

LONDON'S FIRST COMMERCIAL SAWMILL

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In the article on furniture timbers published in this Journal, I alluded to the fact that in the late 18th century the virtual monopoly achieved in the wainscot trade by the Dutch sawmills began to give way to increasing importations of wainscot logs from the Baltic. The statistics in Figures 1 and 2, taken from the official returns of Customs, show clearly the dramatic decline in the Dutch wainscot trade and the corresponding increase in importation of logs from the Baltic. Implicit in the phenomenon of large importations of logs was an increased capacity to convert them. There must, in fact, have been a connection between the change from boards to logs and the development of commercial sawmills in Britain.

Fig 1: Importations of wainscots from Holland 1700–1800

	1700	1710	1720	1730	1740	1750
London	96,602	210,395	190,773	157,846	102,866	149,778
Outports	<u>145,461</u>	<u>26,767</u>	<u>87,114</u>	<u>72,800</u>	<u>76,497</u>	<u>58,862</u>
Total	242,063	237,162	277,887	230,646	179,363	208,640

	1760	1770	1780	1792	1800
London	108,152	53,607	54,357	33,388	9,689
Outports	<u>65,000</u>	<u>22,430</u>	<u>27,517</u>		
Total	173,152	76,037	81,874	33,388	9,689

Source: National Archives, Cust 3, Cust 5.

Notes:

- i) 'Outports' comprised all English and Welsh ports other than London. The lion's share was shipped into east and south coast ports.
- ii) Figures for 1792 and 1800 are totals for all of England and Wales, not just London.

Fig 2: Importations of wainscot logs 1780–1815

	1780	1793	1801	1815
Holland	72	23	132	787
Russia	287	-	-	2515
Prussia	-	42	4	10
Denmark, Norway &				
Sweden	-	6,522	6,544	-
Others	-	-	18	-

Source: National Archives, Cust 3, Cust 5.

Notes:

- i) The high figures for Denmark, Norway and Sweden in 1793 and 1801 were due to British ships being prevented from trading directly to Russia. The timber, however, came from Russia.

According to Robert Dossie, author of *Memoirs of Agriculture and other Oeconomical Arts* (1768), there were three reasons why water or wind-powered sawmills had not hitherto been built in England.¹ The first was that the sawyers, particularly in London, opposed them; the second was that it was widely but erroneously believed that sawmills were illegal;² the third was that it was not economical to do so. Dossie observed: '... if wood can be brought over cheaper in proportion to that state [i.e., sawn], it will be brought so. But if we can do this work as cheap ourselves, it will be brought over in the log'.³ In other words, had a sufficient commercial incentive existed, sawmills powered by wind or water would have been introduced into England even against the vehement opposition of the sawyers just as spinning and weaving machines had been introduced into the cloth industry. In Scotland, where wood was plentiful and labour scarce, sawmills had been in use since the mid-17th century, as they had also in the North American colonies.⁴ In England sawmills were virtually unknown; indigenous timber was converted by pit saw and supplied mainly to the local market, whereas large urban consumers relied almost wholly on timber imported ready sawn from abroad. The Baltic, Norwegian and Dutch sawmills built their frame saws to produce timber in scantlings tailor-made for the British market; deals were supplied in thicknesses from one to four inches, and wainscots in thicknesses from a half to two inches in ¼" increments.

For almost a century after the Great Fire of London (1666) the situation proved highly satisfactory to both the producers and the consumers, and it was definitely cheaper to import timber already sawn rather than in the log. This was partly a function of the different rates of import duty charged on sawn and unsawn timber. For example, in 1751 the import duty on oak timber was 8s. 7d. per load (50 cubic feet), equivalent to just over 2d. per cubic foot, while that on wainscot was 5d. In theory, therefore, it was cheaper to import timber in the log, but once conversion costs had been taken into account the balance shifted decisively in favour of the boards. The sawyers' charges were high, starting at about 1 ½d. per superficial foot.⁵ To produce a sawn board equivalent to a nominal standard wainscot (12 feet x 12 inches x 1 inch) therefore cost at least 18d. in sawyers charges alone, without allowing for waste (at least 10 per cent by volume) and the cost of initial importation. When all these were added up imported wainscots worked out cheaper than imported logs of the same quality. In the 1750s wainscots typically cost 3–5d. per superficial foot, whereas oak timber cost 2–4d. before sawing. Clearly it made no sense at all to import timber in the log if all one really wanted was oak boards.

The same arguments applied in respect of softwoods, although the method of calculating duty was rather different, for softwood deals were taxed by the 'hundred' of 120 boards, rather than per foot. This method of taxation had a curious and ultimately decisive impact on the balance between sawn and unsawn timber, because deals came in very different sizes, yet paid the same duty per 'hundred'. In 1660 the discrepancy mattered little, because the rate of duty was only 5%, but by the 1750s the duty was 30%, and the difference in the real rate of duty paid between large and small deals was marked. For instance, every 'hundred' (120) of deals paid £1. 8s. 7d. duty, regardless of whether they were one inch or three inches thick, or ten feet or twenty feet long. Yet 120 small deals (say 10' x 9" x 1") contained 900 superficial feet of timber whereas 120 large deals (say 20' x 9" x 3") contained 5400 feet. Thus the small deals paid six times more duty per foot than the large ones, or 0.3d. compared with 0.06d. Since the market price

of deal was only about 1-1 ½d. per foot, depending on quality, import duty could account for 30% of the price of small deals. In fact, it gradually became uneconomic to import small deals, and the timber merchants tended increasingly to import the largest deals allowed by the Books of Rates. Short one and two-inch deals can still be found among cabinet-makers' stock in the 1760s, but for the timber merchant it increasingly made sense to import thicker and longer deals at the same rate of duty. This naturally created a lot of work for the sawyers, who were required to convert three and four-inch deals into thinner boards for joinery and furniture-making, but it also created an incentive for timber merchants to invest in technology which would reduce the cost of conversion.

There was another more strategic aspect to consider, which was the amount of money paid to foreign sawyers to convert the timber before it arrived in Britain. It had long been a fundamental tenet of British commercial policy to encourage the importation of raw materials rather than manufactured goods. The importation of wainscots and deals rather than oak and fir timber clearly ran counter to this, and was at odds with policy in virtually every other branch of British commerce and manufacture. This was the view taken by the Royal Society of Arts, when in 1759 they offered cash premiums to anyone who could erect a sawmill capable of 'sawing timber into useful planks or scantlings'. The premium was won by James Stansfield of Bingley in Yorkshire, who in 1760 converted a fulling mill to saw wood. Being well inland and far from major timber markets, Stansfield's mill failed commercially, but not before the Royal Society had introduced him to Charles Dingley, a prominent London timber merchant. Dingley had both the location and the capital to build a mill, which was duly constructed at Limehouse in 1767. It was built on similar lines to the Dutch wainscot mills, initially with twenty blades, and powered by wind. It cost £4,454 2s. 2d. It stood in the middle of Dingley's timber yard, just at the point where the new Limehouse Cut debouched into the Thames.⁶ In May 1768 the mill was partially destroyed by a mob led by sawyers, of whom the leader, one John Smith, was apprehended following the announcement of a reward of £200 and sentenced to seven years in Newgate prison.⁷ More importantly, in February 1769 Parliament awarded Dingley £2,000 for services to the public (presumably to defray the cost of repairs to the mill) and in the same year enacted legislation making it a felony to damage sawmills and other industrial engines.⁸ These events appear to have opened the way for other entrepreneurs, so that by 1783 the Society of Arts was able to declare that by its efforts 'sawmills are now firmly established in England'.⁹

It is still difficult to find reliable information to substantiate the Royal Society's claim, in terms of the number and locations of sawmills built, but indirect corroboration comes from the Customs returns, which show an enormous increase in the quantity of fir and oak timber imported from the 1760s onwards. The building boom inaugurated in London and other cities after the end of the Seven Years' War (1756-63) created a huge demand for fir timber in the form of squared barks, most of which were supplied by the eastern Baltic timber ports of Memel, St Petersburg and Riga. Between 1761 and 1780 the number of British ships sailing to these ports increased by more than 400%, and most of what they carried back was fir timber and barks rather than deals.¹⁰ The trade in oak timber was on a smaller scale, but again the increase was remarkable and, with furniture-making in mind, there was a clear shift from wainscot boards to wainscot logs, as shown in Figures 1 & 2.

The government was slow to recognise the changed circumstances in the timber trade but, probably as a result of pressure from the timber merchants, did so in 1787 when a new duty schedule was issued.¹¹ The duty on fir timber was reduced and now stood at 6s. 8d. per load, or 1.6d. per cubic foot; the duty on oak timber (including wainscot logs) was increased, from 8s. 7d. to 9s. 11d. per load (equivalent 2.38d. per cubic foot), but that on wainscots was increased by a greater proportion, from 5d. to 9d. per cubic foot. Together with the lower conversion costs inaugurated by the new sawmills, this was more than sufficient to swing the commercial balance in favour of wainscot logs. The big gainers from this change were the Baltic suppliers, and the losers were the Dutch, who had scant interest in supplying logs because it put their sawmills out of work. Between 1760 and 1770 importations of Dutch wainscots fell by 66% and by 1800 the trade had almost ceased. Some of this decline was probably due to the very large quantities of cheap Honduras mahogany imported from the 1770s onwards, but the rest was caused by competition from Baltic logs. Some logs *were* supplied from Holland, but the quantities were dwarfed by the number imported from the Baltic. In the nineteenth century almost all the wainscot used in England came from Russia and Prussia (Figure 3).

Figure 3: Importations of wainscot logs 1815–1840 (loads)

	Holland	Russia	Prussia	Sweden	Norway/ Denmark	Germany	Others (Black Sea, Turkey, Canada)
1815	787	2575	10	-	-	-	14
1816	254	1671	2	-	-	-	-
1817	214	2597	83	-	-	-	-
1818	148	2049	-	11	-	-	-
1819	87	3200	1	-	-	-	-
1820	62	4177	39	12	-	53	-
1821	14	889	3	-	82	-	-
1822	95	2239	4	21	26	-	-
1823	5	1993	98	-	-	-	-
1824	153	3768	235	13	-	-	-
1825	86	5776	323	4	-	20	-
1826	20	3247	1298	91	-	-	-
1827	n/a						
1828	-	2840	956	-	-	-	-
1829	-	2116	2029	-	73	-	-
1830	3	1059	1043	-	26	-	-
1831	12	1846	708	-	-	-	3
1832	-	2131	586	-	-	-	-
1833	-	2060	279	-	-	-	262
1834	-	2274	279	-	-	-	368
1835	-	2539	494	-	-	-	153
1836	60	3056	700	-	-	-	363
1837	-	3969	513	-	-	-	1108
1838	n/a						
1839	-	1326	1156	-	-	-	159
1840	-	1890	846	-	-	-	138

Source: National Archives, Cust 5.

Notes:

- i) Prussia comprises Prussia proper (port of Königsberg) and Pomerania (port of Danzig).
- ii) Shipments from Black Sea were logged in central Russia and Poland and floated down the River Dnieper.
- iii) Turkish oak was sourced primarily from Broussa (Brusa) about 100 miles southeast of Constantinople, whence it was taken down to the Sea of Marmora for shipment.

What has all this to do with furniture-making? As discussed in the previous article, the overwhelming reliance on Dutch wainscot is one of the characteristic features of the London furniture trade from about 1670 onwards, but the figures suggest that Baltic timber must have played an increasing role from the 1780s. This is probably the reason for the palpable change in the quality of oak used for drawer linings and carcase work in London furniture at the end of the eighteenth and beginning of the nineteenth centuries. It tends to be less uniform, faster grown and coarser in texture. This is largely a subjective observation, but it could be verified (or refuted) by dendrochronological analysis, which would allow the oak not only to be dated but provenanced. In most cases such an analysis would perhaps be unnecessary or irrelevant, but it could help to date or provenance doubtful objects, and identify later modifications or restoration. For nineteenth century furniture, particularly after 1815, the picture is much more complex. In contrast to its dominant role in the eighteenth century, in the nineteenth century wainscot from whatever source was only one of many secondary timbers available to British furniture makers. Competition from North America, especially Canada, as well as the West Indies, South America and even Australia meant that ash, birch, cedar, maple and many other species entered the repertoire of British furniture making. British craftsmen were still almost wholly dependent on imported timber, but at least it was now converted in British sawmills.

REFERENCES

1. There had been a solitary, Dutch-built sawmill built on the south bank of the Thames near present-day Waterloo Bridge in the mid-17th century, but this was short lived.
2. For example, Richard Neve, *The City and Countrey Purchaser and Builder's Dictionary*, London (1726); sawmills '... are frequently found abroad; and were lately begun to be introduc'd into England, but the Parliament thought fit to prohibit them, because they would spoil the Sawyers Trade and ruin a great many Families.'
3. Robert Dossie, *Memoirs of Agriculture and other Oeconomical Arts*, London (1768), p. 125.
4. John H. Appleby, 'Charles Dingley's Sawmill, or public spirit at a premium,' *RSA Journal*, CXLIII, No. 5458, (April 1995), pp. 54-56.
5. William Robinson, *The Sawyers Ready Reckoner*, London (1818).
6. Appleby, *loc. cit.* at note 4, above.
7. National Archives, T1/496/78-81.
8. Appleby, *loc. cit.* at note 4 above.
9. *Ibid.*
10. Sven-Erik Astrom, 'North European timber exports to Great Britain, 1760-1810,' in P. L. Cottrell & D. H. Aldcroft, eds., *Shipping, Trade and Commerce*, Leicester (1981), pp. 81-97.
11. This was the Act of 27 George III, *cap.* 13.