

# ‘Goods to Newcastle’: an uncharted coastal network, 1800–1840

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## SUMMARY

*It is generally acknowledged that Newcastle’s coastwise coal trade of the early nineteenth century helped underwrite the nation’s security in wartime and its prosperity during peace. By comparison, the port’s incoming coastal commodity flows have merited little attention. Through analysis of previously unused primary sources this paper seeks to demonstrate that the inward coastal traffic was both substantial in volume and complex in nature, imparting a decisive supply-side dynamic to Tyneside’s period of outstanding industrial and urban expansion, 1800–1840. Working in an essentially pre-railway environment, coastal sail shipping was able to offer a flexible, diverse, low cost, bulk transport agency that retained competitive and operational advantages even after the introduction of steamships on select routes.*

## INTRODUCTION

**T**HAT THE EARLY nineteenth-century coastal trade of Newcastle upon Tyne was dominated by an escalating demand for coal is often taken for granted, although from a contemporary point of view it was never a story of unbridled advance. The coal trade was peculiarly susceptible to short term disruption. In particular there was the question of war or peace, with 1815 marking a shift from a ‘contractor state’ based economy back to one of *laissez faire* (Knight and Wilcox 2010). Following which, government policy on issues such as ‘Reciprocity’, the ‘Corn Laws’, and even the reform of Parliamentary Boroughs carried implications for those engaged in coastal trade and port management. Locally, the 1820s and 1830s saw the statutory hegemony of Newcastle Corporation over the river Tyne unsuccessfully challenged by Parliamentary Petitions and Bills from the river-mouth towns of North and South Shields. Many of the issues raised were well founded, including the extension of Customs services, provisions for new quays or docks, and the effective maintenance of the river navigation. The entire period under consideration also saw marked improvements in the region’s transport facilities, improvements in which ‘coastal shipping provided one important element’ (McCord 1979, 49–50). A perceptive generalisation that is amply supported through analysis.

## INWARD AND OUTWARD COASTAL TRADE COMPARED

Overall the period saw a remarkable expansion of Newcastle’s coastwise coal trade. Between 1800 and 1830 it grew by two-thirds, at which point volumes stultified as overseas sales began their steady rise (Table 1) (Mitchell and Deane 1971, 110–1; Elliot 1955, 196–197, 218). Nevertheless, the centuries-old pattern of coastwise contacts remained little changed, extending to ports over much of England’s south and east coasts together with the Scottish east coast

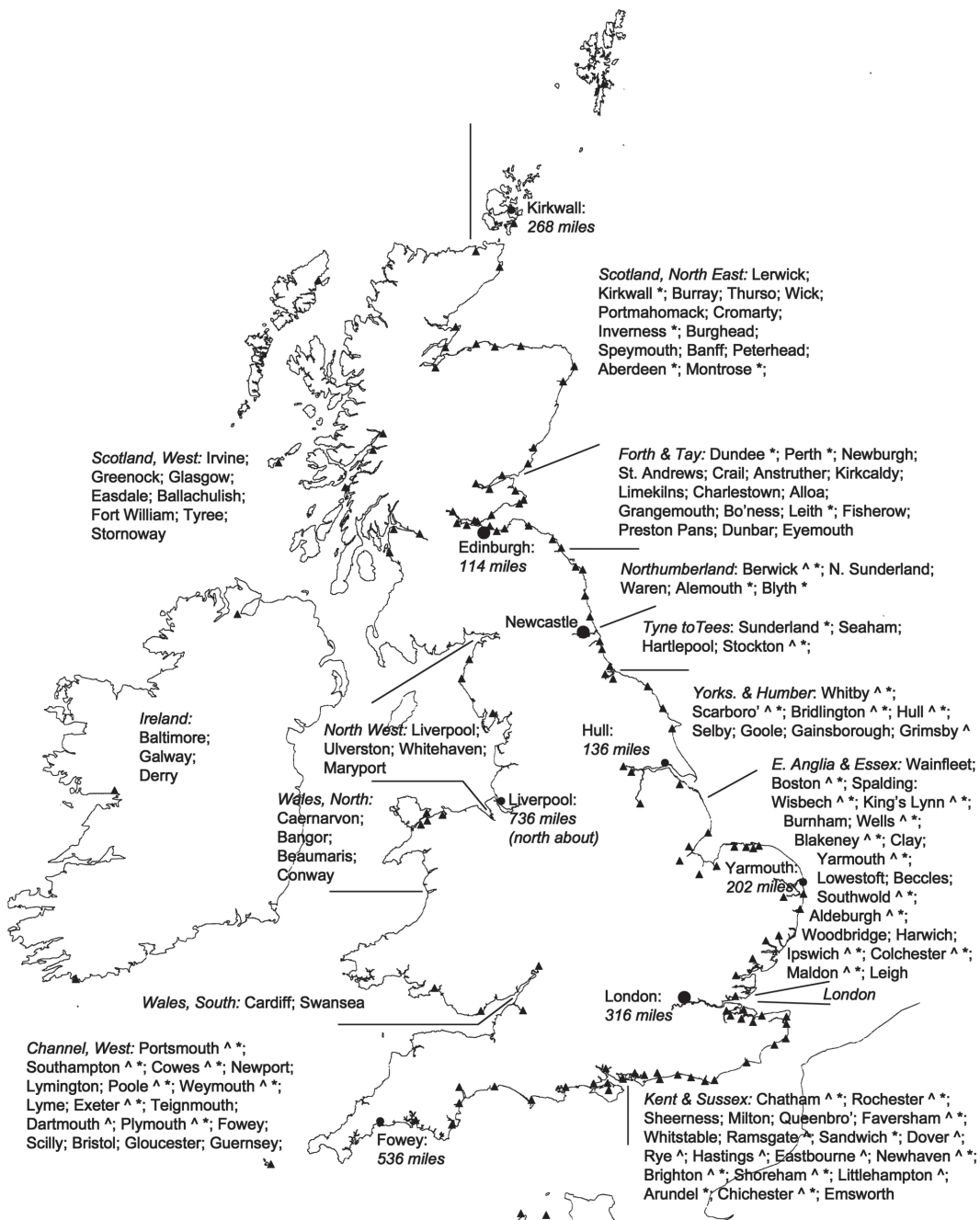


Fig. 1 Ports despatching cargoes coastwise to Newcastle, 1805-1839.

KEY: ^ port in receipt of 100 tons or more of Tyne coal in 1683

\* port in receipt of 10 or more shipments of Tyne coal in 1789

Sources: *Newcastle Courant*, 1805-1839; Elliot 1955; Gould 2002

Table 1 Annual coal shipments (000,000 tons) from the Tyne, 1800–1845.

Year	1800	1805	1813	1815	1825	1830	1840	1845
Coastwise (mill. tons)	1.43	1.47	1.84	1.72	1.82	2.17	2.13	2.27
Overseas (mill. tons)	0.12	0.13	0.07	0.11	0.14	0.2	0.92	1.0

Sources: Elliot 1955; Mitchell and Deane 1971.

(Gould 2000). And, although London's dominance weakened, it still took over half of all the Tyne's coastwise coal. As to the inward trade to Newcastle, over 130 British ports contributed, and since many were longstanding destinations for Tyne coal there was much reciprocity (fig. 1).

A distinctive feature of the port of Newcastle's coastal trading regime was its asymmetry, with cargo carrying departures far outnumbering cargo carrying arrivals. Annual coastal departures almost doubled as the domestic demand for coal grew, escalating from 7,000 early in the century to over 12,000 by 1839. Meanwhile, coastwise arrivals with cargo were relatively static, at around 1,100 per annum, so the port's trading asymmetry intensified over time (Table 2). This imbalance characterised all the region's coal shipping ports, setting them apart from most other east coast seaports. In that context, a comparison of Newcastle and Dundee is instructive (Jackson 1991, 23–91). Both towns controlled estuarine ports servicing rapidly industrialising urban centres and agrarian hinterlands, with coastal traffics that enjoyed a common sea route — for a time they supported a reciprocal packet service. But whereas Newcastle's coastwise cargo movements of the early 1840s were 9:1 in favour of departures over arrivals, Dundee's were the converse, at 2:1 in favour of arrivals. Paradoxically, the most significant factor in Dundee's more balanced regime was its growing need for Newcastle coal. Coal deliveries nearly tripled over some forty years, reaching 300 shipments annually, but the return traffic to Newcastle was a tenth of that at best.

Another important aspect of Newcastle's early nineteenth-century coastal trade that requires explanation is seasonality. There was an established annual cycle of outward trade in which springtime expansion was followed by marked peaks in mid-summer and late autumn. And, despite popular historical perception, winter levels of collier sailings remained relatively high, rarely falling below 70 percent of the monthly average. The seasonal pattern of cargo carrying arrivals coastwise was less well defined. This is partly because numbers were lower, and partly because inward carriers transported a wide range of commodities with differing times of supply (e.g. fresh foodstuffs). Overall, the seasonal pattern of cargo arrivals reflected that of departures, but with one telling difference. It exhibited three, sometimes four,

Table 2 Newcastle: coastwise arrivals and departures with cargo, 1805–1839.

	1805	1815	1825	1835	1839
Coastwise arrivals with cargo	1182	1386	1248	810	1267
Coastwise departures with cargo	7088	8428	10338	11146	12278
Percent of, arrivals: departures	16.7%	16.4%	12.1%	7.3%	10.3%

Source: *Newcastle Courant*, 1805–1839.

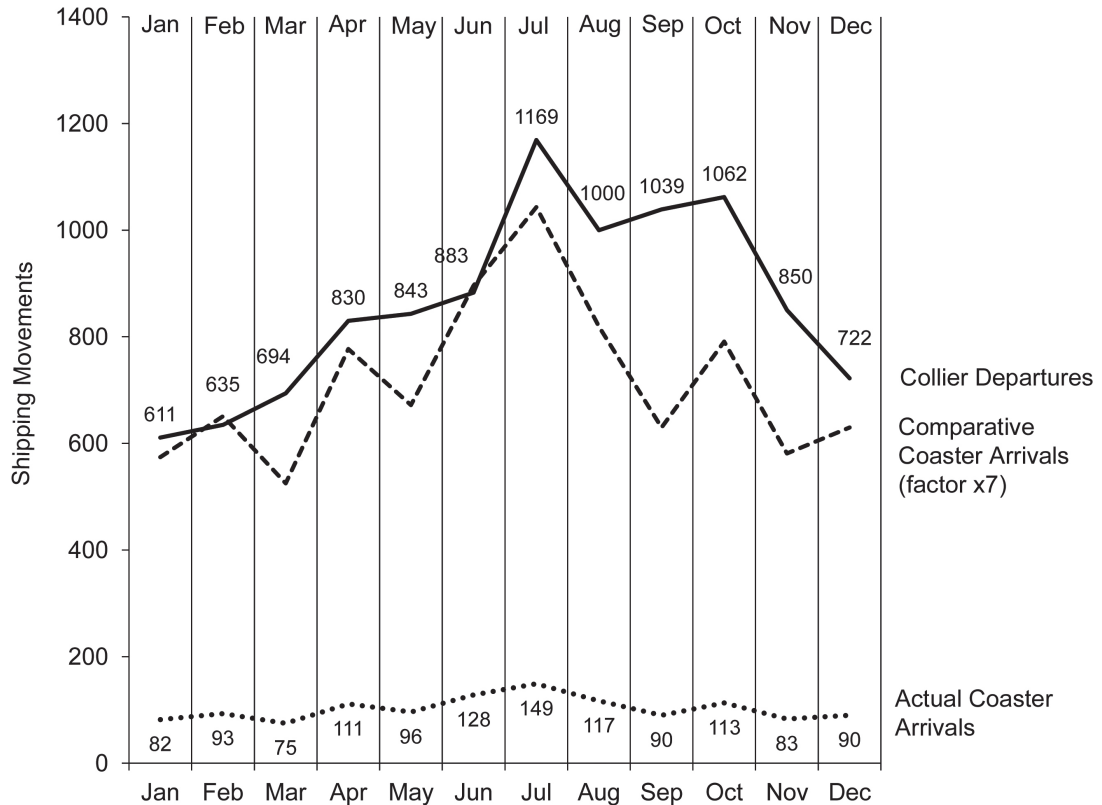


Fig. 2 Newcastle: seasonality of collier departures and coastwise arrivals, 1825.  
Source: *Newcastle Courant*, 1825.

distinct troughs during a year, each one falling between seasonal peaks in the coal trade cycle. These low points probably indicated phases when much of the available east coast tonnage was already taken up for coal carriage, or was being repositioned, in ballast, in order to do so (fig. 2).

### CATEGORIES OF CARGO AND THEIR SOURCES

In the early nineteenth century the Orford-based corn and coal merchants Mingay & Rope sent their coasting vessels up to Newcastle, Sunderland or Blyth for coals and, as opportunity offered, fixed cargoes outward from Suffolk too.<sup>1</sup> For instance, in March 1847 their 71-ton schooner *Clementina* (1834) carried an Ipswich-built seed drill and threshing machine north to the Tyne, the latter to be forwarded via the Newcastle and Carlisle Railway to Cumbria. Characteristically, *Clementina's* return cargo to Orford comprised: coal, 65 tons; coke, 21 tons; soda, 20 casks; glass bottles, four gross; and 100 carboys of vitriol.<sup>2</sup> This last was destined for nearby Snape where artificial manure was manufactured from locally quarried phosphatic coprolites (fossil dung), a material regularly despatched in Mingay-owned coasters to Tyne-side chemical works.

Informative as they are, such detailed illustrations of the Tyne's early nineteenth-century coastal trade are so rare as to question how far they represent the whole. For a more comprehensive picture of the coastwise links of the North East coal ports it would seem necessary to employ a more rigorous quantitative approach. Although the Customs Authority's practice of maintaining 'Coastal Port Books' was abolished in 1799, Newcastle's terminate in 1796, some equivalent shipping information already appeared locally in the public domain. Around 1780 the North East's principal weekly newspaper, the *Newcastle Courant* (est. 1711) began the regular, formal publication of 'Marine Intelligence' supplied by local Customs House officials. Thus, throughout the period under review, 1800–1840, the *Courant* provides a coherent source of shipping information covering not only the Ports of Newcastle and Sunderland but, from c. 1815 onwards, Stockton-on-Tees as well.<sup>3</sup>

To satisfy the needs of commercial readers, the paper's lists of 'Arrivals, Coastwise' provided each ship's name, the master's surname, its port of departure, and category of cargo carried. Nevertheless, these published listings varied in format or detail over time. For instance, the clearest commodity details were provided for Sunderland, not Newcastle. And it is important to recognise that entries rarely indicated the volume or weight of the items discharged. Consequently, the data generally reflects the relative frequency of a commodity trade, not its absolute volume. Despite these limitations the listings provide a unique sequential dataset recording Newcastle's incoming coastal traffic (Table 3).

Table 3 Commodity flows to Newcastle coastwise, 1805–1835 (note reduced categorisation, 1835).

	1805		1815		1825		1835	
	Arr.	share	Arr.	share	Arr.	share	Arr.	share
Earth Products	33	3%	29	2%	14	1%		
Foodstuffs	100	8%	48	3%	75	6%		
Grain & Pulses	231	19%	258	18%	276	22%	329	51%
Iron & Metals	8	1%	5	<1%	1	<1%		
Goods	527	44%	564	40%	519	41%	477	48%
Ship Outfitting	3	<1%						
Sundries	38	3%	42	3%	18	1%	3	
Wood Products	249	21%	456	33%	357	28%	1	
Total Arrivals	1189		1402		1260		810	

Source: *Newcastle Courant*, 1805–1835.

For convenience, the *Courant's* weekly lists arranged ships that carried the same commodity together, normally prioritising 'goods', 'grain', and 'timber', and these three comprise the core groupings adopted here, vis.: Wood Products; Grain and Pulses; and Goods. A range of less frequently consigned materials were also named, and for purposes of analysis these have been assigned to congruent, subsidiary commodity groups: Foodstuffs; Earth Products; Iron and Metals; Sundries; and Ship Outfitting. By and large these core and subsidiary groupings implicitly support the view that 'coastal transport before steam was really only valuable for goods which were bulky, non-perishable and of low unit value.' (Bagwell and Lyth 2002, 21–35)

Descriptive and quantitative consideration is given below to the core staples of Wood Products and Grain, followed by the two most prominent subsidiary groups, Foodstuffs and Earth Products, before fresh argument is made that ships' ballast should be afforded a measure of commodity status too. Discussion of the numerically dominant, if undifferentiated, shipments listed by the *Courant* simply as 'Goods' is reserved until last since, from the mid-1820s onward, their carriage (and that of passengers) was increasingly influenced by the introduction of coastal steam ships.

Analytically, the huge number of shipping movements over four decades determines that data transcription and historical analysis must be selective. Consequently this study refers largely to the decennial years: 1805; 1815; 1825; and 1835, whereat the newspaper lists become condensed and unproductive. Geographically, each listed port of departure is regarded here as the cargo's source, although some vessels will have actually sailed from Sub-ports or Creeks of the Principal Customs port thus named.<sup>4</sup> Altogether, over 130 British ports of departure are recorded, with Berwick, Hull, Leith, London, Lynn, Stockton and Yarmouth, consistently among the top quartile (Table 4).

Table 4 Top quartile of Ports despatching cargoes coastwise to Newcastle, 1805–1839.

1805 No. Cargoes	1815 No. Cargoes	1825 No. Cargoes	1835 No. Cargoes	1839 No. Cargoes
London: 204	London: 230	London: 162	London: 205	London: 293
Hull: 89	Inverness: 114	Inverness: 148	Stockton: 84	Berwick: 135
South'pton: 81	Hull: 112	Perth: 95	Hull: 83	Yarmouth: 109
Lynn: 69	Montrose: 55	Berwick: 86	Leith: 81	Leith: 85
Leith: 60	South'pton: 54	Hull: 54	Yarmouth: 45	Lynn: 84
Yarmouth: 55	Lynn: 52	Stockton: 53	Lynn: 42	Liverpool: 83
Berwick: 55	Berwick: 51	Gainsboro': 50	Gainsboro': 40	Boston: 77
Stockton: 53	Perth: 41	Montrose: 49	Liverpool: 39	Gainsboro': 69
Montrose: 38	Yarmouth: 40	Leith: 45	Waren: 24	Hull: 54
Whitby: 37	Dundee: 39	Yarmouth: 45		
Dundee: 30	Aberdeen: 35	Lynn: 36		
Alemouth: 24	Leith: 35	Aberdeen: 33		
Blyth: 22	Stockton: 33	Dundee: 29		
Aberdeen: 22	Whitby: 31	Milton: 26		
Chichester: 19	Arundel: 28	Faversham: 20		
Perth: 18	Dover: 28	Glasgow: 18		
Arundel: 16	Ipswich: 25	Liverpool: 16		
Milton: 15		Banff: 16		
Cargoes: 1181	Cargoes: 1376	Cargoes: 1248	Cargoes: 810	Cargoes: 1263
Quartile: 907	Quartile: 1003	Quartile: 980	Quartile: 643	Quartile: 989
Qu. share: 68%	Qu. share: 70%	Qu. share: 76%	Qu. share: 74%	Qu. share: 76%

Source: *Newcastle Courant*, 1805–1839.

CORE COMMODITIES — THE FLOW OF WOOD PRODUCTS  
AND GRAIN

Unlike many coastwise shipments, wood products and grain were supplied in direct competition with foreign imports, although the latter were generally disadvantaged by the embargoes and tariffs variously imposed by government (Palmer 1990).

*Wood Products*

It is seldom acknowledged that the North East's early nineteenth-century industrial development depended as much upon supplies of wood as of iron. Although much of the region's requirements for wood could be met from Colonial or, as the situation allowed, Baltic and Scandinavian sources, there was also real demand for British-grown products. Coastwise deliveries rose at the end of the French Wars before levelling off in the mid-1820s, after which they began to decline, apparently in the face of overseas competition. However, this long-term downward trend obscures a number of changes in the supply of domestic products, in which respect it is instructive to compare Newcastle's coastal wood trade with that of Sunderland (whose records are more detailed).

At the beginning of the century Sunderland received little more than half Newcastle's number of coastal wood deliveries, but between 1805 and 1815 that total almost doubled. Parity was then apparently maintained until the boom year of 1825 when both ports received over 350 deliveries. But these bare figures mask significant differences in procurement. East coast Scottish supplies had expanded to occupy 70 percent of Newcastle's intake during the post-war period, whilst Sunderland retained its former dependence on the Channel and Kentish coasts — which supplied half of all its deliveries. Not until the mid-1820s did Scottish suppliers gain a firm foothold in the Sunderland market, eventually gaining a 40 percent share (fig. 3). These supply-side changes reflected wider developments in the North East's maritime and industrial scene.

In the mid-1820s the growth rate of Tyneside shipbuilding finally fell in comparison with that of Sunderland, which then became the region's leading merchant ship producer (Clarke 1997, 73–87). Sunderland's concentration on series built, low cost, bulk carriers proved increasingly successful, and that success rested largely upon meeting the need for new shipping tonnage to service the expansion of the Great Northern Coalfield. A general, if notoriously cyclical, demand for shipbuilding and mining timber was thus created. The resultant inflow of British wood products to Sunderland exhibited two notable features: a wide range of products from a large number of ports of despatch. Numerically, over 30 named wood products arrived coastwise, only two of which were redistributed foreign timber. Geographically, at a time of peak demand in 1815, Newcastle and Sunderland each sourced cargoes from three dozen locations, one-third of these sites contributing ten deliveries or more. Inverness was Newcastle's largest supplier with 100 deliveries, whilst London and Southampton despatched over 30 each to Sunderland.

Sunderland's regime for 1815 characterises the wider picture. Oak plank and timber comprised 60 percent of all the British wood cargoes received, and these were sourced from 28 separate ports ranged from Exeter to Thurso. Except for London, the principal contributors of oak were a dozen ports on the Channel coast between Poole and Dungeness, amongst which Southampton, Arundel and Rye were prominent (Holland 1971, 29–45). Beech in the form of

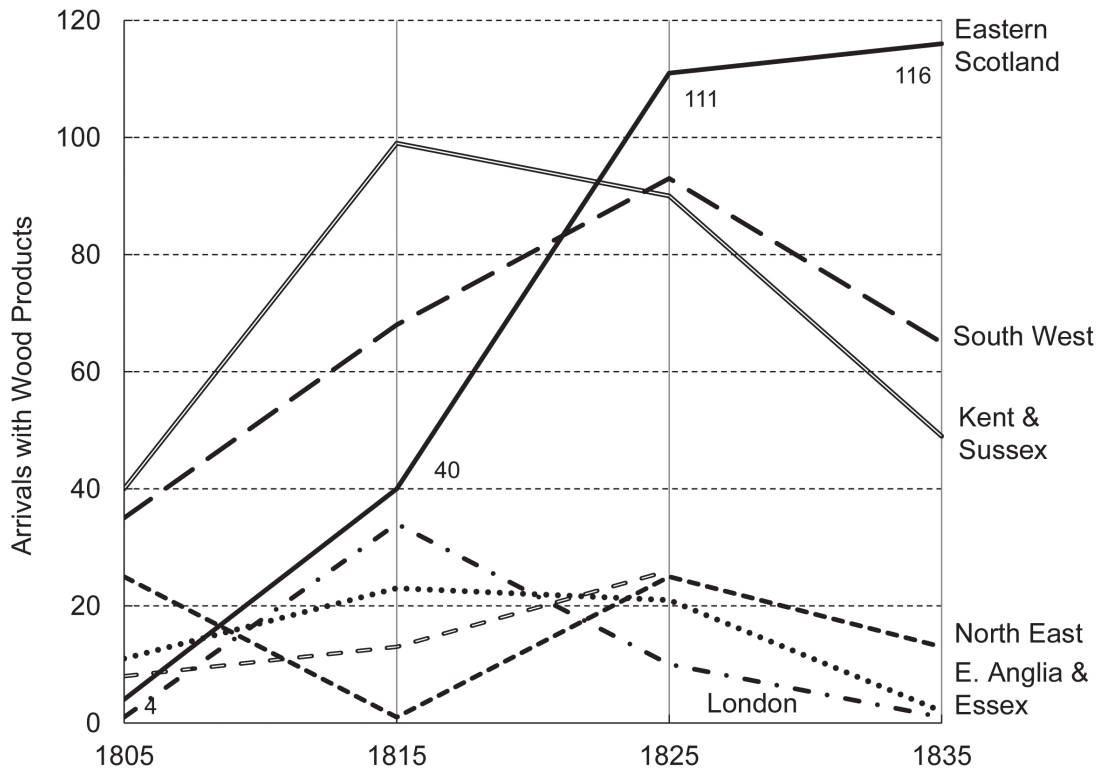


Fig. 3 Provenance of wood products sent coastwise to Sunderland, 1805–1835. Sources: *Newcastle Courant*, 1805–1835; *Hampshire Chronicle*, 1815; *Inverness Courier*, 1825; *Perthshire Advertiser*, 1835.

'planks, rails, timber and wedges' together with elm and unspecified 'plank' was largely sourced from the same Channel ports and London. As supplementary native hardwoods, beech and elm comprised 20 percent of Sunderland's coastwise intake.<sup>5</sup> Surprisingly, its seven loadings of pit props also came from the Channel ports and south east coast, although supplies of softwood products including 'spars, deals, battens and fir timber' arrived largely from Scotland's east coast, Inverness in particular.

Although half-a-dozen parcels of 'treenails' (shipbuilding dowels) arrived from Plymouth, the most unusual wood product delivered in quantity was 'corf rods'. There was no substitute for these strong, springy hazel sticks in the hand production of corves, the resilient 87-gallon wickerwork containers universally used in hoisting coals up a pit shaft. Whitby was the largest supplier of this coppiced hazel product, although a few Channel and Kentish ports also contributed. Corves were subject to very heavy usage and were expendable so, as popularly narrated, raw material demands could be high (Adley 1818, 8). For example, in 1805 Newcastle and Sunderland received 44 and 24 cargoes of corf rods respectively. The mining industry also required huge quantities of pit props, and domestic suppliers were increasingly found in eastern Scotland. By 1825, 52 out of Sunderland's 58 coastwise deliveries of pit props were attributed to Inverness, whilst many of the 39 unspecified cargoes of Inverness 'timber' received were probably destined for the coalfield too. Although designated as from Inverness, in practice there was a web of supply, with loadings taking place at some 16



creeks and havens in Cromarty and Moray.<sup>6</sup> Timber carriage was characterised by the need to load cargoes at obscure waterside sites, and that helps to explain the trade's seasonality too. The marked summer peak was promoted by considerations of felling and land- or river-transport, rather than by clement seagoing weather alone.

### *Grain and Pulses*

Newcastle was the leading market for grain in the North East, handling not only the region's own agricultural produce but attracting British grain from further afield too. In addition it housed the port's foreign, largely Baltic, imports. All sources agree that grain shipments outward were insignificant.

Between 1805 and 1830 deliveries of grain and pulses amounted to 230 to 275 entries each year, that is, around 20 percent of the port's coastal arrivals. Nationally however, Newcastle ranked no more than seventh in the list of ports receiving grain coastwise, well behind its nearest east coast counterparts, Leith and Hull (Armstrong and Bagwell 1983). From 1805 until the mid-1820s Newcastle absorbed around 50,000 quarters (qrs) of grain annually, and there was relative equality between the volumes of British and foreign grain received. Then, during the 1830s, as tariff reforms began to favour imports, the situation changed. Despite the resultant trend away from domestic supplies, legislative change and market uncertainty induced short-term supply shifts. For example, in the recession year of 1835 there were only four overseas deliveries, but despite domestic grain prices being at an all-time low, the call for coastwise grain fell by 20 percent. Overall, growth resumed, and by 1839 the total volume of seaborne grain had reached 325,000 qrs, of which foreign supplies made up two-thirds. And despite coastal grain's declining market share it still displayed increased volumes in the 1830s, rising from 90,000 qrs to 108,000 qrs over the decade (although foreign competition saw volumes fall thereafter).

During the entire period under consideration, 1800–1840, barley grew in relative prominence, becoming the leading grain received coastwise (fig. 4). By the early 1830s it made up one-third of the coastal grain received, with wheat close behind. Rye peaked in wartime (c. 1810) when volumes were briefly at par with wheat, but in peacetime it declined rapidly owing to foreign competition. Oats exhibited a contrary trend. Though beginning the century at a low level, oat supplies enjoyed rapid expansion in peacetime, eventually comprising a fifth to a quarter of the grain received coastwise. By comparison the pulses (mainly peas and beans) contributed no more than a fluctuating few percent. Although volumes of brewing malt fell slightly towards the mid-period, by the late 1830s shipments had recovered to earlier levels, representing up to a tenth of coastal grain received.<sup>7</sup>

In absolute terms, market expansion between 1805 and 1839 saw the intake of coastwise wheat effectively double (98%), from 16,000 qrs to 31,700 qrs (3,478 tons to 6,891 tons). Barley, starting at a higher level, recorded a more modest increase (75%), from 20,500 qrs to 36,000 qrs (3,796 tons to 6,667 tons). Oats recorded a staggering eight-fold growth, rising from 3,000 qrs to 24,000 qrs (395 tons to 3,158 tons) in three decades.<sup>8</sup> But these conspicuous growth figures for coastwise grain must be seen in relation to greatly increased foreign imports.

Although the *Courant's* weekly agricultural market reports allow aggregation of coastal volumes, they offer little clue as to provenance. For detailed information on this and individual shipment sizes one is reliant upon the survival of a single, previously unexamined, account book of the dues levied by Newcastle Corporation's Chamberlain on corn cargoes,

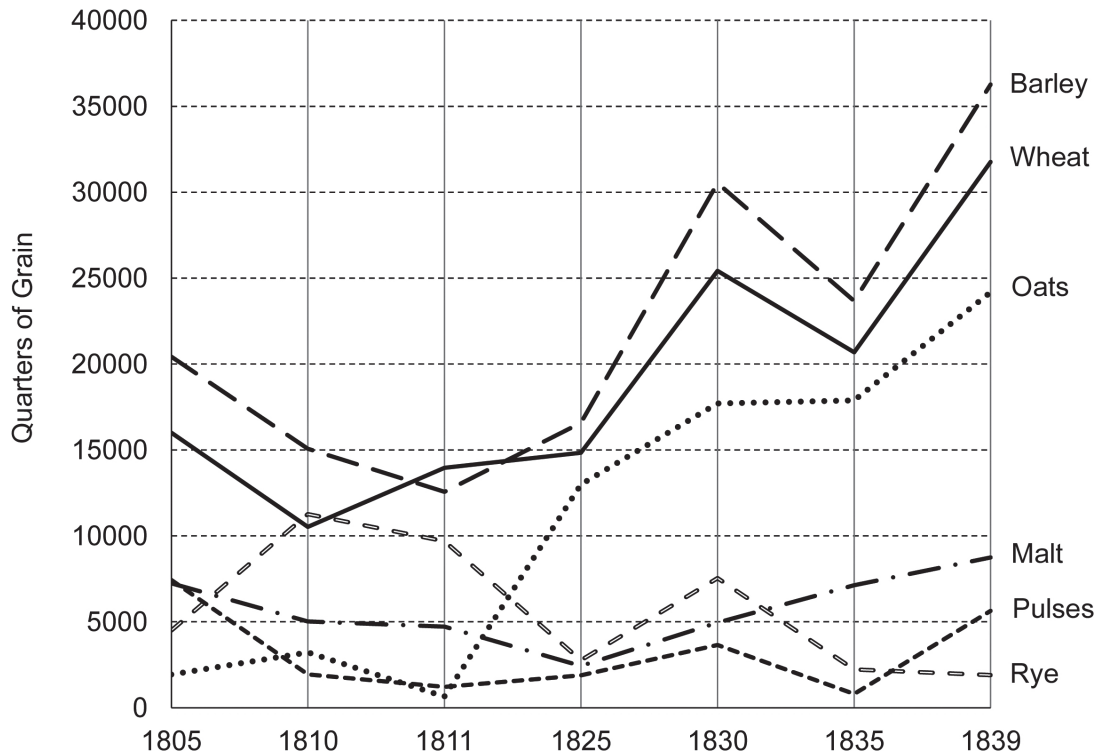


Fig. 4 Newcastle: volumes (in quarters) of grain received coastwise, 1805–1839.  
Sources: *Newcastle Courant*, 1805–1839; TWAM 541/35, Corn Dues.

January 1824 to August 1827.<sup>9</sup> Analysis of a sample year, 1825, shows that 279 shipments of grain totalling 728,000 qrs were landed coastwise at the port of Newcastle (fig. 5). Two-thirds of deliveries (182) were from outside the North East, encompassing ports as far apart as London, Liverpool and Banff. Of the arrivals from within the North East itself, Berwick was the clear leader with 73 deliveries aggregating three-quarters of the estimated regional total: 21,000 qrs. Closer to Newcastle even than Berwick, Alnmouth's dozen shipments accorded it a one-eighth regional share whilst Blyth, Sunderland and Stockton together fell just short of that. Outside the North East region it was the ports of agriculturally improved East Anglia and Essex that dominated (Wade Martins 2002, 60–62). Altogether they accounted for around half the remaining 182 domestic deliveries, representing some two-thirds of the total volume received coastwise at Newcastle. From Scotland's east coast ports came a further one-fifth, divided evenly between the ports of Forth and Tay and those to the north. London alone shipped small discrete parcels (especially of pulses) rather than bulk cargoes, its number of deliveries proportionately outstripping the volume carried.

Comprehensive analysis reveals that, in 1825, 90 percent of Newcastle's coastwise grain supplies were shipped direct from just three production areas: East Anglia with Essex; eastern Scotland; and Northumberland. The wider East Anglian region shipped barley and wheat in almost equal measure, whilst Ipswich was the near exclusive supplier of malt. Unsurprisingly, Scotland's shipments were predominantly of oats, while Northumberland's comprised

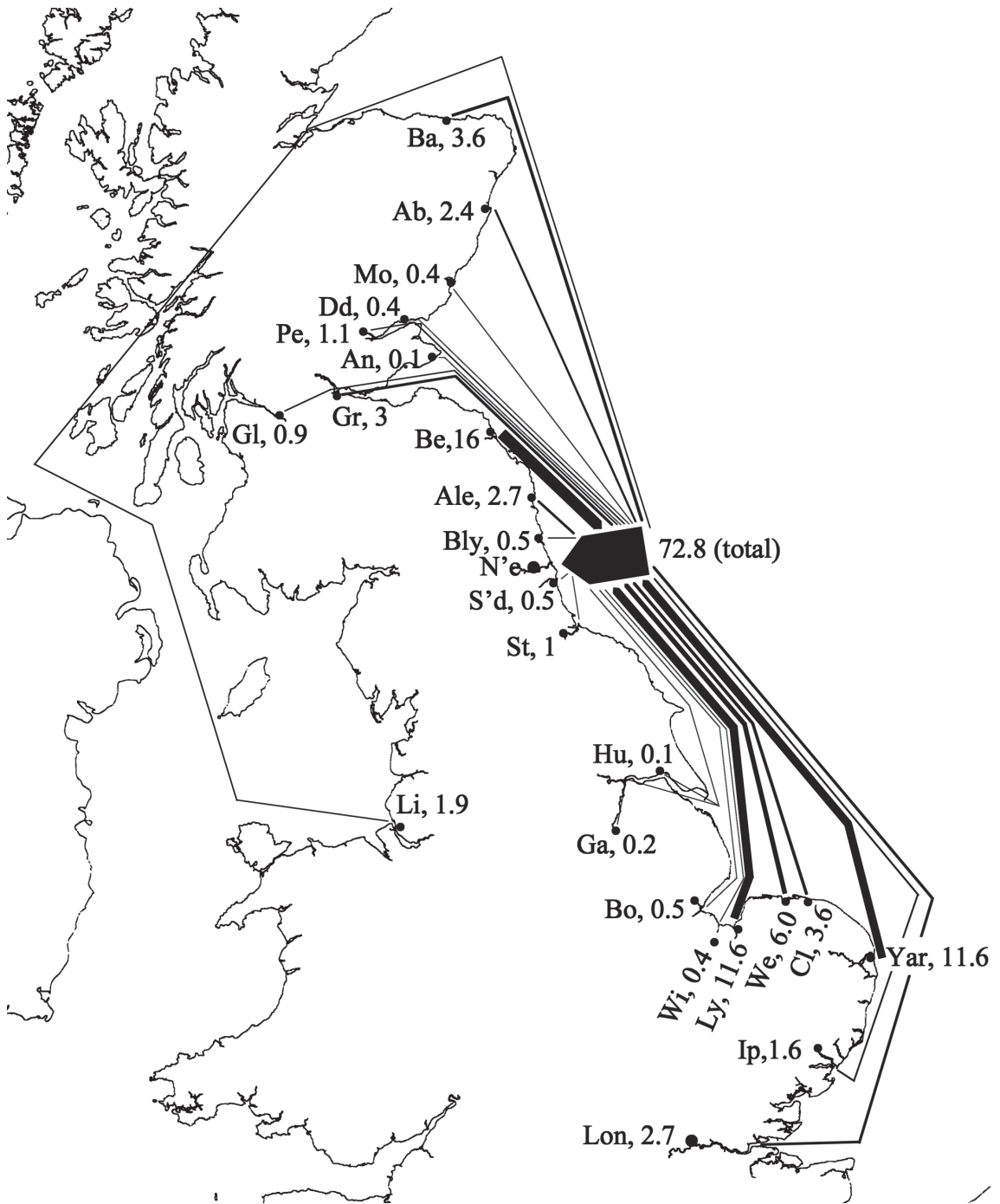


Fig. 5 Flows of grain (000 quarters) coastwise to Newcastle, 1825. Sources: *Newcastle Courant*, 1825; *Norfolk Chronicle*, 1825; TWAM 541/35, Corn Dues.

near equal quantities of wheat and oats, plus a measure of barley. By far the most significant individual ports of shipment were Berwick, Yarmouth and Lynn. Berwick's 16,000 qrs were evidently drawn from an agriculturally improved hinterland centred on north Northumberland and the Merse (Barrow 2000). Similarly, Yarmouth and Lynn despatched 11,000 qrs each from Norfolk's highly productive farms, with Wells and Clay combined not far behind (Stammers 2009).

The coastwise shipping engaged was characterised by diversity and flexibility, with ship size the main typological determinant. Well over half of all the vessels employed measured under 100 register tons, indicating a maximum grain capacity of some 750 qrs each. Barely a quarter of them even approached the average small coal carrier in size, i.e. 150–170 tons. Constrained size meant that two-thirds had draughts of less than ten feet (3 m), allowing them to work into shallow tidal harbours such as Wells and Banff. Unlike the main collier fleet, composed predominantly of square-rigged 'brigs', almost half the grain carrying fleet was fore-and-aft rigged, comprising sloops and schooners of modest size. As to their age and condition, two-fifths of the vessels traced were under ten years old, and although the majority of the fleet's members were classed but a lowly E1 at Lloyd's, a fair number were designated A1 (suitable for perishable goods) too.

### SUBSIDIARY COMMODITIES

Prominent amongst the other materials arriving coastwise were foodstuffs for local consumption and earth (extractive) products destined for industrial processing or construction work. At first the transport needs of these commodities were rather slight, but later it was coastal shipping's elastic capacity to meet the growth in demand for them that helped maintain Tyneside's development as a maritime industrial centre. By comparison, arrivals with: iron and metals; sundries, comprising four dozen items extending from aquafortis (nitric acid) to wool; and ship outfitting stores (including wreck materials) were always slight.

#### *Foodstuffs*

Although around 40 varieties of foodstuffs, ranging from apples and ale to walnuts and wine, arrived coastwise, flour and potatoes were the unchallenged staples. Indeed, the former was commonly referred to in the Newcastle market as 'ship flour'. Coastwise deliveries of flour apparently amounted to less than 1,000 tons in 1805, admittedly a wartime year, but by the early 1830s demand had grown fourfold, with deliveries averaging several hundred tons in most months. For 1835 and 1839 the annual totals exceeded 5,500 and 5,700 tons respectively, a supply level equivalent to some 180lbs [82kg] for every man, woman and child in Newcastle. No clear seasonal shipment pattern emerges although, as might be anticipated, volumes were generally above average during the winter months, and minor peaks in early summer and mid-autumn may signify the utilisation of old wheat stocks and newly harvested grain in turn. Unfortunately, the sources of this coastwise flour are poorly evidenced. Up until the early 1820s it apparently included a significant proportion from east coast ports outwith the North East (especially Yarmouth), but the indications then increasingly point towards Stockton (Mackenzie 1827, 717). For example, analysis reveals that Stockton supplied 80 percent of the coastal flour deliveries to Sunderland in 1835.

However, the sources of Newcastle's coastwise potato supplies are well evidenced. In 1805, three out of every ten of the cargoes received (37 in all) came from Northumbrian ports, three from other English east coast ports, and just four from Scotland. By 1815 however the Scots dominated, supplying eight out of every ten deliveries, with Berwick and Stockton sharing the remainder. Scotland's dominance was even greater in 1825 when its ports despatched 50 out of 55 cargoes (91%), with Berwick contributing just four. That year's premier shippers were Montrose (18) and Anstruther (14), serving the farmlands of the Montrose basin and Fife respectively. A further seven east coast Scots ports situated between Aberdeen and Preston Pans played a supporting role. A geographic shift from northern English suppliers to those of eastern Scotland seems apparent, although wartime pressures (e.g. privateering, better alternative freights) may have temporarily skewed the supply chain towards local short-haul activity in 1805. As a perishable seasonal product potatoes had a well-defined annual shipment pattern. For example, in 1825 deliveries averaged seven for each winter month followed by slightly enhanced shipment levels during March and April, the latter presumably to clear old stock. Just four arrivals in May and June were succeeded by a complete absence until the new season's crop arrived in quantity in late autumn: 17 deliveries between 29th October and 19th November. Based on vessel type and number of arrivals the total volume for that year (1825) is estimated at around 2,500 tons.

#### *Earth (extractive) Products*

The flexible, sometimes pioneering, role that coastal shipping played in the supply of bulk commodities is well illustrated by its transport of extractive materials sourced from distant quarries and mines. In response to urban and industrial demands incoming coasters freighted: alum; clays and chinastone; flag- and paving-stones; flints; fine sand; kelp; and slate.

Slate is the exemplar, but as its significance has recently been examined elsewhere only a bare outline follows (Osler 2013). Although it is clear that metamorphic roofing slate was employed in Newcastle prior to 1800, its use was restricted owing to the expense of overland carriage from Cumbria. Seaborne slate then broke into the market through the exploitation of low grade supplies in western Scotland; the quarries in Ballachulish and Easdale advertising remunerative backhaul (return) cargoes for vessels that had delivered coal to Irish Sea or Scottish west coast ports. This pattern was short-lived however, for between 1815 and 1825 the focus of slate supply shifted to North Wales, where low production prices and a superior product offset the costs of longer sea passages. By the height of Newcastle's Georgian redevelopment boom in 1825 the town received 14 Welsh deliveries as against just three each from Cumbria and Easdale. These Welsh slates were carried in a motley fleet of adaptable, inferior tramping coasters, each prepared to risk the 700-mile passage via the north of Scotland, Caledonian Canal (1822) or English Channel transporting a cargo that placed the vessel's fabric at risk. By the late 1820s the North East's recorded intake of seaborne slate stood at 1,600 tons annually, to which half as much again might be added for undocumented or illicit landings (there was a coastal slate tax until 1831).

Economically important amongst the other significant extractive products were various clays. In the eighteenth century a number of coal-fuelled 'brownware' potteries using local clay had been established along the rivers Tyne and Wear; by 1818 the Newcastle-Gateshead waterfront housed 11 alone (Elliot 1955, 359–61). As the output and ceramic diversity of these

potteries grew, their need for bulk transport, especially of superior clays and flint, became ever more critical. Unfortunately, the listings of such deliveries to Newcastle are irregular, so those for Sunderland's comparable industry are considered as proxy. Between 1805 and 1825, Sunderland received ten to twenty cargoes (approximately 1,500 tons) of 'clay' and 'pipe clay' each year, and similar numbers of 'flint stone'. The clays came principally from Exeter and Poole together with Teignmouth, Cowes and Plymouth, and the flint almost entirely from Yarmouth. Occasional cargoes of eponymous Stourbridge Clay, a refractory used in making 'glasshouse (melting) pots', were despatched along the Midland canals and Trent navigation for coastwise shipment direct from Gainsborough or via Hull (Elliot 1955, 101).

Glassmaking was long established on Tyneside, and by the late 1820s there were 28 glasshouses manufacturing a quarter of the nation's output (Elliot 1955, 225–45). Accordingly, a sizeable local demand had built up during the eighteenth century for British kelp ash (an alkali used principally in glass- and soap-making) and this requirement continued into the beginning of the nineteenth, for example: 21 shipments were received in 1805; 31 in 1815; and 21 in 1825. Initially, it was conveniently sourced from Britain's largest producer, Orkney, with Kirkwall despatching three-quarters of Tyneside's kelp ash deliveries in the (high-priced) wartime year of 1805 (Fenton 1978, 58–66). But by 1825 Orkney's share had fallen to only a third, suffering competition from other Scottish and Irish producers including Tiree and Shetland. Shortly afterwards, British tariff reductions (1828–1831) on a comparable Spanish import, 'barilla', decimated British kelp ash producers and their dependent coastal shipping trade (Coull *et al.* 2008, 151–68).

Of the remaining named extractive products carried to the North East there is some uncertainty over frequency and volume. The five most significant of them, *vis.*: flint (East Anglia); ironstone (Cumbria); paving- and building-stone (eastern Scotland, Yorkshire); sand (East Anglia); and chalk (south east England), are often assumed to have arrived as cost free incidentals of the coal trade — as returning collier's ballast. This presumption contains an element of truth, but close examination reveals it to be an oversimplification of the situation.

### THE QUESTION OF BALLAST

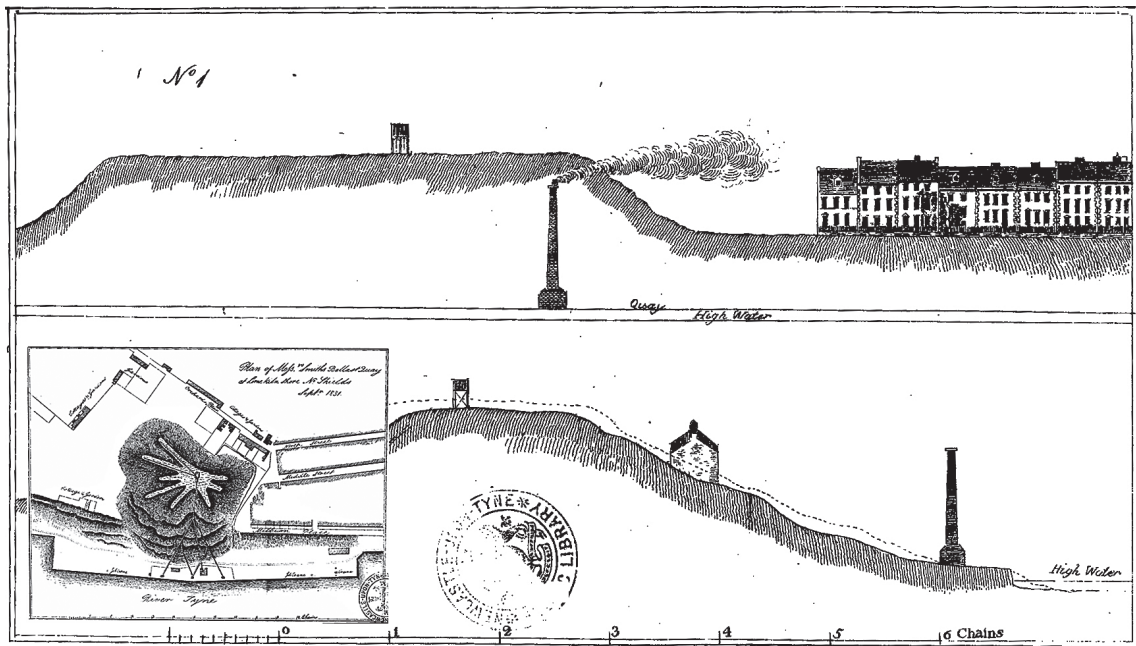
The unusual nature of the Coal Trade, which caused the majority of ships to return to their original ports of departure 'light' (i.e. unladen, in ballast), has generally been considered an inefficient feature of Britain's coastwise trade. However, there is a wider perspective to consider. Contemporary observers clearly identified some incoming ballast as useful for industrial purposes or urban improvement works. And although ships' ballast was physically and administratively difficult to manage, its removal afforded riparian authorities the opportunity to raise income through dedicated fees. Consequently, shipowners regarded the discharge of ballast as an unavoidable (even extortionate) voyage cost, whilst for the institution which administered a coal port it was regarded as a reliable income stream. Ballast disposal was thus both contentious and subject to obfuscation (Wright 2014, 37–42). Considered historically, it may be analysed from three standpoints: volume and handling; the materials discharged; and economic outcomes.

#### *Ballast and its Handling*

Considering the primitive technologies involved, the volumes of ballast handled on the Tyne were huge. In 1822 ten licensed quays disposed of 127,000 tons of officially assessed ballast.<sup>10</sup>

By the early 1830s the annual volume was estimated at 200,000 tons, and that figure probably rose by half as much again before 1840 (Mackenzie and Ross 1834, 55). But the assessed, i.e. formally recorded, ballast statistics clearly understated the real amount brought north. A, perhaps biased, mid-century witness suggested that up to half of all incoming ballast was illicitly dumped into the river and thus went unrecorded.<sup>11</sup> Correspondingly, a reliable commentator indicated that the amount consumed by the riverside industries matched the formally assessed volume, although this proportion was probably smaller before 1840 (Bruce 1863, 285). Furthermore, much ballast never actually reached the port, for masters regularly and riskily cast it overboard at sea when approaching the Tyne.

Statutorily, shipboard ballast arriving in the river had to be discharged either at an official Newcastle Corporation ballast quay or offloaded mid-river into lighters for transfer to a designated ballast heap. In theory these discharges were tightly controlled, but in practice there was widespread cost-saving evasion. Ashore, although barely half the ballast quays possessed mechanical handling devices, the heaps which the quays fed grew to dominate large areas of riverscape. The Jarrow heaps covered 34 acres (19 ha) and, like those at Limekiln Shore near North Shields, rose to over 100 feet (30 m) in height (fig. 6).



*No. 1 is a Section of Messrs Smith's Ballast-heap, and an elevation of part of Willington Quay.  
No. 2 contains Sections of Messrs Smith's Ballast-heap, shown by a black shaded line  
and of the Ballast-heap at Willington Quay, shown by a dotted line*

Fig. 6 Elevation, section and plan (inset) of Messrs. Smith's Ballast Heap and Quay at Limekiln Shore, North Shields, 1831: frontage, approx. 7 chains (141 m); height, 100 feet (30 m).

Source: Bell Collection.

*Ballast Composition*

The material composition of these heaps was more diverse than has previously been supposed. Sample analysis of Newcastle's only surviving 'Ballast Dues Book' (1824–1827) of the era, reveals that in a three-month period of 1825 over a dozen different materials were deposited: ashes; chalk; dung; flints; ironstone; limestone; loam; paving; sand; shell; soil; stones (three types of); and sundry substances.<sup>12</sup> Of 530 recorded ballast discharges sampled in the ledger, three out of ten ships (160) carried sand, two out of ten (>100) discharged stones, and two out of ten (>100) likewise chalk. Slightly more than one in ten (79) disposed of dung, and slightly fewer discharged either loam or miscellaneous materials. The regular appearance of dung from London is unexpected. Late eighteenth-century Newcastle Corporation regulations had declared dung a prohibited ballast material, and contemporary metropolitan sources suggest that it was shipped no further north than Essex (Armstrong 2004). Unfortunately the ledger provides little chance to aggregate volumes since, with the sole exception of sand and loam, around one-third of the entries omit quantitative measure.<sup>13</sup>

In ship-handling terms it appears that for stability on the passage north vessels carried sand, stone and loam ballast in similar quantity, discharging on average around 1½ keels of each.<sup>14</sup> As it was slightly less dense, chalk occupied a marginally greater volume, averaging close to 1¾ keels. But dung's relatively light weight required loadings of 3 keels or more. Since the Ballast Book records the vessel's port of registry only, materials cannot be matched to specific ports of despatch, but some geographical correlations are possible. Vessels registered in Yarmouth and Lynn carried high proportions of sand, London ships favoured chalk and dung, whilst those from Aberdeen or Dundee almost always discharged stone. Tyne-registered vessels, which formed the largest group numerically, discharged chalk, dung and sand in equal measure, but rarely stone or loam.

*Ballast Economics*

Not all dues paying ballast was allocated to the Newcastle Corporation ballast heaps. About a quarter of all the loads discharged were consigned to companies or individuals, presumably as marketable or 'raw material' ballast. Almost half such consignments comprised sand, with two dozen loadings destined for leading glassmakers including Cookson, Price, and the Tyne Glass Company, together with smaller quantities to copperas manufacturers, collieries, builders, and private individuals. Loam, which made up an eighth of all consigned ballast records, had glassmakers and two well-known iron founders among its recipients (suggesting it was pattern-making quality). Merely a few loads of chalk went to a chemical works in South Shields, and a similar quantity of paving materials were consigned to Newcastle's town surveyor. Whether the commercially viable parcels of ballast described arrived speculatively, for marketing on the spot, or were pre-ordered is unclear. The latter is clearly hinted at in the sand ballast favoured by Yarmouth- and Lynn-registered vessels, half of which was consigned direct to glassmakers, especially Cookson's. In summary, marketable ships' ballast provided Tyneside's emergent industries with a reliable supply of a range of low-cost raw materials, and it formed a significant, if now unquantifiable, part of the port's inward coastal trade.

Since Newcastle Corporation held statutory control of ballast disposal along the river Tyne, its surviving administrative records allow comparison of the role of 'assessed' as against 'consigned' ballast. The Corporation generally owned a dozen ballast quays, operating half of



them itself and leasing out the remainder to local industrialists, colliery companies and individuals. These commercial lessees, with glassmaker Isaac Cookson to the fore, benefited not only from the income generated by discharge fees but, as indicated above, might also reduce their industrial costs. Unsurprisingly, the revenues generated by Newcastle Corporation's dual exercise of its ballast monopoly were remarkably high. In 1825 the gross takings from ballast amounted to almost £19,000, of which nearly half, £9,250, was considered a clear yield. This sum represented 46 percent of the Corporation's net income, significantly exceeding the £7,100 received from the dues levied on outgoing coal, and greatly exceeding the ancillary port dues of £2,700. Admittedly, 1825 marked a boom year, and ballast's contribution slipped both in comparative and real terms over the following decade, eventually falling to a (still substantial) 25 percent share, totalling £4,500 of net annual income.<sup>15</sup>

The two principal factors underlying this revenue decline appear to have been the shipping constituency's concerted pressure for reductions in ballast dues, and a significantly higher level of ballast disposal out at sea. Masters were increasingly reducing the known risk of casting ballast at sea by pre-engaging one of the Tyne's numerous steam tugs to tow them safely into port. It was yet another signifier that marine steam was progressively helping shape the North East's coastal trade.

#### GOODS: THE PACKET TRADES — SAIL AND STEAM

Unspecified parcels of merchandise recorded as 'Goods' comprised 40 to 50 percent of the annual coastal shipments into the Tyne, representing just over 500 peacetime arrivals. The principal goods and passenger carriers into Newcastle were the large (170–250 tons) agency-owned, east coast sailing packets that ran advertised schedules to-and-from London, Leith and Hull (Fordyce 1838, 12–14; Keys 1998, 32–8). Complementary carriers ran smaller vessels (50–100 tons) on less frequent, or unscheduled, services out of secondary seaports such as Ipswich, Boston, Stockton and Dundee, together with inland ports like Gainsborough and Selby on busy river navigations. Meanwhile, the premier international west coast ports of Glasgow and, increasingly, Liverpool, were accessible to regular coastal traders via the size-constrained Forth and Clyde Canal (1790) and the more capacious Caledonian Canal, opened in 1822. Then, in 1825, a steamer was first deployed on one of the Tyne's premier coastal routes: Leith to Newcastle.

##### *Sailing Packet Services*

On the major east coast routes, Tyne-owned sailing packets provided dependable premium services that facilitated the transport and re-distribution of high value dry goods, specialist imports, perishable foodstuffs, wines and spirits, personal effects, and specie (coins). Evidence as to the make-up of goods cargoes is relatively rare although, paradoxically, accident reports offer an occasional insight. When the Newcastle and Leith trader *James* was lost in November 1807 she was carrying barrels of gunpowder, bales of bed ticking, wines, spirits, porter and ale, several bundles of paper, books in quires and other stationery articles, a quantity of kelp, tobacco, tow (rope-making fibre), leather, soap, furniture etc. The entire cargo was valued at £3,000 (£210,000 today) and it was reported that 'no more than two passengers [were] aboard ... and no part of the cargo was insured since the 100-mile voyage was often run in a single day.'<sup>16</sup> Similarly, when the 245-ton packet *Bywell* sank on passage from London

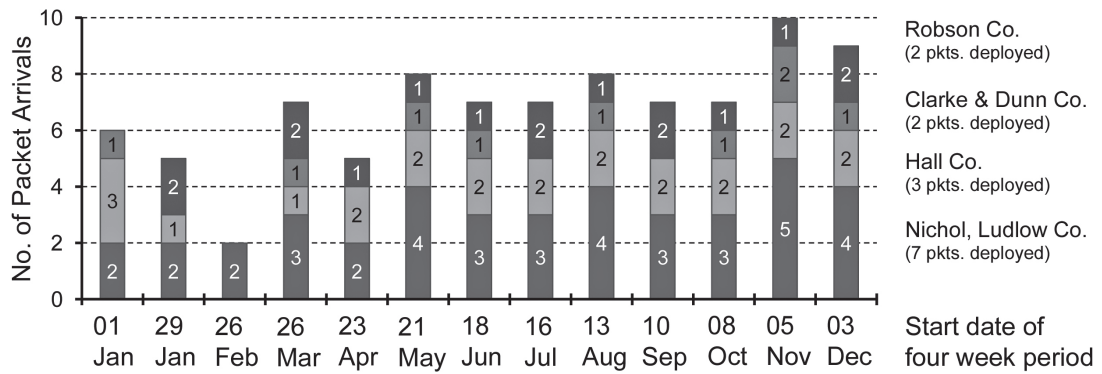


Fig. 7 Frequency of sailing packet arrivals at Newcastle from London, 1825. Sources: *Newcastle Courant*, 1825; *Pigot's Directory of Northumberland*, 1829; Keys 1998 (Agent's name relates to stacked column entry).

to Newcastle in November 1837 she carried four passengers and a cargo of tea and manufactured tobacco valued at £8–10,000 (at least £730,000 today) (Malster 2013).<sup>17</sup> The newly-built *Bywell* had cost her Newcastle owners £3,000 (£240,000 today), and the two town grocers and retail chemist amongst her shareholders typified the business cross-investment common in packet ownership.<sup>18</sup>

On average just below 200 vessels entered the Tyne from London with goods each year, half of them regular packets (fig. 7). Similarly, around 150 goods carriers arrived from Scottish east coast ports (including Leith) and just over 100 came up from the Humber where, from the mid-1820s onward, Gainsborough achieved parity with Hull.<sup>19</sup> But the key geographic factor in Newcastle's extensive goods trade was its position between the national entrepôts of Leith (for Edinburgh) and London: 100 and 300 sea miles away, respectively. Newcastle's location and the scheduled transport offered by its sailing packets was an essential element in the redistribution of, for example, overseas retail goods, imported foodstuffs and specialist domestic manufactures. All such commodities helped to meet the mounting business and consumer demands of Tyneside and its hinterland. And, through the small but effective 'constant traders' that serviced Berwick, Sunderland and minor ports like Alemouth, Newcastle's distributive shipping chain reached even further afield.

However, some Novocastrians worried about their dependence on the sailing packets. They argued that coastwise re-importation was so easy (and profitable) that it had deterred the development of foreign import quays or docks on the Tyne itself, and discouraged the local ship-owning fraternity, who had 'had their fingers burnt in the West Indies trade', from investing in high value foreign ventures. Hence, when the Tyne's major packet services fell into the hands of just two Newcastle agencies, complaints immediately arose about the lack of freight rate competition. But despite, or perhaps because of, the introduction of the (metropolitan-based) Steam Navigation Co.'s paddle-steamer *Hylton Joliffe* on the London route in 1827, a resurgence of sailing packet construction ensued. Six new 200-ton vessels joined the Tyne fleet in the late 1820s and early 1830s, and by 1839 Newcastle's three principal wharfingers deployed 22 sailing packets that made about 175 London bound sailings a year. But the steam packet business had advanced too.

*Nascent Steam Schedules*

Marine steam arrived on the Tyne in 1814, giving Tyneside modest claim to the inauguration of England's first along-river steam passenger service and the first systematic steam towage of seagoing ships (1818) (Clarke 1997, 88–9). By 1822 there were half-hourly, intensely competitive along-river passenger services together with 15 dedicated towage tugs, and the steamer *Duchess of Northumberland* even advertised a four-day excursion trip to Leith for 40 passengers.<sup>20</sup> But it was 1824 before a scheduled service to Leith began, and in its first full season (1825) the *Newcastle Steam Yacht* managed only 16 trips. 1824 also saw an attempt to establish a London service, but Newcastle wharfinger Joseph Shields' *Rapid* was inadequately powered and failed. Indeed, the London connection was not really established until the Steam Navigation Company's *Hylton Jolliffe* completed a full season's weekly service in 1827.<sup>21</sup>

The provision of coastal steam services from Newcastle then stagnated, for reasons yet unclear. This hiatus resulted perhaps from sailing packet efficiency, dislike of metropolitan intrusion, and steam's relative riskiness for small local investors. However, putative Tyneside steamship passengers and light goods shippers did acquire an optional London service: via Stockton, using a steam feeder service out of Shields. Stockton, whose domestic shipping connections were already predicated on London, soon saw the potential of coastal steam (as well as rail).

If relatively tardy in the mid-1820s, Newcastle's adoption of coastwise steam improved in line with national trends during the next decade (Armstrong and Williams 2010). By 1835 the port's coastal steam movements had increased tenfold, with scheduled services not only to Leith and London but Hull and Stockton too. As elsewhere the major drawback was seasonality (Bagwell 1988, 54). For example, the steamers then employed on the highly competitive Stockton to London route were replaced by 'high quality' sailing packets during the six winter months. In 1835–36, although the Tyne's steam arrivals averaged over 20 for each summer month, they fell to single digits from November through April. Nevertheless, between 1835 and 1839 Newcastle's coastal steam traffic almost doubled, from 170 to 303 arrivals, and that absolute growth was accompanied by a proportionate increase against sail.<sup>22</sup> Steam's share of annual coastwise arrivals rose from around a fifth to a quarter (fig. 8).

Three factors contributed to steam's growing market share: the introduction of fast (36 hours from London) but seaworthy mail-carrying steamers with an extended working season, May to December (fig. 9); a doubling of frequency on select routes; and, the introduction of the Berwick Shipping Co.'s popular regional service, Newcastle–Berwick–Leith. Ironically, this last venture provides a salutary steam and sail anecdote, for when the company's venerable steamer *Ardincaple* required a costly re-fit in 1843 its numerous local shareholders immediately decided, by a large and voluble vote, to invest no further in expensive steam, but to rely instead on the sailing smacks that had served them well.<sup>23</sup> Upon which the discarded *Ardincaple* was quickly bought up and re-engined by a Newcastle owner who sent her straight back into service again!

## CONCLUSIONS

Between 1800 and 1840 Newcastle's population had near doubled, to 72,000, the entire town centre had been re-built in neo-classical style by entrepreneurs John Dobson and Richard Grainger, and there had been much growth of 'polite society' and its accompanying institu-

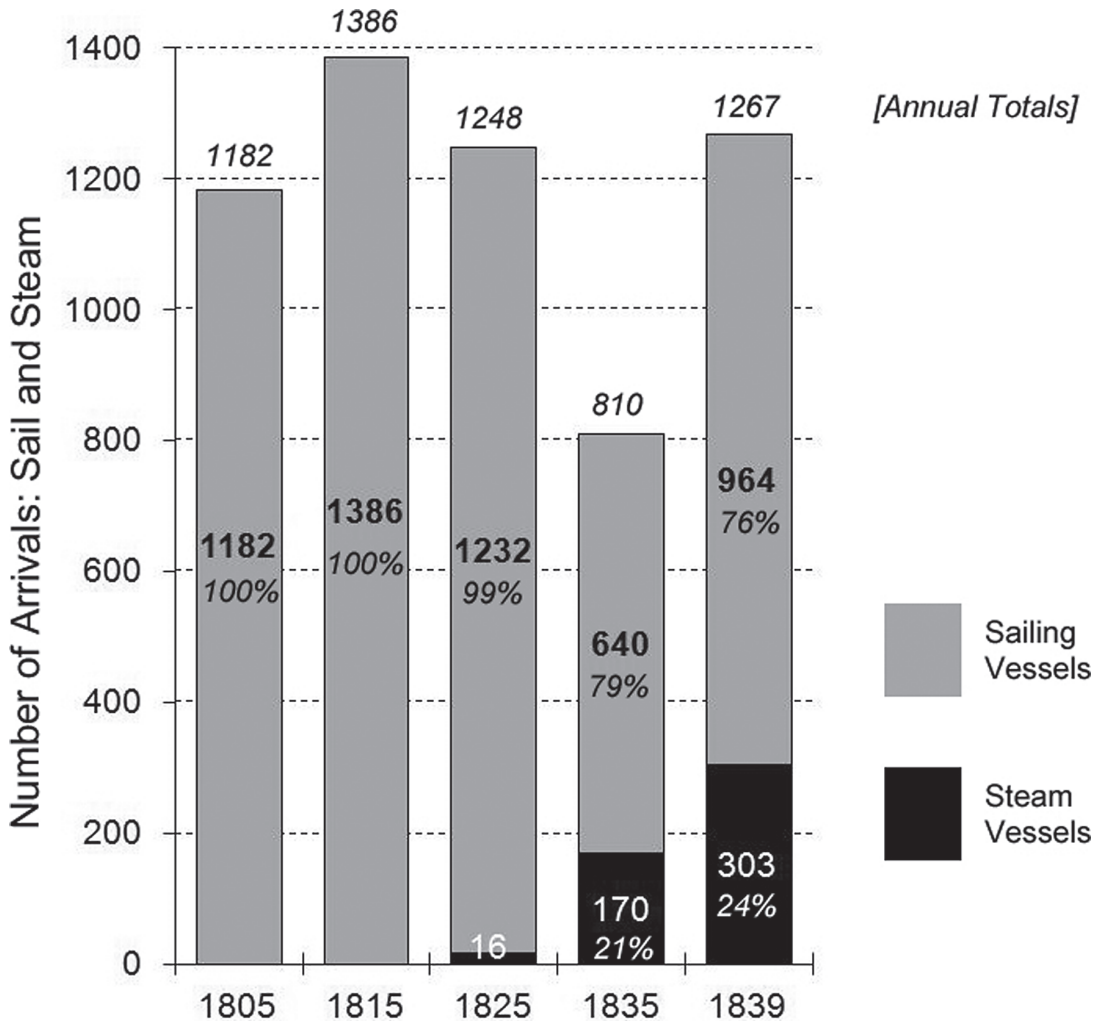


Fig. 8 Proportions of sail and steam vessels arriving coastwise at Newcastle, 1805–1839.  
Source: *Newcastle Courant*, 1805–1839.

tions. Meanwhile, Tyneside's industrialists had shown a remarkable facility for expanding their riverside concerns. The chemical manufacturers turned out 40 percent of national output, Cookson of Shields was the country's largest glassmaker, and potteries like Malings were on the way to similar renown. At street level, as regional historian Eneas MacKenzie remarked in 1827: 'Newcastle has always been celebrated for its beer', of which the town's 177 victuallers and brew-house keepers produced 42,000 barrels annually, mashing some 2,000 quarters of malt in a typical six week period (Mackenzie 1827, 717). And the means by which much of that malt and malting barley arrived is now clear.

Inward coastal shipping had been the essential, if unremarked, transport agency that had enabled Tyneside's extraordinary rate of human, urban and industrial growth to be supported and maintained, 1800–1840. Less obviously perhaps it also inspired cultural intangibles,

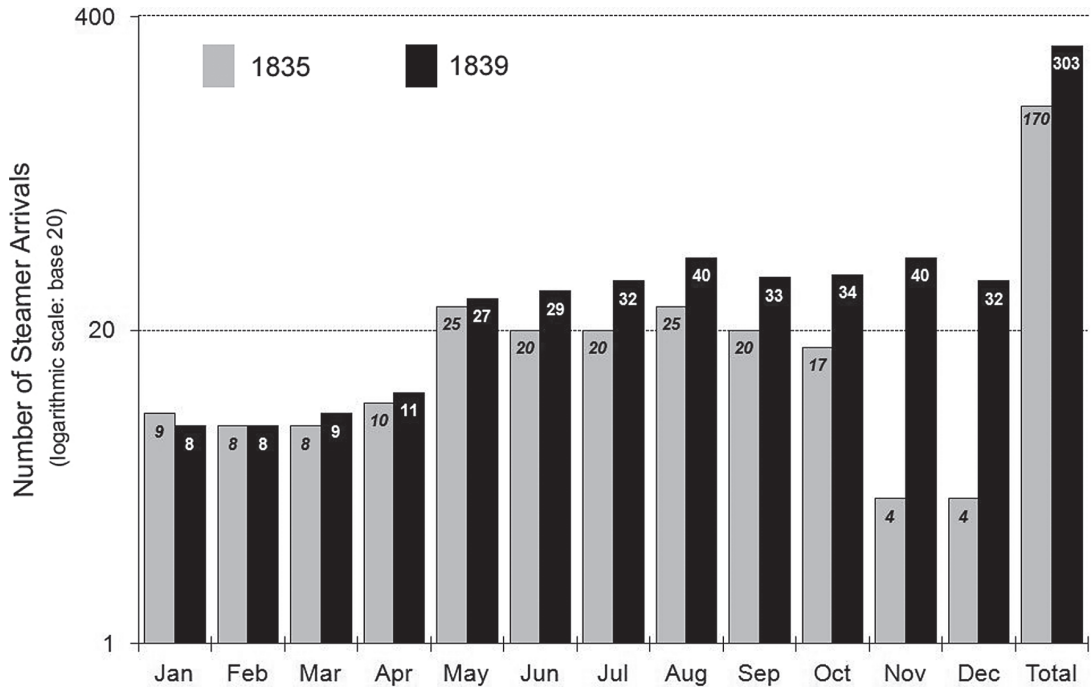


Fig. 9 Seasonal arrivals of steam vessels coastwise at Newcastle: 1835, 1839.

Source: *Newcastle Courant*, 1835, 1839; Fordyce 1838.

including popular humorous ballads like ‘A Voyage to Lunnin’ or the long, ironic seaman’s verse story: ‘A Voyage in the Coal Trade’ (Gilchrist 1840; Anon. c.1842). All-in-all, coastal shipping to Newcastle was a ‘vital spark’ that nourished the blaze of local industry, brightened the lamps of urban improvement and excited the popular imagination (Armstrong 2009). Beyond that, this provisional account can barely hint at its place in the wider agenda of British and European coastwise trade.

#### ACKNOWLEDGEMENTS

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#### NOTES

<sup>1</sup> Suffolk Archives, HA 412/1/6/2 Rope Family Archive, Shipping (1836–1857).

<sup>2</sup> Malster, R., personal communication, June 2014.

<sup>3</sup> *Newcastle Courant*, 1800–1840.

<sup>4</sup> For example, alum was listed from Whitby, but was probably loaded at processing havens like Boulby; the author is grateful to Tony Barrow for this observation.

<sup>5</sup> Turnbull, L., personal communication, June 2015: hardwooding beech was favoured for the top rails of wooden wagonways.

<sup>6</sup> *Inverness Courier*, 1825; analysis of published sailings.

<sup>7</sup> *Newcastle Courant*, 21 February 1835: the popularly titled 'Beer Bill' (1830) reputedly revived Newcastle's demand for malt.

<sup>8</sup> The equivalent weight of a 'quarter' of British grain is taken as that cited in the mid-nineteenth century shipmaster's standard text: Stevens, R.W., 1871, *On the Stowage of Ships* (5th edn.): wheat, 4.6 qrs per ton; barley, 5.4 qrs per ton; rye, 4.9 qrs per ton; oats, 7.6 qrs per ton.

Armstrong (1983), using: Harrison, G., 1838, *Freighter's Guide*, considered a quarter of wheat or barley as marginally lighter. Barrow's (2000) 'northern counties' quarters, c.1800, are markedly heavier.

<sup>9</sup> TWAM 541/35 Newcastle Corporation Dues Books 1801–1834, Corn 1824–1827.

<sup>10</sup> Newcastle City Library, Bell J. (jnr.), 'Collections Relative to the River Tyne', Vol. 5, 157

<sup>11</sup> *Newcastle Courant*, 23 February 1849.

<sup>12</sup> TWAM 541/35 Newcastle Corporation Dues Books 1801–1834, Ballast 1824–1827.

<sup>13</sup> The unit of measure used for the discharge column was not designated, but it appears to have been the old-established 'Last' (approximately 1.8 tons).

<sup>14</sup> Contemporary sources suggest that returning colliers should load ballast equivalent to one-quarter of their outward cargo weight of coal, but to economise many clearly risked taking less. The 'keel', based on the official capacity of a Tyne keel (coal lighter), was a standard shipping measure equivalent to 21.2 tons of coal. One bulk keel of other goods stowed in proportion, e.g. potatoes, 17 tons; oats, 16½ tons; tobacco, 10 tons; bricks (8,000 = 21tons), ¾ keel.

<sup>15</sup> *Admiralty Preliminary Enquiry on the State of Navigation of the Tyne under Acts 11 and 12 Victoria*, 1849, Appendix No. 26.

<sup>16</sup> *Caledonian Mercury*, 26 November 1807.

<sup>17</sup> *Suffolk Chronicle*, 4 November 1837.

<sup>18</sup> A shareholding advertised in four 'Newcastle Packets', 1807, indicates a similar level of capitalisation: £2,750 each (*Newcastle Courant*, 8 August 1807).

<sup>19</sup> Bell, 'Collections' Vol. 2, 231: agent's freight rate list for 'Regular Traders' between Hull and Newcastle, 1822.

<sup>20</sup> Bell, 'Collections' Vol. 2, 244; handbill for Leith excursion, 5 August 1822.

<sup>21</sup> This followed a 'late in season' trial the previous October (*Newcastle Courant*, 14 October 1826).

<sup>22</sup> Two paintings by J. W. Carmichael (1799–1868) give a visual impression of Newcastle's sail and steam packets of the era: c.1840, 'The Elswick', 254 tons, built in 1830 for Clarke & Dunn (TWAM G9601); 1838, the 'Newcastle and Leith Steam Packet', probably the 161-ton, Newcastle-built *Vesta* of 1837 (TWAM 2008.116).

<sup>23</sup> *Newcastle Courant*, 8 December 1843.

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