

THE PRICE OF DEALS IN THE 18TH CENTURY

Rich^d. George (Bristol)
Deal Balk - 16 ft
20 ft 3 inch Russia Deals 11 inches wide £ 40
all other lengths & thicknesses in proportion
16 ft 2 inch Red Norway Deals 9 in. wide £ 20
16 ft 2 inch white D. do £ 18
all other lengths & in proportion
12 ft 1/4 inch additional Deals for flooring £ 13
10 ft do £ 11
12 ft 2 1/2 inch all Battens 6 1/2 in. wide £ 14
10 ft do do £ 12
Dist. 5 ppts for R. Money
With be delivered on board for 4 for 2 Inch & 5 for 3 Inch

Fig. 6 List of deals

Figure 6 is the price list of Richard George, timber merchant of Bristol, sent to John Edmond, of Cowbridge, South Glamorgan, in 1776. John Edmond was engaged in renovating the interior of his home, the Old Hall, Cowbridge, and was ordering timber for the use of his joiner. By the mid-18th century Wales was becoming, like the rest of Britain, dependent on imported softwoods for its timber, and all the wood on Richard George's list is imported. This fact might be explained on several levels - the technical advantages of softwood timber, shortage of

native hardwood timber, fashions for painted panelling, the expansion of the cabinet-making trade - but price must have been a key factor in encouraging the use of imported softwoods. Figure 7 illustrates the relative prices of oak boards and deals at London during the 17th and early 18th centuries, and reveals that, after the economic dislocation of Dutch Wars had subsided, imported deal was available more cheaply than native oak from about 1670 onwards! Outside London and the east coast ports the situation was less clear cut. The most significant factor in determining

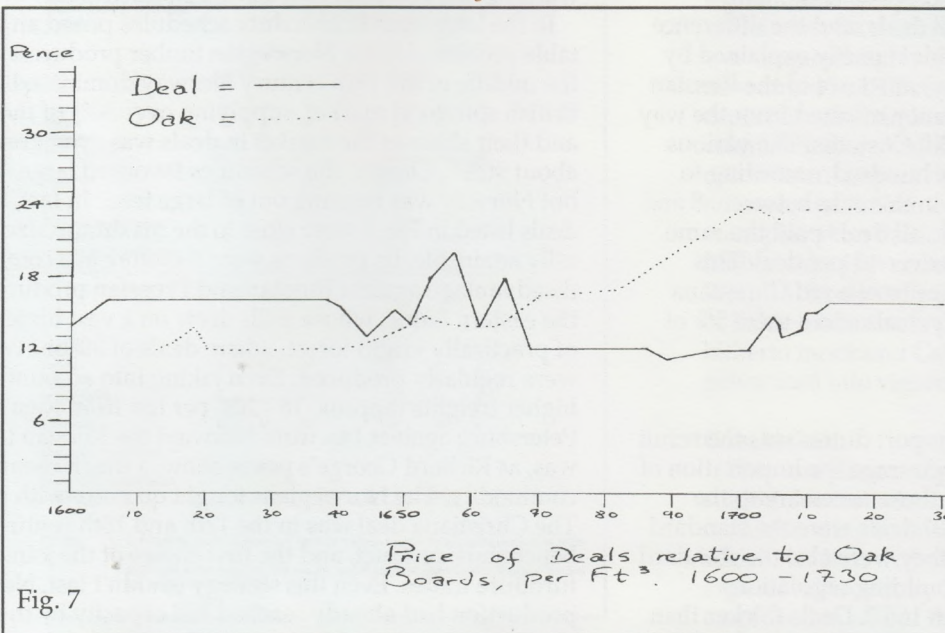


Fig. 7

when softwoods superseded native timber in the various regions of Britain was again price, but this was in turn dependent on the cost of transport. The profit margins in the deal trade were slim, and trans-shipment or overland carriage could raise costs above those which the margins could stand². In the present example, Richard George's prices were some 10% higher than London prices at the same date. Re-loading deals at Bristol cost another 4s. or 6s. per hundred (declared in Fig. 6., last line), and to this must be added sea freight to Aberthaw and land carriage five miles inland to Cowbridge. Nevertheless, in the long term the displacement of native by imported timbers was inexorable,

and their widespread adoption in Britain was driven by an almost continuous fall in price (relative to indigenous timber) throughout the 17th and 18th centuries. The mechanics of this process may be discovered by studying deal prices in more detail, and Richard George's price list affords a good opportunity to do so.

The prices.

Three categories of softwood appear in Fig. 6 *deal balk, deals and battens*. Balks were squared timber, imported in two classes of up to 5" square and 5" - 8" square. Anything over this size was classed as *fir timber*³. Balks were used for wall plates, rafters and could be converted by hand for general building purposes⁴. They were priced per cubic foot in this case 16d the cube. *Deals* were softwood boards, subdivided into various classes, of which the most commonly imported were up to 3 1/4" thick, 7" - 11" wide, and between 8 and 20 feet long. All the deals quoted in Fig.6 fall within this category. *Battens* were narrow deals, less than 7" wide.

Deals were imported in *hundreds* containing 120 pieces. The prices in Fig. 6 are quoted per hundred, and ordinary red Christiana flooring deals are £13 the hundred or 26d each. Christiana deals were high quality products from the principal sawmilling region around Oslo fiord in southern Norway, and the size quoted was the Christiana standard⁶.

Red deal was produced from the Scots pine (*Pinus sylvestris*), white deal from the Norway spruce (*Picea abies*) and occasionally the Silver fir (*Alies alba*)⁷. As this price list shows, white deal was consistently at least 10% cheaper than red, principally because it lacked durability and was therefore only suitable for what John Evelyn called "intestine works".

Large deals naturally cost more than small deals, but they were actually cheaper per given volume of timber, as the following calculations demonstrate. One hundred of 16' x 9" x 2" red Norway deals contained 240 cubic feet of timber. This equates to 20d per cubic foot for the larger deals and 22.6d for the smaller. The Russian deals were cheaper still at 17.7d and deal balk cheapest of all at only 16d per cube. Some of the discrepancy in price can be attributed to the higher conversion costs (essentially sawdust and labour) of the small deals, and the difference between Norway and Russia deals is partly explained by the lower cost (and lower quality) at source of the Russian product. The remaining discrepancy resulted from the way import duty was charged by H.M. Customs. The various classes of deal were taxed by the hundred, according to size. Within the same size class, in this case between 8 and 20 feet long and up to 3 1/4" thick, all deals paid the same import duty of £ 2.1s.9d., or just over 4d per deal. This constituted just over 15% of the price of a red Christiana deal but only 10% of the Norway deals and a mere 5% of the 20' Russian.

The effect of import duties.

The inequitable operation of import duties was the result of the government's desire to encourage the importation of certain classes of timber, chiefly those necessary to the house and shipbuilding trades. 3" deals were the standard for smaller ships' decking, and they were also the standard for floor joists according to the building regulations introduced after the Great Fire in 1667⁸. Deals thicker than 3 1/4" and longer than 20' paid considerably more duty, so

commercial logic dictated that, whenever possible, timber merchants imported the largest possible deals of the class which bore the lowest duty, hence the 3" x 20' deals on Richard George's list. However, although 3" deals were conceivably of occasional use to joiners, cabinet-makers rarely had need of deals more than 1" thick. Even the commonly imported 1 1/4" flooring deals were too thick for ordinary carcass timber, and for drawer linings 1/2" or even 1/4" was more than adequate. Either they must buy small (and hence relatively expensive) deals, or they must buy large deals and split them (these are usually recorded as 'slit' deals)⁹. In the early part of the 18th century this latter solution was widely practised. However, during the second half of the century, for reasons which will be explained in due course, a wider variety of ready made small deals was imported¹⁰. The diversity of the trade was reflected in due course in changes in the duty schedules. In 1660 only four categories of deals were rated in the Book of Rates; Meabro (£4 per hundred), Norway (£5), Burgendorp (£12) and Spruce (Prussia £15). In 1724 the rates were unchanged, although two more producers were added, Russia (£15) and Sweden (£5)¹¹. In 1787 the revised duty schedules belatedly took notice of the greater complexity of the trade by ceasing to enumerate deals by origin and instead listing by size four classes of deals, four of battens and two of deal ends. Deal ends were deals under 8' long, and paid a mere 1/3 of the duty of full deals. This very light duty was an incentive to the timber merchants, who could use the deals ends to pack every last bit of stowage in their hulls, thereby increasing profitability and, hopefully, reduce freights overall. Cabinet-makers and joiners benefitted, since deal ends were cheap and more than adequate for most purposes¹². In 1803 a further class of deals was added to the schedules, bringing the total to eleven. This new class comprised deals between 8 and 10 feet long and not exceeding 1 1/2" in thickness. They were rated at £ 3.3s.4d., half the rate of 3 1/4" deals. When duties were doubled in 1810, Norway deals of this small size were exempt from the increase in duty, and hence small deal users were able to some extent to escape the effects of wartime taxes on imported European softwoods.

In the long term British duty schedules posed an intractable problem for the Norwegian timber producers. Until the middle of the 18th century Norway dominated the British softwood market, supplying over 50% of the total, and their share of the market in deals was even greater, at about 90%¹³. Clearly, the schedules favoured large deals, but Norway was running out of large tree. In fact, the 16' deals listed in Fig. 6 were close to the maximum size generally attainable. Its products were therefore at a commercial disadvantage against Russian and Prussian producers in the eastern Baltic, whose mills drew on a vast hinterland of practically virgin forest, where deals of 20' or even 40' were regularly produced. Even taking into account the higher freights (approx. 18 - 20s. per ton from Riga or Petersburg against 14s. from Norway) the Russian timber was, as Richard George's prices show, a much cheaper commodity. The Norwegians fought quantity with quality. The Christiana deal was in the 17th and 18th centuries a benchmark product, and the first choice of the joinery and furniture trades. Even this strategy couldn't last. Norway's production had already reached full capacity by the end of the 17th century, and for most of the 18th century exports

to Britain stagnated at around 25,000 - 30,000 hundreds per annum. The huge expansion of British demand was therefore met from elsewhere, chiefly Russia but also Prussia and Sweden¹⁴. The legislation of 1803, by making concessions in favour of fir timber and small deals, permitted the Norwegians to struggle on in an increasingly competitive market. This was their reward for not joining in the anti-British stance of Tsar Alexander I which ultimately resulted in the introduction of punitive tariffs on Baltic timber and the virtual stagnation of the British-Baltic timber trade. Nevertheless, by the mid-19th century Norway's timber stocks were showing every sign of exhaustion and their deals had acquired a very poor reputation¹⁵.

Import duty an instrument of policy.

Successive Georgian administrations did more than encourage particular sizes of deals. Indeed, the viability of the whole softwood trade depended on government policy. The government's interest here was clear enough. Without imported softwoods and related 'naval stores' there would be no ships, without ships, no trade, and without trade no manufacturers, no colonies, no wealth and no power. Hence H.M. government was keen to keep softwood prices down in an age when prices were rising considerably at source.

Figure 8 shows the cost of importing Christiania deals into London at various times between 1660 and 1810. It reveals that, whilst cost at source rose from approximately £1.0s.0d. to £7.10s.0d. between 1660 and 1787 (750%), the price of deals in London rose only from £6.6s.0d. to £11.18s.6d. (89%) over the same period. Two factors prevented the rise in cost at source being passed on to the consumer. The first was the remarkable stability of freight charges over more than a century, at about 12s. per ton in

1664 and 14s. per ton in 1776. In real terms, then, as a proportion of the overall cost of importation freight charges effectively fell¹⁶. The second and more important factor was the progressive reduction of import duty. In 1660, import duty on 12' x 11/4" deals constituted more than 60% of the price. By 1787 this had declined to 16%. So long as the timber trade continued to expand the government's strategy was financially advantageous, since revenue from imports continued to rise even when the percentage of duty per deal was falling. But at the end of the 18th and beginning of the 19th centuries wartime expenditure forced the government to raise timber duties repeatedly, thereby ending more than a century of cheapening deal imports.

A notable feature of the government's policy was that it was able, by a combination of legislation and taxation, to direct trade into desired channels. We have already seen how the duty schedules were drawn up to facilitate the importation of certain sizes of deals. After 1787, although import duties began rising, and would continue to do so until 1821, the greater diversity of the schedules permitted greater flexibility and even the ability to legislate in favour of the importers and consumers of small deals. A further manifestation of this approach was the power of the government, by manipulating the differential in duties between sawn and unsawn timber, to make or break the British sawmilling industry. For most of the period under discussion it was simply unprofitable to run a sawmill, since ready made deals could be imported more cheaply than timber could be machine sawn in Britain. It is this fact, and not the recalcitrance of the sawyers, which accounts for the persistence of the pit saw in 18th century Britain¹⁷. As the price of deals began to rise at the end of the 18th century, however, it became profitable to import fir timber and saw it into deals by machine. In 1803, when the duty on most deals was increased, and that on small Norwegian deals reduced, duty on Norwegian *fir timber* was also reduced. Sawmills were erected on the strength of this legislation, and at least one Scottish entrepreneur was in the midst of installing the latest circular sawing technology after the design of 'Mr. Brunelle', when the legislation was repealed in 1811, causing his financial ruin¹⁸.

The most far reaching of the government's timber policies was unquestionably the system of colonial preference, first introduced in 1803 as a response to Russia's ban on the export of naval timber to Britain in 1801. Although specified colonial timbers had long been favoured with either light or non-existent import duties, the notion of actively penalising non-colonial timber was new¹⁹. Increasingly heavy duties were placed on Baltic softwoods whilst those on Canadian timber were first reduced (1803) and then abolished (1806). From 1810 colonial preference was so marked that imports of Baltic timber were drastically curtailed whilst the hitherto moribund Canadian lumber industry was galvanised into vigorous life²⁰.

Conclusion.

This essay is merely an outline, the bare bones of a vast subject. Nevertheless it offers a framework for understanding the use of deal in British furniture making which ties it in with the real world. In 1600 deals were an expensive luxury; by 1800 they were almost universally employed in all but the most inaccessible areas of Britain for most general purposes. This development was to a

Cost of importing deals Christiania to London 1660-1810.						
Christiania red deals 12' x 11" x 1 1/4"						
	1660.			1724.		
	L	s.	d.	L	s.	d.
First cost	1	0	0	1	15	0
Freight	1	4	0	1	5	0
Insurance etc 5%		2	0		1	9
Import duties	4	0	0	4	0	0
Total cost.	6	6	0	8	1	9
First cost as percentage of total:	15			21.64		
Import duties as percentage of total:	63.4			49.50		
1764.						
	L	s.	d.	L	s.	d.
First cost	7	10	0	7	10	0
Freight	1	8	0	1	8	0
Insurance		7	6		7	6
Import duties.	2	1	9	2	13	0
Total cost	11	7	3	11	18	6
First cost as percentage of total:	66.22			62.89		
Import duty as percentage of total:	18.41			22.22		
1803.						
	L	s.	d.	L	s.	d.
First cost	7	12	0	8	0	0
Freight	1	8	0	1	8	0
Insurance		7	8		8	0
Import duties	6	8	0	13	2	6
Total cost	15	15	8	22	18	6
First cost as percentage of total:	60.02			34.96		
Import duty as percentage of total:	23.64			57.14		

NOTES.

i) Freight is quoted at peacetime rates. In wartime freight charges could increase by 100% or more.

ii) Freight is calculated per ship ton, i.e., actual weight of timber, rather than per nominal ton or load of 50 cubic feet.

Fig. 8 The cost of importing deals

large degree price driven, and over most of the period the cost of deals in real terms fell consistently as a result of government policy which more than offset the steep rise in the cost of deals at source. At the beginning of the 18th century this policy was geared principally to large primary consumers such as the Royal Navy, the merchant fleet and house construction. By the last quarter of the century the increasing diversity of deal use was reflected in the diversity of the duty schedules and by the beginning of the 19th century specific concessions were being made in the schedules to producers of small scantlings. Whether the government intended actively to benefit furniture makers or merely to encourage the importers is a moot point, but the effect was to make British furniture makers, whether Welsh joiners or London cabinet-makers, vitally dependent on government policy for their continuing supply of cheap deals which formed, quite literally, the foundation of their work.

My thanks are due to John Edmondson, of Cowbridge, South Glamorgan, whose documents formed the starting point of this work, and to Luke Millar, who drew my attention to them.

NOTES

1. The graph has been plotted using prices from various sources, of which the most fruitful has been J.E. Thorold Rogers, *A History of Agriculture and Prices in England*, Oxford 1887, vols VI VII. The data is based of averages of the price of oak and deal boards translated into pence per cubic foot. Prices vary considerably within the same year, and inaccuracies arise where exact sizes of boards are unspecified and so wherever possible the 12'x 11" x 1 1/4" board has been used as a standard. Notwithstanding a wide margin or probable error, the general trend of the graph is unmistakable.

2. Ralph Davis, *The Rise of the English Shipping Industry in the 17th and 18th centuries*, Newton Abbot, 1962, 211-227. H.S.K. Kent, *The Anglo-Norwegian Timber Trade in the Eighteenth Century*, E.H.R., 2nd Ser., 1955, 62-74.

3. The various classes of timber imports are listed in 12 Caroli II cap.4 and subsequent legislation, eg; II George I cap. 7, 27 George III cap.13, 43 George III cap.68, 49 George III cap. 98, 50 George III cap.77.

4. See note 8 below.

5. Some authors have assumed that this specification actually defined a deal (Kent, 1955, Beard, 1981.) However, deals over 20' long and 3 1/4" thick were rated in the duty schedules. These large deals fell into a higher taxation class and were generally for naval use. John Ehrman, *The Navy in the War of William III 1689-1967*, Cambridge 1953, 39. R.G., *Albion, Forests and Sea Power*, Cambridge, Mass., 1926.

6. Dr. Hunter, in his gloss to the 1776 edition of Evelyn's *Sylva*, defines a Christiana standard deal as 12' long by 1 1/4" thick. He states that the capacity of the 136 mills around Christiana was 20 million deals annually. *Sylva*, 1776, Ch. XXII, 314.

7. Both red and yellow deal were the product of *P. sylvestris*. These were trade terms; the actual redness or yellowness of individual deals was a matter of opinion rather than fact. See, for instance, Hunter, *op.cit.*, Ch. XXII, 281, where he helpfully describes the timber of *P.sylvestris* as "sometimes red, sometimes yellow but chiefly white"!

8. The new building regulations introduced minimum sizes for wall plates and rafters, corresponding with the two sizes of deal balk, and for joists, corresponding with the specification for deals. 19 Caroli II Cap.3 paras XLIV & XLV 'Timber scantlings'. The producing countries obliged by manufacturing deals and balks to the required sizes.

9. References to slit deals occur with reasonable frequency in bills and inventories of the first half of the 18th century. In 1735 the joiner Charles Hayward charged 1s. "For slitting 12 Deales". Record Books of Hayward and Sons, joiners, 23 October 1735. RFS Archive.

10. For instance, the records of work at Brandsy Hall, near York, reveal

that whereas, in the 1740's, deals were bought merely as '12' deals', 'ordinary deals', 'single deals' and 'standard deals', by the 1770s deals were being bought in quarter-inch increments from 1/2" upwards. Thorold Rogers, *op. cit.* Vol.VII, 412-422.

11. *Meabro*, Norway and Burgendorp were all Norwegian products but, as the duty rates show, of different sizes. Spruce deals were not deals of Norway Spruce but were deals from Prussia. These were generally 4" thick and more than 20' long, employed for naval decking. The practice of rating deals according to provenance suggests that each producer originally specialised in a particular size or type of product.

12. 27 George III cap.13. Some importers imported only deal ends, thereby paying only 1/3 duty on a full cargo. This was regarded as abusing the spirit, if not the Letter, of the law. Report of the Select Committee on Foreign Trade, 9 March 1821.

13. Kent, *op. cit.*, 71. S-E Astrom, *North European Timber exports to Great Britain, 1760 -1810*, in Cottrell and Aldcroft, eds, *Shipping, Trade and Commerce*, Leicester University Press 1981, 81-95.

14. Kent, *op.cit.*, 64, Astrom, *op.cit.*.

15. Kent, *op.cit.*, 63. 19th century authorities rarely fail to remark on the limited size of Norwegian timber. For instance; "Norway exports no trees above 18 inches diameter; consequently there is much sapwood..." Thomas Tredgold, *Elementary Principles of Carpentry*, London 1840, 249. "Norway timber is of smaller dimension than that from Prussia and Russia...[it] should be used where beams do not require to exceed 11" square...deals have generally much sapwood and consequently cause loss and waste in working." James Newlands, *The Carpenter's Assistant*, Edinburgh, c.1850, 117.

16. The relative decline in freight charges was due to improvements in ship design, which made them cheaper to man and to run, and to fierce competition between the timber merchants of Britain and the Baltic. Davis, *op.cit.*, 222-3 and *passim*. Care must be taken when assessing freight costs, since there was more than one way of calculating them. The costs given here are by ton weight. Cost by ton volume, ie 50 cubic feet of timber, was considerably cheaper, since 50 cubic feet of Scots pine weighed, on average, only 1600lbs. Freight calculated by this method cost about 10s. per ton.

17. From the first decade of the 19th century, boards cut with a circular saw, usually Canadian Yellow pine (*P.strobus*), make their appearance on British furniture. This is probably indicative of British or Canadian manufacture since the sawmills of Norway and the Baltic were still using vertical frame saws at this date. Both frame saws and circular saws were set up in Canada after 1803, when British capital was rushed across the Atlantic to take advantage of lucrative wartime timber contracts. B. Latham, *Timber, a historical survey*, London 1957, 133-4. G.S. Graham, *Sea Power and British North America 1783-1820*, Harvard 1941, 142-152. See also Reports on the Parliamentary Select Committee on Foreign Trade 1820 & 1821.

18. 1st Report to the Parliamentary Select Committee on Extending Foreign Trade, 11 July 1820. Evidence of James Borthwick esq., 75. Of the 1811 legislation Borthwick commented; "British sawyers were deprived of the only kind of wood which they could manufacture with advantage; the consequence has been, that the Norwegians who formally used to send great quantities of wood in the form of logs, or timber, now send it in the form of battens." Report of the select committee, 9 March 1821, 131. One of the recommendations of the Select Committee was that the duty on deals should be adjusted in order once more to encourage the importation of fir timber and thereby bringing relief to the hard-up sawmills owners and their employees. Select Committee *op.cit.*, 1821, 6.

19. Legislation encouraging the importation of colonial timber can be found in 3 & 4 Anne cap.10, 12 Anne Stat.1 cap.9, and 8 George I cap.12. These acts were subsequently extended for most of the 18th century.

20. 43 George III cap.68, 46 George III cap.117, 4 8 George III cap. 19, 49 George III cap. 98, 50 George III cap. 12, 50 George III cap. 77, 52 George III cap.33. The effect of preferential duties, particularly after 1810 when duties were doubled, was dramatic and immediate. Imports of softwoods from Northern Europe declined from an average of 218,000 loads per annum 1803-6 to just over 93,000 loads in 1819. Those from Canada increased from 10,000 loads to over 188,000 during the same period. Graham *op. cit.*, 149-150. The tariffs against European timber were so heavy that it was at times profitable to smuggle Norwegian timber into Britain via Canada. David M. Williams, *Customs evasion, colonial preference and the British tariff*, 1829-42, in Cottrell and Aldcroft, eds, *op.cit.*, 99-104.