. After the Napoleonic war, vessels took linens of the better sort to New England and of the poorer sort to the Southern States and the British and Spanish West Indies. The export to Canada of linens and general goods suitable for new settlements was also stimulated by the preference given to British North American timber after the war, which offered the potential of a two-way trade.

These nascent trades offered new opportunities for those interested in investing in shipping. Building on experience in the Baltic and nearby-European trades, and in the very small segment of direct foreign export trade, masters, merchants and a wide assortment of other less obvious tradesmen began to invest in larger and more costly foreign-going vessels. These increased rapidly in number after 1825, and Dundee was soon equipped with a large fleet of modern vessels capable of pushing the export trade not only in the traditional markets for linen but also far beyond into the Indian and Pacific oceans.

These ships were not built simply because their owners had - or could assemble - sufficient capital to answer a perceived trend in a particular trade. They were not reacting to opportunities so much as creating opportunities. At this stage in maritime development shipping would only be profitable if it was deployed in an efficient - and therefore economic - manner. For reasons of balance - or rather imbalance - there was unlikely to be an adequate return to Dundee of goods from areas demanding most linen, and it follows also that, because of trade restrictions and the general poverty of the Baltic lands, there was unlikely to be a satisfactory two-way trade with the principal flax and timber producing regions. Shipping could only work economically in foreign trades if it could be employed in more than one of them. This was perfectly

possible because the transatlantic trades and Baltic trades were both seasonal, and were of different duration, allowing Baltic and North American runs to be interwoven. At the same time this emigration trade grew to an extent that further augmented the incomes of owners of larger ships that could be adapted first for the 'passenger' trade and then for the emigrant trade. By 1840, it is argued, local managing owners had reached a degree of maturity in the deployment of shipping that allowed them to emerge as specialist shipowners from the cocoon of the quarter-deck or the counting house. The total value of their investment, at replacement cost, was very considerable indeed in contemporary money terms, and must be seen as a major investment opportunity on the one hand and on the other as a necessary tool for bringing the town's own export trade within its own direct control. Surprisingly, very few industrialists were deeply involved - even as small shareholders - with the ships that carried their products and, equally surprising, there was little outside investment drawn into the town. The funds came out of shipping itself - the accumulated profits of men who started small, or, more commonly of men who started with sea-going or agency experience and attracted local funds because they were known to be capable of making a reasonable - or at least acceptable - return on capital. Men such as the Hynd and Thain families were, whatever their earlier designation, recognisably shipowners in the modern world. It is, however, the case that many of those investing strongly in shipping were also to be found among the most substantial shippers of linens. Hynd is again a notable example.

Sole owners or managing owners such as these were by no means the only owners of shipping. Within the whaling fleet, employing, size for size, the most valuable of all ships, it was the normal thing to form shipowning partnerships, again representing the entrepreneurial skills of one or two men supported by the investments of many of their fellow townsmen. But the chief of these partnerships were actually in the original area of trade, along the coast. DP&L was a company of comparative substance for this period, running a large fleet of smacks and sloops with the sort of time-table precision that is sometimes thought to have been invented by the Railway Companies. In fact DP&L antedated the railways in both capital structure and operating complexity, and managed to survive despite the railways because it offered a connexion with London, Glasgow and Liverpool that permitted the continued shipment of linens for export and brought into Dundee those products of a wider world that made the hard work seem worthwhile, at least for those whose labour produced income sufficient to purchase them. DP&L was one of the greatest contributors to Dundee's prosperity, linking the port more effectively with London than was possible using the more numerous tramping sloops. Nevertheless the sloops played their part by locking Dundee firmly into the inter-regional distribution system that helps to make sense of the

evolution of Dundee's trade and shipping. Dundee was not an isolated port with a private stock of shipping. It was a port linked directly to Baltic raw materials and American markets and indirectly to the same and other areas of production and consumption. Its shipping traded both eastwards and westwards, but it is not particularly helpful to think in terms of east and west trade. Dundee traded in every direction but did it in an assortment of different ways. The precise mechanism for acquiring and disposing of goods changed over time as specific trades reached that critical mass that suggested greater profitability or security of trade if it was brought within the town's own control. In other words, trade was a living organism served by a mass of differing vessels, each sort serving a specific purpose, which coalesced into a total interlocking trading pattern. In the development of this pattern the contribution of foreign-owned vessels must be emphasised. At no time was Dundee - or Scotland - self-sufficient in shipping. But there was no reason why it should be. Merchants and shipping agents chose the best ship for any particular job, and that was likely to be one that was available when and where it was wanted irrespective of the accident of ownership. Exogenous British vessels always played a greater part than foreign vessels, and in reverse, Dundee owners maximised profits by neglecting their home port for other British - or foreign - ports if they fitted in better with profitable deployment patterns.

Complexity was, then, the name of the game. Complexity and change. The evolution of Dundee's trade in the period 1780-1850 must therefore be seen as immense growth serviced by ever-changing patterns of shipowning and deployment, with local owners slowly taking over from the British and from foreign owners as and when it became profitable for them to do so, investing in large numbers of coasters to keep one branch of distribution and collection going while at the same time investing in a variety of larger specialist vessels all of which were carefully deployed and some of which were therefore as likely to sail from New York to Amsterdam as they were to sail from New York to Dundee. It was all part of the process which liberated shipowners from absolute dependence on specific ports yet enabled them to serve their own mercantile community the better by effective profitable employment elsewhere. Anywhere, in fact, where money was to be made.

Appendix 2.1: SHIPS ENTERING, by PORT OF ORIGIN, 1789, 1815, 1821, 1825, 1829

	1789	1815	1821	1825	1829
EAST EUROPE					
Archangel	-	2	2	9	6
St Petersburg	11	28	32	57	35
Cronstadt	-	-	-	-	1
Narva	-	-	-	-	3
Riga	7	16	50	86	79
Libau	1	-	8	8	17
Memel	12	3	-	20	32
Pillau	1		1	4	6
Konigsberg	-	-	-	1	9
Danzig	1	3	1	5	8
Stettin	-	-	-	-	1
Unidentified	1	-	-	-	-
Sub-Total	34	52	94		197
WEST EUROPE					
Stockholm	1	-	-	-	-
Gothenburg	4	1	1	4	4
Christiansand	12	4	-	5	-
Drammen	1	1	-	7	10
Tonsberg	-	1	-	2	
Mandal	-	1	-	-	4
Trondheim	1	-	-	-	2
Elsinore	-	-	-	-	1
Copenhagen	-	-	-	-	1
Karrebaek	-	-	-	-	2
Haderslevn	-	-	-	-	1
Bremen	-	-	-	-	2
Hamburg	3	1	2	7	4
Campvere	1	-	-	-	-
Amsterdam	-	-	-	2	2
Rotterdam	3	3	3	-	9
Antwerp	-	3	-	2	1
Bordeaux	1	-	-	-	-
Oporto	2	1	-	1	-
Malaga	1	-	-	-	-
Sub-Total	31	16	6	30	43
NORTH AMERICA					
Montreal	-	-	-	-	3
Quebec	-	4	2	5	8
Miramichi	-	2	6	1	4
Richibucto	-	-	-	4	2
St Andrew's N.B.	-	-	-	3	2
St John's N.B.	-	-	4	-	2
Shediac	-	1	1	-	-
Pictou	-	-	-	1	-
Cape Breton	.		.	1	.
Sub-total		7	13	15	21
Jamaica	-	-	-	-	3
Jersey	-	-	-	-	1
Whaling	3	8	10	9	9
TOTAL	67	83	123	245	274

Source: SRO, E504/11//14, 19, 22, 24, 26.

Appendix 2.2: TIMBER IMPORTS, by PORT OF ORIGIN, 1829

	FIR load	%	OAK load	%	MISC load	LATH fath	DEALS hun	BATTENS hun	STAVES hun
B. N. AMERICA									
Quebec	1516	20	444	37	620	-	28	-	685
Montreal	130	2	15	1	30	-	-	-	29
Liverpool NB	200	3	-	-	72	44	2	-	-
Miramichi	2037	27	-	-	72	44	2	-	-
Richebucto	431	6	-	-	10	4	-	-	-
St Ann's NB	367	5	-	-	10	4	-	-	-
St John's NB	563	7	-	-	58	18	8	-	71
-Sub-Total	5244	68	459	39	846	84	38		785
EAST EUROPE									
Archangel	-	-	60	5	-	-	-	-	12
St Fburg	-	-	-	-	-	-	-	3	-
Narva	-	-	-	-	-	2	-	-	-
Libau	-	-	22	2	-	-	-	-	-
Riga	-	-	-	-	-	5	16	4	-
Memel	2016	26	112	9	37	47	40	4	26
Pillau	-	-	21	2	-	-	-	-	-
Konigsberg	-	-	16	1	-	-	-	-	-
Danzig	47	1	126	11	-	2	3	-	-
Stettin	.	-	119	10	-	3	-	-	-
-Sub-Total	2063	27	476	40	37	59	59	11	38
WEST EUROPE									
Drammen	124	2	-	-	-	-	-	248	-
Gothenburg	217	3	-	-	-	-	-	58	-
Drontheim	-	-	-	-	-	-	6	32	-
Longsound	24	0	23	2	-	-	-	-	-
Bremen	-	-	8	1	-	-	-	-	-
Hamburg	-	-	74	6	-	.	-	-	2
Amsterdam	-	-	54	5	-	-	-	-	-
Rotterdam	.	_	93	7.8	-	.	-	-	-
-Sub-Total	365	5	252	21	.	.	6	338	2
TOTAL	7672		1187		883	143	103	349	825

NOTE: fath. = Fathom = 216 cubic feet; hun.= 'Long[1] Hundred = 120 pieces

Source: SRO, E504/11/26

Appendix 3.1: SHIPS CLEARING, by PORT OF DESTINATION, 1789, 1815, 1821, 1825, 1829

	1789	1815	1821	1825	1829
NORTHERN EUROPE					
St Petersburgh	-	2	3	-	4
Riga	-	1	1	-	1
Libau	-	-	1	-	-
Memel	-	-	-	-	3
Danzig	-	1	-	-	-
Trondheim	-	-	-	-	2
Molde	1	-	-	-	-
Stavanger	2	-	-	-	-
Christiansand	-	2	-	1	-
Drammen	-	-	-	-	1
Gothenburgh	2	-	-	-	1
Korsor	-	-	-	-	1
SUB-TOTAL	5	6	5	1	13
WESTERN EUROPE					
Hamburgh	-	3	1	-	-
Campvere	1	-	-	-	-
Rotterdam	1	-	-	-	4
Antwerp	-	1	-	-	-
Ostend	3	-	-	-	-
Dunkirk	1	-	-	-	-
Rouen	1	-	-	-	-
Havre	3	-	-	-	-
Bordeaux	9	-	-	-	-
Oporto	1	-	-	-	2
SUB-TOTAL	20	4	1	-	6

	1789	1815	1821	1825	1829
NORTH AMERICA					
Quebec/Montreal	-	2	1	2	7
Miramichi	-	-	-	1	-
Richbucto	-	-	-	2	-
St John's NB	-	-	1	-	1
St Andrew's NB	-	-	-	2	-
New York	-	1	6	3	10
Norfolk	-	1	-	-	-
Charleston	-	-	1	-	1
Savana	-	-	-	1	1
Mobile	-	-	-	-	1
New Orleans	-	-	3	-	1
SUB-TOTAL	-	4	12	11	22
CENTRAL/SOUTH AMERICA					
St Thomas	-	-	1	-	-
Jamaica	-	1	1	-	1
Haiti	-	-	-	-	1
San Domingo	-	-	-	-	1
Permanbuco	-	-	-	-	1
Rio de Janerio	-	-	-	-	1
SUB-TOTAL	-	1	2	-	8
TOTAL	25	15	20	12	49

Sources SRO, E504/11/14, 19, 22, 24, 26

Appendix 3.2 PRINCIPAL EXPORTS FROM DUNDEE, by PORT OF DESTINATION 1815

PORT	LINEN	DIAPER/ HUCKABACK	SAIL-CLOTH	THREAD	COTTON YARN	ROPE
	yds	Sq.yds	ells	lb	cwt	
Quebec	62,493	56,203	14,257	3288	-	330
New York	29,315	105,415	28,287	2400	-	-
Norfolk	11,839	3,103	-	-	-	-
Jamaica	287,834	29,804	-	-	5400	403
Riga	-	-	-	-	4320	-
Christiansand	-.	-	-	.		-
TOTAL	391,481	194.525	42,544	5688	9720	733

	SUGAR	MOLASSES	SOAP	POTS
	cwt	cwt	cwt	pcs
Quebec	352	-	440	10,745
Charleston	91	-	440	-
Jamaica	-	-	122	-
Danzig	412	422	-	960
Hamburg	2060	-	-	-
TOTAL	2915	422	562	11,705

Source Book, E504/11/19

APPENDIX 3.3: NON-CLOTH EXPORTS FOR THE QUARTER ENDED 5 APRIL 1830

QUEBEC	Beer and Ale:	2 tuns.	JAMAICA	Brandy:	55 gals.
	Blankets:	78 yds.		Hard Soap:	100 cwt.
	Brandy:	55 gal.		Nails:	150 cwt.
	Cast-iron:	1,750 cwt.		Rum:	51 gals
	Coal:	48 chalders, 150 tons.		Thread:	200 Ib.
	Geneva:	100 gals.			
	Rum:	143 gals	HAITI	Hard Soap	40 cwt.
	Snuff Boxes:	37.5 doz.		Paving Stones:	5 tons.
	Stationery:	value 150		Rum:	112 gals.
	Stockings:	3 doz. pairs.		Twine:	16 cwt.
	Sugar	155 cwt. Iqrs. 31b.			
	Thread:	16 cwt. 2 qrs.7lb.	UNITED STATES	Beer and Ale:	1.5 tuns
	Twine:	47 cwt. 3 qrs. 7lb.		Coal:	8 chalders.
	Wearing-Apparel:	value 186		Confectionery	9 cwt
				Hemp-seed oil	84 gals.
BRAZIL	Glass Bottles	217 cwt		Herrings:	6 brls.
	Leather Gloves:	56 Ib.		Rum:	512 gals.
	Rum:	75 gals		Stones:	10 tons
	Twine:	733 Ib.		Thread	170 Ib
				Twine:	50 cwt.
GIBRALTAR	Potatoes:	400 cwt.		Yarn:	1,800 Ib.
	Wearing Apparel:	5 value			

Source: Dundee Advertiser, 22 Apr 1830

APPENDIX 4.1: NAMED CARGOES CLEARING COASTWISE, 1820 AND 1830

	Potatoes		Grain		Timber		Flax		Fishing Stores		Pavement	
	1820	1830	1820	1830	1820	1830	1820	1830	1820	1830	1820	1830
Lerwick	-	-	-	1	-	-	-	-	-	-	-	-
Stromness	-	-	-	-	-	1	-	-	-	-	-	-
Cromerty	-	-	-	1	-	-	-	-	-	-	-	-
Portree	-	-	-	-	-	-	-	-	-	1	-	-
Wick	-	-	-	-	-	2	-	-	8	17	-	-
Inverness	-	-	-	-	-	-	-	-	1	-	-	-
Banff	-	-	-	-	1	1	-	-	-	-	-	-
Fraserburgh	-	-	-	-	-	1	-	-	-	-	-	-
Aberdeen	-	-	-	-	4	-	-	-	-	-	-	-
Montrose	-	-	-	-	1	-	-	-	1	-	-	-
Arbroath	-	-	-	-	-	1	-	-	-	1	-	-
St Andrews	-	-	-	-	1	-	-	-	-	-	-	-
Methil	-	-	-	-	-	-	-	1	-	-	-	-
Kirckaldy	-	-	-	-	1	-	7	7	-	-	-	-
Burntisland	-	-	-	2	1	-	-	-	-	1	-	-
Inverkeithing	-	-	1	-	-	-	-	-	-	-	-	-
Alloa	-	-	10	40	-	-	-	-	-	-	-	-
Stirling	-	-	-	1	-	-	-	-	-	-	-	-
Glasgow	-	-	-	3	-	-	-	-	-	-	-	-
Grangemouth	-	-	4	1	-	-	-	1	-	-	-	-
So. Queensferry	-	-	-	1	-	-	-	-	-	-	-	-
Boness	-	-	-	3	-	-	-	-	-	-	-	-
Leith	-	-	7	13	-	1	-	-	-	-	-	1
Firth of Forth	-	-	4	-	-	-	1	-	-	-	-	-
Kincardine	-	-	-	-	-	-	-	-	-	-	1	-
Dunbar	-	-	-	-	-	-	-	-	-	-	-	1
Eyemouth	-	-	-	-	-	-	-	-	-	-	2	-
Shields	-	-	-	1	-	1*	-	-	-	-	-	-
Newcastle	-	-	-	5	3*	6*	-	1	-	-	1	-
Sunderland	-	-	-	-	-	1*	-	1	-	-	-	-
Whitby	-	-	-	-	-	-	-	1	-	-	-	-
Hull	-	-	2	1	-	-	-	6	-	-	-	-
London	9	32	9	9	-	-	-	-	-	-	-	-
TOTAL	9	32	37	82	12	15	8	18	10	20	5	2

(*includes pitwood; excludes single shipments of slates to crail; iron to St Andrews, machinery to South Queensferry; linseed to Hull, dried fish to Leith; and bark to Fisherrow and Arbroath.)

Source: Shipping intelligence, Dundee Advertiser, 1820 and 1830

Appendix 2.4: NAMED CARGOES (excluding coal and lime) IMPORTED AT DUNDEE 1820 AND 1830

	Kelp		Cured Fish		Wood		Yarn/ Flax		Iron		Manganese	
	1820	1830	1820	1830	1820	1830	1820	1830	1820	1830	1820	1830
Londonderry	-	-	-	-	-	-	1	-	-	-	-	-
Newport	-	-	-	-	-	-	-	-	-	4	-	-
Cardiff	-	-	-	-	-	-	-	-	3	3	-	-
Liverpool	-	-	-	-	-	-	-	-	-	-	-	-
Ballachulish	-	-	-	-	-	-	-	-	-	-	-	-
Easdale	-	-	-	-	-	-	-	-	-	-	-	-
Lerwick	-	-	-	4	-	-	-	-	-	-	-	-
Kirkwall	2	-	-	-	-	-	-	-	-	-	-	-
?Armadale	-	-	-	-	1	-	-	-	-	-	-	-
Thurso	1	-	-	-	-	-	-	-	-	-	-	-
Wick	-	-	4	1	7	-	-	-	-	-	-	-
Inverness	-	-	-	-	2	-	-	-	-	-	-	-
Peterhead	1	-	-	-	-	-	-	-	-	-	-	-
Aberdeen	-	-	-	-	-	-	2	-	-	-	-	-
Montrose	-	-	-	1	-	-	-	-	-	-	-	-
Arbroath	-	-	-	-	-	-	-	-	-	-	-	1
Anstruther	-	-	1	1	-	-	-	-	-	-	-	-
Leven	-	-	-	-	-	-	-	-	-	-	-	-
Kirckaldy	-	-	-	-	-	-	-	-	-	-	-	-
Burntisland	-	-	2	-	-	-	-	-	-	-	-	-
Alloa	-	-	-	-	-	-	-	-	1	2	-	-
Firth of Forth	-	-	-	-	1	-	-	-	-	-	-	-
Dunbar	-	-	1	-	-	-	-	-	-	-	-	-
Newcastle	-	-	-	-	-	2	-	-	-	-	-	-
Hull	-	-	-	-	-	-	-	-	-	-	-	-
Yarmouth	-	-	-	3	-	-	-	-	-	-	-	-
London	-	-	-	-	-	1	1	1	-	-	-	-
Shoreham	-	-	-	-	-	1	-	-	-	-	-	-
Chichester	-	-	-	-	-	-	1	-	-	-	-	-
Southampton	-	-	-	-	-	1	2	-	-	-	-	-
Plymouth	-	-	-	-	-	1	-	-	-	-	-	4
Jersey	-	-	-	-	-	-	-	-	-	-	-	-

Note: in 1820 there were also two cargoes of sugar from the Clyde; and in in 1830 one cargo of empty casks from Peterhead, and two of whale oil from Hull.

Source: Shipping intelligence, Dundee Advertiser, 1820 and 1830

Appendix 4.2 (Continued)

	Slates/ Bricks/ Whiting		Bone Dust		Salt		Wheat		Apples	
	1820	1830	1820	1830	1820	1830	1820	1830	1820	1830
Londonderry	-	-	-	-	-	-	-	-	-	-
Newport	-	-	-	-	-	-	-	-	-	-
Cardiff	-	-	-	-	-	-	-	-	-	
Liverpool	-	-	-	-	-	6	-	-	-	-
Ballachulish	1	9	-	-	-	-	-	-	-	-
Easdale	4	7	-	-	-	-	-	-	-	-
Lerwick	-	-	-	-	-	-	-	-	-	-
Kirkwall	-	-	-	-	-	-	-	-	-	-
?Armadale	-	-	-	-	-	-	-	-	-	-
Thurso	-	-	-	-	-	-	-	-	-	-
Wick	-	-	-	-	-	-	-	-	-	-
Inverness	-	-	-	-	-	-	-	-	-	-
Peterhead	-	-	-	-	-	-	-	-	-	-
Aberdeen	-	-	-	-	-	-	-	-	-	-
Montrose	-	-	-	-	-	-	-	-	-	-
Arbroath	-	-	-	-	-	-	-	-	-	-
Anstruther	-	-	-	-	-	-	-	-	-	-
Leven	1	1	-	-	-	-	-	-	-	-
Kirckaldy	-	-	-	-	-	-	-	-	-	-
Burntisland	-	-	-	-	-	-	-	-	-	-
Alloa	-	-	-	-	-	-	-	-	-	-
Firth of Forth	-	2	-	-	-	-	-	-	-	-
Dunbar	-	-	-	-	-	-	-	-	-	-
Newcastle	-	2	-	3	-	1	-	2	-	-
Hull	-	-	-	-	-	2	2	-	-	-
Yarmouth	-	2	-	-	-	-	-	-	-	-
London	-	-	-	-	-	-	-	-	-	1
Shoreham	-	-	-	-	-	-	-	1	-	-
Chichester	-	-	-	-	-	-	-	-	-	-
Southampton	-	-	-	-	-	-	-	-	-	-
Plymouth	-	-	-	-	-	-	-	-	-	-
Jersey	-	-	-	-	-	-	-	-	-	-

Appendix 5.1: THE SEQUENTIAL DEPLOYMENT of the SLOOP BRUCE 1816-27

Key
A = 'Arriving at Dundee from Riga
D = 'Departing from Dundee to So Ferry'
So Ferry = South Ferry
Newc = Newcastle
Helvoetsi = Helvoetsluis
G'send = Gravesend
St P = St Petersburgh
Sund'd = Sunderland
Konigb = Konigsberg

Date	[A] rrive/ [D] epart	From/ to	Cargo	Date	[A]rrive/ [D]epart	From/to	cargo
1816	A Dundee	Riga	Goods	Mar 27	D Dundee	London	potatoes
Jun 23	D "	So Ferry	Ballast	Jul 2	A London	Riga	[?]
Jun 26	A "	Methil	Flax	Jul 10	A Dundee	Newc	coal
				Jul 17	D Dundee	"	Ballast
1817				Jul 27	A Dundee	"	Coal
Jan 17	D Dundee	So Ferry	Ballast	Aug 25	A Dundee	Sund'd	Coal
Feb 21	D Newc	Helvoetsi	Coal	Sep 3	D Dundee	St P	Ballast
Apr 15	D "	Riga	Ballast	Nov 23	A Dundee	Newc	Coal
Jun16	A G'send	Riga	[?]	Nov 28	D Dundee	So Ferry	ballast
Sep 4	A Dundee	St P	Flax				
Sep 12	D "	St P	Ballast	1820			
Nov 23	A "	St P	flax	Feb 4	A Dundee	Newc	Coal
				Jul 24	A "	St P	Flax
1818				Sep 20	A "	Liebau	Flax
Jan 11	D Dundee	So Ferry	Ballast	Oct 14	A "	Newc	Coal
Jan 22	A "	Newc	Coal	Nov 11	D "	Stettin	Goods
Feb 3	D "	So Ferry	Ballast				
Feb 12	A "	Newc	Coal	1821			
Mar 1	D "	Liebau	Ballast	Apr 22	A London	Stettin	[?]
Apr 13	A Shields	Liebau	[?]	Sep 7	A "	St P	Flax
Sep 11	A Dundee	St P	Flax	Sep 15	D "	Riga	Ballast
Sep 11	D "	Riga	Ballast	Nov ??	A "	Riga	Oats
Nov 18	A "	Riga	Grain	Dec 10	A "	Newc	Coal
Nov 27	D "	Leith	Grain	Dec 25	D "	"	Ballast
Dec 27	A "	Forth	Coal	Date	Arr/dep	From/to	Cargo
1819				1822			
Feb 5	A Dundee	London	[?]	Jan 12	A Dundee	Newc	Coal
Feb 28	A Dundee	Newc	coal	Feb 4	D "	"	Ballast
				Feb 12	A "	"	Coal
Mar 31	D Dundee	Dysart	Flax	Oct 10	D Dundee	Glasgow	goods

Apr 11	A “	Newc	Coal	Nov 11	A “	Greenock	Sugar
Apr 26	D “	Newc	Ballast	Nov 19	D “	Glasgow	goods
May 4	A “	Newc	Coal	Dec 3	A “	“	goods
Jun 1	A “	Newc	Coal	Dec 17	D “	“	goods
Jun 15	D “	Newc	Ballast				
Jun25	A “	Newc	Coal	1825			
Jul 12	A “	Newc	Coal	Jan 1	A Dundee	Glasgow	goods
Sep 17	A “	Konigbg	Flax	Jan 13	D “	“	goods
Sep 27	D “	Newc	Ballast	Feb 1	A “	“	goods
Oct 26	A “	Newc	coal	Feb 12	D “	“	goods
				Feb 28	A “	Greenock	sugar
1823				Mar 10	D Dundee	Glasgow	Goods
Jan 31	D Dundee	Glasgow	Goods	Mar 27	A “	Greenock	Sugar
Mar [?]	A “	Forth	Coal	Apr 4	D “	Glasgow	Goods
Mar 31	D “	London	Potatoes	Apr 14	A “	“	Goods
May 23	A “	Newc	Coal	Apr 29	D “	“	Goods
Jul 9	A St P	[?]	[?]	May 17	A “	“	Goods
Aug [?]	A Dundee	St P	Flax	May 22	D “	“	Goods
Sep 7	D “	Newc	Pitwood	Jun 3	A “	“	Goods
Sep 15	A “	“	Coal	Jun 24	A “	Greenock	Sugar
Sep 26	D “	Antwerp	Ballast	Jun28	D “	Newc	Ballast
Nov [?]	A “	Alloa	Coal	Jul 7	A “	Alloa	coal
Dec 4	D “	Newc	Coal				
				===== Change of ownership =====			
1824				Aug 18	A Dundee	Newc	Coal
Jan 11	D Dundee	Newc	Ballast	Aug 19	D “	“	Ballast
Jan 24	A “	“	Coal	Aug 26	A “	“	Coal
Feb 2	D “	“	Ballast	Sep 6	D “	“	Ballast
Feb 24	A “	“	Coal	Sep 11	A “	“	Coal
Mar 29	A “	Alloa	Coal	Sep 22	D “	“	Ballast
Apr 6	D “	Newc	Ballast	Sep 29	A “	“	Coal
Apr 16	A “	“	Coal	Oct 7	D “	“	Ballast
Apr 27	D “	“	Ballast	Oct 14	A “	“	Coal
May 9	A “	“	Coal	Oct 27	D “	“	Ballast
May 29	A “	“	Coal	Nov 1	A “	“	Coal
Jun 11	D “	“	Ballast	Nov 12	D “	Glasgow	Goods
Jun 26	D “	“	Ballast	Dec 4	A “	“	Goods
Jul 11	D “	St P	Ballast	Dec 17	D “	“	Goods
Sep 6	A Arbroath	St P	Flax				
Sep 30	A Dundee	Newc	coal				
				1827			
1826				Jan 13	D Dundee	Glasgow	Goods

Jan 10	A Dundee	Glasgow	Goods	Feb 16	D “	“	Goods
Jan 20	D “	“	Goods	Mar 12	A “	“	Goods
Feb 2	A “	“	Goods	Mar 21	D “	“	Goods
Feb 20	D “	“	Goods	Apr 8	A “	Greenock	Goods
Mar 13	A “	“	Goods	Apr 15	D “	Glasgow	Goods
Apr 20	A “	“	Goods	Apr 30	A “	“	Goods
Apr 30	A “	“	Goods	May 11	D “	“	Goods
May 22	D “	Newc	Ballast	May 24	A “	“	Goods
Jun 2	A “	“	Coal	May 30	D “	“	Goods
Jul 2	D “	Glasgow	Goods	Jun10	A “	“	Goods
Jul 15	A “	“	Goods	Jun27	D “	“	Goods
Jul 23	D “	Newc	Ballast	Jul 8	A “	“	Goods
Jul 29	A “	“	Coal	Jul 17	D “	“	Goods
Aug 8	D “	“	Ballast	Jul 28	A “	“	Goods
Sep 17	A “	“	Coal	Aug 4	D “	“	Goods
Sep 24	D “	“	Ballast	Aug 20	A “	“	Goods
Oct 10	A “	“	Coal	Sep 1	D “	“	Goods
Oct 15	D “	Glasgow	Goods	Sep 15	A “	“	Goods
Nov 9	A “	“	Goods	Sep 30	D “	“	Goods
Nov 18	D “	“	Goods	Oct 16	A “	“	Goods
Dec 3	A “	“	Goods	Oct 26	D “	“	Goods
Dec 19	D “	“	Goods	Nov 10	A “	“	Goods
Dec 30	A Dundee	Glasgow	goods	Dec 23	D “	Glasgow	Goods

Source: Advertiser, Shipping Intelligence

FOOTNOTES

CHAPTER ONE

1 A.J. Durie, The Scottish Linen Industry in the Eighteenth Century (Edinburgh) 1979), p.108.
2 Durie, pp.65-7.
3 Durie, pp.100-1.
4 A. J. Warden, *The Linen Trade, Ancient and Modem* (London, 1864), p.591
5 Warden, p.479.
6 E. Gauldie (ed.), *The Dundee Textile Industry, 1790-1885* (Edinburgh, 1969), pp. xxxiv-xxxv.
7 B. Lenman, *From Esk to Tweed: Harbours, ships and men of the east coast of*
Scotland (Glasgow, 1975), p.25.

CHAPTER TWO

1 S.G.E. Lythe, The Economic History of Dundee', in R.L. Mackie *(ed),A Scientific Survey of Dundee and District* (London, 1939), 77.
2 C A. Whatley, 'Economic Causes and Consequences of the Union of 1707: A Survey, *Scottish Historical Review,* LXVIII, 2 (1989), 170-173.

3 SRO, E504/11/14.
4 3. Source: PRO T36/13/7, copied in SRO RH2/4/552.

5 Other figures, compiled by HM Customs *(BPP 1851* (281) LIII, 523-533) indicate more dynamic activity in the 'forties, with average entries of 75,626 tons for 1845-49, but this depends upon figures for 1847 that must be incorrect.

6 Ships listed in the 1829 Port Book, with individual tonnages from Ship Registers and Shipping intelligence *in Advertiser,* passim. Seven foreign-owned ships in Baltic trade were counted at 100 tons each, and one unknown vessel in transatlantic trade at 300 tons.
7 *BPP 1827/28* (279) XVIII, 204.
8 Sources: 1780-84, SRO, RH2/4/552; 1789-91, PRO, Customs 17/11-13; 1815-
19, SRO, E504/11/19-21; 1823-49, DRA, GD/DH/A10/3; clearances 1840-49, *BPP 1851* (281) LIII, 513-33.
9 Durie, 108.
10 Customs records have undressed flax, raw hemp, and tow as distinct commodities, but in fact there was much overlap between them, and the

standard work on the subject lists flax, tow, and codilla of flax and hemp as one generic commodity, and hemp as another. (AJ. Warden, *The Linen Trade, Ancient and Modem* (London, 1864), 633.

11 PRO, Customs 17/12. Leith paid 26.7% and Port Glasgow no less than 63.9% of the national total.
12 *The Independent,* published by R. S. Rintoul, Dundee (1816), 101. In this short-lived magazine Rintoul railed against the evils of the late war and its unfortunate affects on trade.

13 ibid, 229.
14 Source: 1789: SRO, E504/11/14; 1815-49: Warden, 633.
15 Warden, 111-112.
16 Peter Carmichael, autobiography, in E. Gauldie (ed), *The Dundee Textile Industry, 1790-1885* (Edinburgh, 1969), 23.
17 J. Sturrock, 'An Account of the Trade of the Port of Dundee, during the three years ended 31 May 1838', *Journal of the Statistical Society of London,* I (1839), 522; Gauldie, 80-81.

18 Gauldie, 121.
19 18. Warden, 326; Gauldie, 180.
20 St Petersburg was not, in fact, a good port, having shallow water. Kronstadt handled the largest vessels which could not proceed up the Neva. Goods from there - usually in small quantities - have been included with St Petersburg.

21 21. Warden, 328.
22 *Advertiser,* 1836 passim, Shipping Intelligence. By this time Riga had reached 127 vessels and St Petersburg (or its port of Kronstadt) 74.
23 23. Source: calculated from Port Books, SRO, E504/11/26.
24 Deals were sawn softwood more than 9 in. wide, 2 - 4 in. thick and over 6 ft long. Battens were no more than 7 in. wide, 2.5 in. thick, and over 6 ft long. Timber was unsawn or squared softwood tree trunks measured by the cubic foot.
25 Scandinavian vessels fell from 28 % of total entries to 0.8% in 1821 and 9 % in 1829.
26 Source: SRO, E504/11/26.
27 *Advertiser, 6* Sep 1836.
28 Advertiser, 8 Mar 1839.
29 Sturrock, 526n.
30 From St Petersburg, 21 Dec 1829.
31 Advertiser, 29 Dec 1820.
32 Advertiser, 27 Nov 1828. The Van Egmont was one of the regular traders between Dundee and Rotterdam.

33 Advertiser, 3 May 1839.
34 Advertiser, 18 Jul 1834; 18 Dec 1835.
35 DRA, CE/70/1/16, Custom Letter Books, 22 Oct 1823.

CHAPTER THREE

1 J. Sturrock, 'An Account of the Trade of the Port of Dundee, during the three years ended 31 May 1838', *Journal of the Statistical Society of London,* I, 1839, 524.
2 ibid.,525.
3 Warden, *Linen Trade*, 307. Cloth and yarn exports to France fell from 3.8 m yds and 8.5 Ibs average for 1840-44 to almost nothing by 1848 *(Statistics of the Linen Trade,* Dundee Trade Report Association, 1855, 347).
4 J.B. Williams, British Commercial Policy and Trade Expansion, 1750-1850 (Oxford, 1972), 195.
5 ibid, 198-208.
6 ibid, 175.
7 Sturrock, 525.
8 DRA, GD/CC, Forfarshire Chamber of Commerce, Sederunt Book, 1819-31. 25 May 1825.
9 Sugar was commonly the bulkiest cargo to Europe. Clearing Customs rarely meant that ships were fully loaded. 'Cargoes' were often trifling items resting on the ballast. In 1815 *the Alexander* carried only 4320 Ib cotton yarn tc Riga; the *Emanuel* only wearing apparel worth £9 to Christiansand; and the *Diana* carried only the trunks of 'John Glen Johnstone, Passenger, with his family to St Petersburg, the entire cargo paying only 3 shillings in duty.
10 Ships sailed to Quebec, Montreal or both, and since there is some confusion in sources all references here will be to Quebec, the most commonly mentioned place.
11 *Advertiser,* 7 Jan 1820.
12 Advertiser, 3 Mar 1820.
13 *Advertiser,* 29 Mar 1827.
14 *Advertiser,* 29 Jan 1829.
15 Advertiser, 8 Apr 1830.
16 Advertiser, 9 Feb 1832.
17 *Advertiser,* 15 Sep 1831.
18 Advertiser, 2 Feb 1832.
19 *Advertiser,* 20 Mar 1832.
20 Warden, 345.
21 For Customs purposes plain linen was counted at ld.-5d., 5d.-6d., and 6d.-l/6d. per yard of cloth no more than a yard wide.
22 Sturrock, 524.
23 *Advertiser,* 26 Jun 1840.
24 Chamber of Commerce, 20 Mar 1823. If preference was removed from colonial

sugar, it was argued, 'a great proportion of the population of this county would be then out of employment'.

25 ibid., 11 Dec 1830. The Chamber was well aware of the implications of its decision: uniquely, the discussion and 'certain resolutions' were not recorded in the minutes.
26 Sturrock, 523.
27 Advertiser, Novl837.
28 ibid., 1 June 1819.
29 ibid., 17 Mar 1830. By contrast with the Slavery issue, the abolition of the East India Company monopoly was justified because it would permit 'the moral improvement of our fellow subjects in British India'.

30 She had been 'fitted up with state-rooms and other accommodation for passengers in the India trade'. *Advertiser,* 1 Feb 1830.

31 The reasons for Dundee's halting experiments with jute in the first half of the century are described in detail in E. Gauldie, The Dundee Jute Industry, in J. Butt and K. Ponting (eds), *Scottish Textile History* (Aberdeen, 1987), 112-125.

32 The bulk of the cargo, for Davidson himself, consisted of materials such as 850 bales of jute, 197 sacks of Unseed, 29 teak planks, 100 pieces of bamboo, 12 coils of coir [coconut fibre rope], 7 bundles of twine, 40 buffalo horns, and 5 boxes of shells; and of foodstuffs such as 200 bags of sugar and 400 of rice, 1 box of 'East India preserves', 4 cases of preserved ginger, 5 canisters of arrowroot, 1,900 coconuts, 2 boxes of tea and 6 hogsheads of wine. George R. Baxter, merchant and grocer in Murraygate, received 100 bags of rice, 25 of black pepper, 3 of cloves and 1 of nutmegs. The remaining cargo, for six other Dundee merchants, consisted of 176 bales of jute, 330 sacks of linseed, 100 bags of sugar, 1,166 bags of rice and 2 of paddy, 3 cases of pickles, 2 boxes of castor oil, 2 bags mustard seed and 1 each of borax, camphor, chillies, cubebs [a pepper-like spice] and dry ginger. Hopes for future trade doubtless centred on samples of hemp, while the eastern curio trade was represented by 30 clay figures and 2 bundles of leaf fans, the latter imported by the master who, commonly on such voyages, had a little something on his own account. *Advertiser,* 1 May 1840.

33 Warden, 634.
34 *Advertiser,* 28 Oct 1836.
35 D.S. Macmillan, *Scotland and Australia, 1788-1850* (Oxford, 1967), 271.
36 ibid., 268, 275.

CHAPTER FOUR

1 Sources: 1775-84, SRO, RH 2/4/552; 1823-29, *Dundee Directory, 1834,* xvi; 1839-49, DRA, GD/DH/A10/3, Shore Dues Accounts; clearances, 1840-9. *BPP1851* (281) LIII, 523-33.

2 Positive assertions about coastal trade have to be qualified by recognising that sometimes ships entering from foreign parts proceeded coastwise, and vice-versa, thus producing an unfathomable complexity in official records, since vessels were counted as foreign traders only at the first port of call inwards or the last outwards. Dundee's coastal trade may, therefore, mask some of its foreign trade. Fortunately the difference in size, build and operating costs of coasters and foreign-going vessels curbed the enthusiasm of shipowners for too much interlocking working.

3 SRO, E504/11/26. Coastwise shipments of slates were recorded in the Port Books.

4 Details from *Advertiser*, passim.

5 Counting 1,464 colliers *(Advertiser*, passim), and estimating a total of c.2,150 by dividing the known tonnage of 180,000 by the average, which was approximately 85 tons.

6 1789 from SRO E504/11/14; 1791 from Statistical Account of the Parish and Town of Dundee, 1793 (Dundee, 1793).

7 C A. Whatley, 'Salt, coal and the Union of 1707', *Scottish Historical Review*, LXVI (1987), 41-3.

8 Dundee report (written in 1833), New Statistical Account, Forfarshire (Edinburgh, 1845), 52.

9 Sturrock, 'Trade of Dundee', 523.

10 Source: 1800-15, B. F. Duckham, *A History of the Scottish Coal Industry, 1700-1815* (1970), 366; 1823-49, Harbour Returns, DRA, GD/DH/A10/3.

11 For brief details, see Duckham, 222-34.

12 Source: Shipping intelligence, *Advertiser*, passim.

13 The boll was a local measure of c.8 cubic feet.

14 For example: 'Messrs. Robson and Skelly, of North Sunderland, propose being at Campbell's Hotel, Dundee, Friday 6th February. At which place they will be happy to meet their customers and settle accounts for lime furnished the preceding *year.'Advertiser, 22* Jan 1829. The Elgin works at Charlestown opened a month later, with similar solicitations for custom an; ships.

15 *Advertiser,* Shipping intelligence. The 79 vessels in 1830 carried approximately 50,000 bolls.

16 Advertiser, 25 Aug 1831.

17 *Advertiser,* 3 Feb 1831. However, he does not appear in the 1834 *Directory.*

18 New Statistical Account, 836 (1842).

19 New Statistical Account, 395 (1837).

20 Dunbarney parish; *Advertiser, 29* Mar 1828.

21 New Statistical Account, 418 (1838).

22 *Advertiser*, 17 Jul 1828.
23 *Advertiser*, 6 Aug 1829.
24 *Advertiser*, 23 Nov 1821.
25 Source: *Advertiser*, Shipping Intelligence.
26 *Advertiser*, 30 Oct 1828
27 *Advertiser*, 31 May 1832; DRA, GD/DPL/1/1, Dundee, Perth & London Shipping Co., Sederunt Book [hereafter DP&L], 5 Aug 1830.
28 DRA, GD/CC, Petition of Chamber of Commerce to Privy Council Committee on Trade, 24 Mar 1824. Total cloth shipped coastwise and exported in 1823 amounted to 288,291 pieces, which would be approximately 42 million yards, allowing an average of 147 yards per piece; ibid.
29 Source: DRA, GD/DH/A10/3 (reprinted, Warden, 635).
30 Regrettably, no trade figures for these routes have survived; it is doubtful if they were ever compiled.
31 *Advertiser*, *1* Jan 1830,11 Mar 1830.
32 Advertiser, 26 Oct 1838.
33 DRA, GD/DPL/DH/1/1: Dundee & Hull Shipping Co., Sederunt Book, 1824.
34 Unfortunately *Fife Packet* was wrecked in 1830, to the great loss of the company, which had apparently ignored the well-known dangers of the east coast run and neglected to insure her.
35 *Advertiser*, 14 May 1829.
36 *Advertiser*, 1 Apr 1830.
37 *Advertiser*, 1 Dec 1825.
38 SRO, E504/11/26.
39 DP&L, 5 Mar 1829
40 Warden, 634. Rail transportation of jute was of no moment before 1850.
41 For one of them, Chalmers & Guthrie, he also supervised the building of machinery in Dundee for their works in Houndslow, and sent down six flax-dressers. John Moir to D G Guthrie, 2 Dec 1822 - 4 Jan 1823; WRH, CS96/4030.
42 WRH, CS96/4030, John Moir & Co. to Howard, Parkes & Co., London, 2 Mar 1824.
43 It is convenient here to discuss the broad history of the company and the various trades it dominated, reserving its specifically business and shipowning aspects for chapter 5.
44 See, for comparisons, P.L. Cottrell, The Steamship on the Mersey, 1815', in P.L. Cottrell & D.H. Aldcroft (eds), *Shipping, Trade and Commerce* (Leicester, 1981); G. Jackson, 'Port competition on the Humber: Docks, Railways and Steamships in the Nineteenth Century, in E.M. Sigsworth (ed), *Ports and Resorts in the Regions* (Hull, 1980).
45 *Advertiser*, 31 Mar 1825.
46 *Advertiser*, 24 Nov 1825.
47 DP&L, 25 Oct 1826.
48 DP&L, 2 May 1828.

49 DP&L, 6 Oct 1836.
50 DRA, GD/CC, Chamber of Commerce, Sederunt Book, report of Committee on Dues, 16 Feb 1824.
51 WRH, CS96/4029, John Moir Accounts with Agents in London and Glasgow, 1822-28.
52 Advertiser, 12 May 1825.
53 DP&L, 1 Feb 1827, 5 Apr 1827.
54 ibid., 3 May 1832. The problem now was that DP&L through-rates to Liverpool were determined by steamer charges, which were too high to permit competition with Dundee-Liverpool sailers.
55 Advertiser, 8 Jul 1836.
56 L. Kennedy and P. Ollerenshaw (eds), An Economic History of Ulster, 1829-1939,69-70.
57 DP&L, 15 Feb 1836.
58 Glasgow Directory, 1820, 1830, 1840.
59 DRA, GD/CC, Report of Dues Committee.
60 ibid.
61 *BPP*, 1837-8 (137) xlvii, 60: Account of the Number and Tonnage of Steamers...
62 DRA, CE70/1/16, Customs Letter Books, Report on Steamers, 6 Oct 1821.
63 *Advertiser, 25* Feb 1820. Both vessels were employed solely in carrying passengers, and since neither left the river they were not registered as ships.
64 Dundee Register and Directory, 1824-5 (Dundee, 1824), 59.
65 *Advertiser,* 21 Jan 1830. In 1840 the *Wallace* was still the only steam tug at Dundee.
66 DP&L, 1 Mar 1832.
67 *Advertiser*, 7 Jun 1832.
68 DP&L, 22 Sep, 4 Oct 1832.
69 DP&L, 6 Mar 1844.
70 ibid., 24 Feb 1834; *Advertiser, 1* Mar 1834.
71 DP&L, 11 Jun, 10 Jul 1834.
72 ibid., 7 Oct 1841.
73 DP&L, 11 Jul 1839.
74 DP&L, 6 Mar 1844.
75 DP&L, 5 Jan 1843.
76 *Advertiser,* 22 May 1835.
77 DP&L, 3 Nov 1836.
78 *Advertiser,* 20 October 1837.
79 DP&L, 21 Apr 1833
80 DP&L, 20 Apr 1833.
81 DP&L, 6 Mar 1845.
82 DP&L, 21 Nov 1839.
83 *Advertiser*, 27 Mar 1835.
84 The engines were also built in Dundee, by Borrie of Dundee Foundry.

85 *Advertiser*, 20 May 1836.
86 The wreck of the *Forfarshire* on the Fame Islands is probably the best publicised of all early steamer disasters because of the adulation given to the heroine Grace Darling, daughter of the Fame Lighthouse keeper, who rowed out with him to rescue nine survivors clinging to rocks in dangerous seas. For a 'popular' account, see A. C. Smedley, *Grace Darling and her Islands* (1934).
87 Led by Robert Adamson, a Dundee merchant.
88 *Advertiser,* 10 May 1839.
89 *Advertiser*, 5 Jul 1839.
90 *Advertiser,* 5 Jul 1839.
91 *Advertiser*, 3 Jul 1835.
92 *Advertiser,* 31 Jul 1840.
93 *Advertiser*, 2 Aug 1839
94 *Advertiser,* 12 Oct 1838. The railway opened on 6 October.
95 DP&L, 1 Nov 1842.
96 DP&L, 4 Jul 1844.
97 DP&L, 25 Apr 1845.
98 *Minutes of Evidence-Select Committee on British Shipping, 1844, BPP 1844* (545), VIII, Q.2904, evidence of Joseph Stalker of North Shields.
99 *BPP 1851* (656) LII, 200.

Chapter 5

1 Norwegian vessels carrying wood had averaged 17.5% of vessels entering in
1789-91; PRO, Customs 17/11-12.
2 They were 21 Scandinavians with wood, iron and bones, nine Prussians (again
with wood, from Memel), a couple of Dutchmen, two Germans, and a Russian from Libau with the unlikely name of *Herzog Alexander Von Wurtemburg.*
3 30.6% of vessels and 25.8% of tonnage, the discrepancy owing to their small
size (128 tons against 162 for British vessels. *BPP, 1851* (281) LIII, 523-33. Foreign vessels fell to 20% of tonnage by 1849.
4 Outsiders were 27% of vessels and 29% of tonnage in 1818; Port Book, SRO.
E504/11/20-21. Colliers belonged to Burntisland, Kirkcaldy, Leven, Kincardine, Blyth, the Shields, Newcastle and Sunderland; fish transports to Peterhead, Fraserburgh, Montrose and Scarborough.
5 All the goods intended for export are sent either to Dundee, Glasgow or

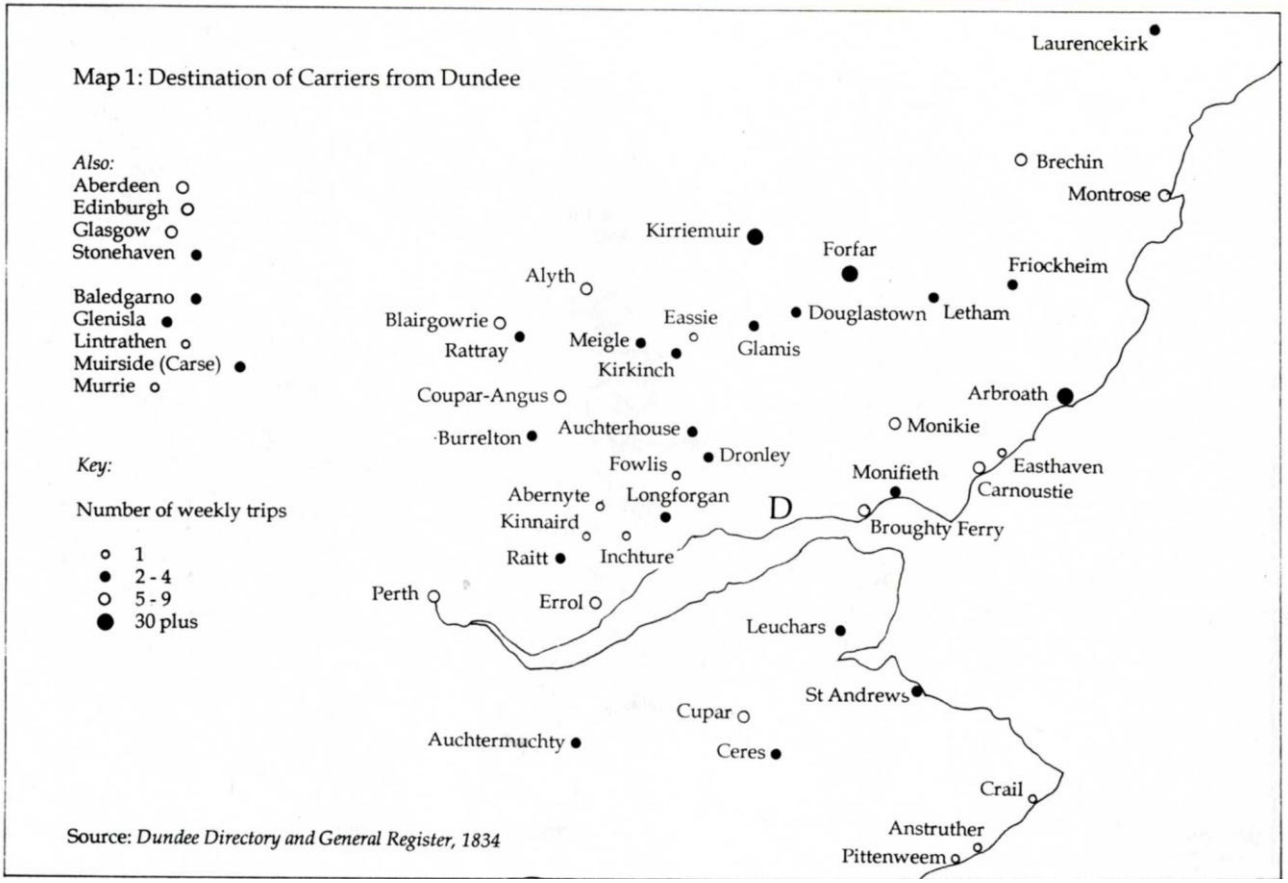
London'; *New Statistical Account, Forfarshire,* 88.
6 The years quoted are 12 months ending 31 May 1829, etc.
7 *BPP 1844* (545), VIII, No.l, 74, evidence of G. Chapman.
8 *Advertiser,* 10 Jun 1828.
9 Sturrock, Trade of Dundee', 526.
10 WRH, CS96/4030, John Moir to Mather, Mackay & Co., 6 Aug 1824. The vessel, *Hermes,* had been repaired in 1822 and 1824, which probably counted against rather than for her in the eyes of underwriters.
11 *Advertiser,* 25 Jan 1833.
12 Advertiser, 5 Sep 1831.
13 *Advertiser,* Nov 1832, passim.
14 Source: Shipping Lists, Dundee *Directories*
15 Whalers are discounted here because their excessively large crews - 50 or more - were not concerned with sailing the vessel.
16 Vessels' customary usage was declared by owners in the *Directories* only until
1829.
17 Each Directory has a list of vessels showing type, size and 'Agent or Owner'.
In practice this was almost always the managing owner, that is the principal shareholder or the shareholder organising the purchase of the vessel and representing the other owners.
18 *Advertiser,* 3 Mar 1820.
19 Source: Dundee *Directories,* Shipping Lists.
20 DRA, GD/DPL/1/1, DP&L Sederunt Book, 5 October 1826. These were
thought to be realistic valuations, lower than preliminary estimates made during amalgamation negotiations.
21 Details from DP&L, 4 Oct 1832.
22 Owners of ship-shares almost always resided locally.
23 DP&L, 3 Dec 1835.
24 DP&L, 9 Apr 1844.
25 DP&L, 7 Apr 1831.
26 DP&L, 3 Jul 1826.
27 *Advertiser,* 13 Nov 1828.
28 *Advertiser,* 15 Jan 1829.
29 *Maria,* 104 tons, S.R. 48/1831.
30 *Fox,* 109 tons, S.R. 32/1832.
31 *Advertiser,* 1 Sep 1831.
32 *Advertiser,* 29 Mar 1839.

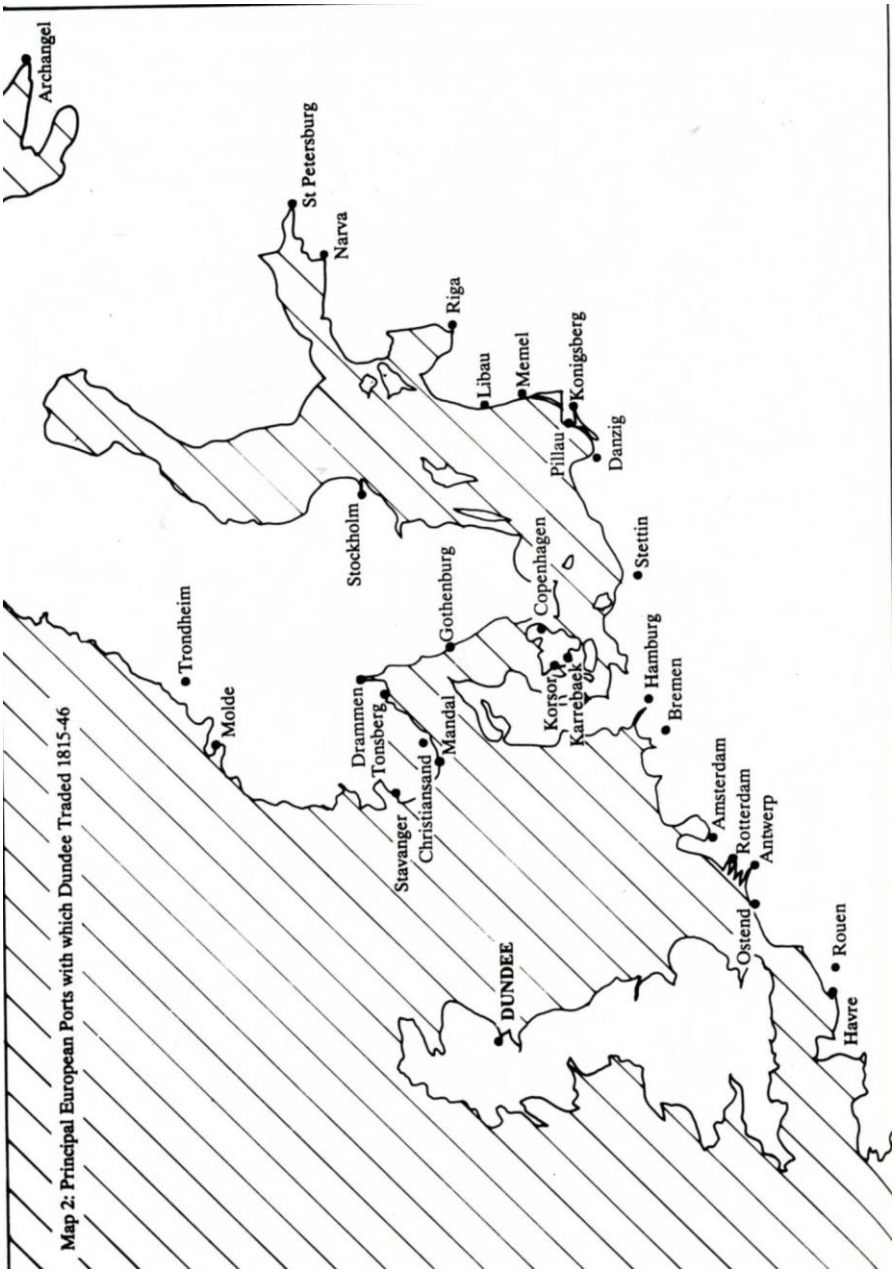
33 *Advertiser*, 9 Oct 1835.
34 *Advertiser*, 13 Mar 1835.
35 WRH, CS96/2087-2092, Ledgers and Workbooks of William Dutch, shipbuilder, passim.
36 DRA, GD/DPL/DH/1/1, Dundee & Hull Shipping Co, Sederunt Bk, 3 Dec 1828; WRH, CS96/3731, Neish & Smart Creditors' Sederunt Bk, 1 Nov 1826.
37 WHR, CS96/2092, letter, Small to William Dutch, 29 Oct 1821, copied in Dutch's Workbook.
38 DRA, GD/DPL/1/1, Sederunt Book, 5 Oct 1826.
39 House of Lords Record Office, Appeal Cases, vol 65 (1833), W A Flowerdew *versus* Dundee, Perth & London Shipping Co., Respondents' case, 668.
40 ibid., 8-23 Nov 1826; 2 May 1827.
41 *Advertiser*, 28 Feb 1824.
42 *Advertiser*, 5 Feb 1824.
43 *Advertiser*, 11 Mar 1836.
44 WRH, CS96/3731, Neish & Smart Creditors' Sederunt Bk, 1 Nov 1826.
45 *Advertiser*, 29 Mar 1832.
46 Sturrock, Trade of Dundee', 526.
47 Because of inadequacies in the Register started in 1788, a general re-registration was ordered in 1824 and continued for some years as vessels returned to their home port. Consequently registrations in 1824-5 reflect the entire fleet and not simply additions to it.
48 Dundee Custom House, Shipping] Register], 33/1825.
49 Sixty four shares at one ton implies a 64 ton vessel, and so on.
50 DRA, CE/70/1/16, Customs Letter Bks, W Dalgliesh to Collector, 25 July 1820.
51 S.R. 35/1831.
52 The irregularity in timing and size of payments by William Dutch's customers implies that they paid him when they could, with bills of exchange relating to their freight income. See WRH, CS96/3037 and 2087, Dutch's ledgers, passim.
53 *Advertiser*, 22 Mar 1805.
54 It is possible that he did not own the vessel until late 1817: the Register has not survived.
55 As an indication of the real size of these newer transatlantic vessels, *Eliza* was 89 ft long, 26 ft broad, and 17 ft in the hold (with one deck).
56 To carry the coincidence further, David Leighton's son William became a shipbroker; DRA, Lockit Book of Burgesses, 25 Oct 1842.

57 Lockit Book, 28 Sep 1824.
58 Excluding *Bruce*, for which details are not available; S.R. 1/1824 *(Hind)*,60/1824 *(Eliza)*, 25/1829 *(Euphemia)* and 31/1832 *(Victoria)*.
59 When *Bruce* was re-registered in 1825 William Bruce was the principal owner, and in 1829 James Bruce became its sole owner. S.R. 59/1825, 15/1829.
60 In 1824-5 he held shares in four vessels.
61 *Advertiser*, 25 May 1829.
62 *Advertiser*, 3 June 1830.
63 *Advertiser*, 27 Nov 1835.
64 Gauldie, 135-6.
65 DRA, CE70/1/17, Custom Letter Books, 11 Sep 1822.
66 *Advertiser*, 17 Dec 1829.
67 *Eliza* was originally 258 tons, later reduced (under 5&6 William IV, c.56) to 247 tons. As an indication of the dimensions of vessels of that period, it might be noted that *Eliza* was 89 ft long, 26 ft broad, and 17 ft deep in the hold.
68 This section is based on *the Advertiser's* Shipping Intelligence.
69 DRA, CE70/1/22, Customs Letter Books, Controller to Board, 6 Jul 1833.
The information came to light when Thain complained that he could ship stores rum our of Dundee only in 20 gallon casks - 'too much for his small vessels' whereas he could ship in 10 gallon casks out of Liverpool.'
70 WRH, CS 96/4388.
71 *Advertiser*, 28 May 1829. Whitton was the sole owner of this vessel, sold to London in 1837.
72 Advertiser, 4 Oct 1833.
73 in 1829; S.R. 20/1828.
74 1831; S.R. 6/1825.
75 in 1838; S.R. 41/1832.
76 *Advertiser*, 28 Dec 1838.
77 1837; S.R. 31/1827. As an indication of the accumulation of 'dead' vessels on the Register, *Anna* was not cancelled until 1971 *(sic)*.
78 in 1836; S.R., 5/1828; according to *the. Advertiser*, 23 Sep 1836, she was 'lost by a tornado'!
79 In 1840; S.R. 7/1830.
80 in 1835; S.R. 22/1831.
81 in 1837; S.R. 48/1831.
82 in 1832; S.R. 28/1832.

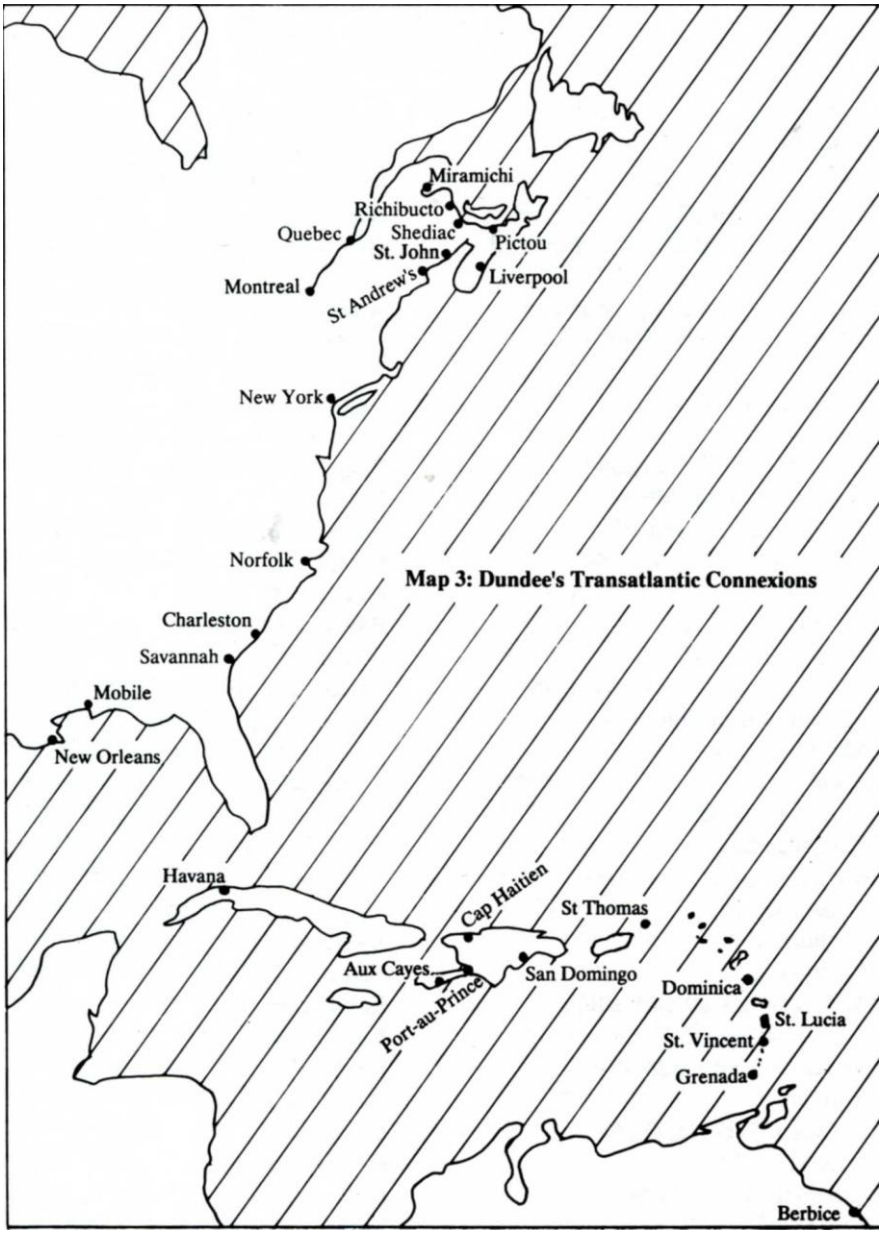
83 WRH, CS96/3731, Sederunt Book, Neish & Smart's Sequestration, 1826-7,
passim.
84 DRA, GD/CC, Forfarshire Chamber of Commerce, Sederunt Book, 13 Mar 1823.
85 Letter from Captain William Boyack, *Advertiser, 1* Mar 1822.
86 Sandy Hook is the bar on the southern side of Lower New York Bay.
87 Advertiser, 29 Mar 1832.
88 A temporary mast, perhaps lashed to the stump of a broken one.
89 A particularly strong small sail for emergency use in storms.
90 *Advertiser,* 23 Apr 1829.
91 *Advertiser,* 9 Dec 1830.
92 Details from DRA, CE 70/1/16, Customs Letter Books, 27 Nov 1821.
93 *Advertiser,* 30 Nov 1821.
94 *Advertiser,* 9 Aug 1827.
95 *Advertiser,* 8 Sep 1831.
96 DRA, CE 70/1/21, Customs Letter Books, 15 Nov 1831.
97 Quoting the Royal College of Physicians; Jun 1831.
98 DRA, GD/MUS/4, D. Halket to A Pitkethly, 9 Sep 1834. This was for a voyage to Lisbon, not to the Baltic!
99 *Advertiser,* 31 Jan 1824.
100 *Advertiser,* 19 Jul 1833.
101 *Advertiser,* 17 Feb 1831.
102 *Advertiser,* 4 Aug 1831.
103 *Advertiser,* 31 Jan 1828. In October 1829 she started loading (for Port-au-
Prince) in Newcastle.
104 *Advertiser,* 3 April 1840.
105 *Advertiser, 22* Sep 1825. Shippers were not responsible for unloading car goes, but they had to report their goods to Customs before unloading could begin.
106 *Advertiser,* 6 Jan 1825.
107 *Advertiser,* 19 Jan 1826.
108 *The Independent,* 1816,119.
109 DRA, Council Minutes, 22 Jan 1789.
110 For a detailed discussion, see E. Gauldie, *One Artful and Ambitious Individual,* chapters 8-9, and B. Lenman, *From Esk to Tweed,* 72-79.
111 DRA, GD/DH/2/2, Minute Book of the Stated Meetings of the Trustees
of the Harbour of Dundee, 6 Feb 1821.

112 New Statistical Account of Scotland, Dundee, 31.
113 J. H. Thompson and G. G. Ritchie, *Dundee Harbour Trust* (London, 1933), 10.
114 The Act also transferred ownership of the port from the Corporation to the Commission, now called Dundee Harbour Trust, though £28,000 had to be paid from Harbour income to sweeten the Corporation.
115 *Advertiser,* 24 Dec 1829.
116 *Advertiser,* 5 Feb 1836.
117 *Advertiser,* 22 Mar 1832.


Map 1: Destination of Carriers from Dundee
Also:
Aberdeen
Edinburgh
Glasgow
Stonehaven
Baledgarno
Glenisla
Lintrathen
Muirside (Carse)
Murrie
Key:
Number of weekly trips
1
2 - 4
5 - 9
30 plus
Laurencekirk
Brechin
Montrose
Kirriemuir
Forfar
Friockheim
Alyth
Blairgowrie
Eassie
Douglastown
Letham
Rattray
Meigle
Glamis
Kirkinch
Coupar-Angus
Arbroath
Burrelton
Auchterhouse
Monikie
Fowlis
Dronley
Monifieth
Easthaven
Carnoustie
Abernyte
Longforgan
D
Kinnaird
Broughty Ferry
Raitt
Inchture
Perth
Errol
Leuchars
St Andrews
Cupar
Auchtermuchty
Ceres
Crail
Anstruther
Pittenweem
Source: Dundee Directory and General Register, 1834



Map 2: Principal European Ports with which Dundee Traded 1815-46



Map 3: Dundee's Transatlantic Connexions

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This book had its beginnings 'when Kate Kinnear inherited a twenty volume pocket-sized set of Rollin's *Ancient History*, each inscribed George L. Hynd, Brig *Eliza* and set off in search of this shipmaster and the ship in which he presumably read his *Rollin*.'

Gordon Jackson has developed and expanded this quest into a readable and detailed account of Dundee's Trade and Shipping, when the vessels of the port traded with the Americas, the Caribbean, the Mediterranean, the Baltic and as far north as the White Sea.

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