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TRANSATLANTIC TRADE IN WOOLLEN CLOTH 1850-1914: THE ROLE OF SHODDY

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THE WORSTED CLOTH TRADE

The factors affecting European trade and competition in worsted cloth in foreign markets, notably the United States, in the second half of the nineteenth century are well recorded. From the 1840s the two main worsted cloth producing countries of Europe, Britain and France, pursued quite different strategies in production and trade. Developments in dyeing technology from the late 1830s allowed substantial improvements in the production of mixed worsted cloth; cloth of cotton warp and worsted weft. The British industry rapidly converted its production to the cheaper mixed worsteds for a much wider market to the extent that by the late 1850s perhaps only five per cent of its output remained all-wool cloth. The French industry continued to concentrate on the production of softer all-wool worsteds, woven from dry-spun yarn produced on the mule; yarn which dyed better to brilliant and delicate shades. As a result Britain gained much of the world market expansion from the 1840s to the 1860s but France retained clear command of the high quality market.¹

TABLE 1
UNITED KINGDOM EXPORTS OF WOOLLEN AND WORSTED CLOTH, 1890-1913

annual averages	Woollen cloths		Worsted cloths	
	million yds	£ million	million yds	£ million
1890-4	50.2	5.5	140.0	8.8
1895-9	53.1	5.6	125.7	7.6
1900-4	52.1	6.0	101.8	6.3
1905-9	78.3	9.8	92.8	6.7
1910-13	99.9	13.5	77.1	7.0

Notes: Trade classifications do not permit completely exact division between woollen and worsted cloth. Data excludes some cloth not measured by length.

Source: Trade and Navigation Returns.

From the 1860s, however, fashion changes perhaps partly initiated by the American Civil War, the resultant cotton famine and consequent alterations in relative raw fibre prices favoured the French, and growing German, worsted industry. Moreover tariff barriers, particularly in the United States, were most effective against lower and medium quality goods to the disadvantage of Britain. As a result the British worsted industry lost much of its home market to France and suffered a decline in trade to its major traditional markets, including the United States. It was much criticized for its lack of adaptation to French competition and there has subsequently been debate about whether it was lethargic in changing its technology and product to new market

conditions. The nature and scale of the problem did not permit easy and rapid solutions. The raw materials, technology and labour skills required for all-wool worsted production were quite different and a rapid conversion to French methods of wool preparation and spinning was not quickly feasible. The British industry instead pursued a policy, initially rather slowly, of adapting its existing machinery and innovating new products, notably worsted coatings. In the two decades before the First World War it did recoup some of its previous trade losses but its level of trade did not recover to that of earlier years.²

THE TRADE IN WOOLLEN CLOTH

The relative performance of the European woollen industries is less well understood. In the second half of the nineteenth century Britain increased its share of world trade and of the export trade to the United States. Trade classification problems prevent exact measurement but British woollen cloth exports rose significantly in both value and volume whereas French exports of woollen cloth, although rising to the 1880s, subsequently fell rapidly to a level before the First World War less than half, by weight, of three decades earlier.³ The German woollen industry increased its trade but not to the supremacy that was being forecast in the 1870s and 1880s.⁴

TABLE 2
WOOL TEXTILE EXPORTS FROM SELECTED COUNTRIES 1880-1913

Annual averages	£ millions					
	United Kingdom	France	Germany	Austro- Hungary	Belgium	United States
1880-84	18.5	14.7	11.3	2.3	1.1	*
1885-89	20.1	13.9	11.7	2.0	1.0	0.03
1890-94	17.4	12.3	10.9	1.6	0.9	0.04
1895-99	16.5	11.0	10.5	1.6	0.7	0.11
1900-04	15.8	8.7	11.5	1.9	0.6	0.13
1905-08	20.4	8.6	13.5	*	*	0.10
1909-13	24.6	8.2	12.8	2.8	0.6	0.17

*comparable figure not available

Source: Committee on Industry and Trade, Survey of Textile Industries (1928), p. 173.

The question that needs to be pursued, therefore, is why the British woollen industry maintained its command of trade. And the hypothesis that is suggested is that it found a very successful way of cutting its raw material and production costs, through the use of recovered wool - shoddy and mungo⁵ - and thus could compete very effectively on price, whereas the French and to a lesser extent the Germans, attempted less successfully to compete on quality. The hypothesis is not new but it has not been closely tested nor has the significance of recovered wool to the British woollen industry been fully appreciated.

Recent research has shown that in the second half of the nineteenth century the use of recovered wool in Britain increased

rapidly. It has been calculated that in 1880 about 40 per cent of the clean wool weight used by the British woollen (as opposed to worsted) industry was recovered wool. Three decades later the proportion was around 60 per cent. In other words the British industry was using more rag wool than new wool. In the main woollen manufacturing district of Britain - the county of Yorkshire - recovered wool accounted for about two-thirds of all wool consumed in the decade before the First World War.⁶

THE ADVANTAGES OF SHODDY

The term 'shoddy' has of course acquired a derogatory meaning, but we should not assume that the use of the recovered wool in yarn and cloth necessarily meant poor quality in relation to the service the final product had to provide. Woollen manufacturers judged the blending of new and recovered wool in ratios appropriate to the nature and use of the product. Firm quality specifications were imposed by many customers, particularly ready-made clothing firms, military purchasers and other official bodies. The skill of British manufacturers in regulating and adapting blends was well recognised in competing industries. For example, an American manufacturer commented in 1890:

' . . . in some parts of Europe, especially in Yorkshire, manufacturers are enabled to get more poor material into yarn than in any other part of the world, for the simple reason that they are highly skilled in the art of combining.'⁷

This blending skill allowed a gradual extension of the use of shoddy and mungo into a wider range of products. Recovered wool should not necessarily be seen as an adulterant. Better types of it had qualities that gave advantages over some lower grades of new wool. Staple length of shoddy could be longer than some very short new wools. Moreover shoddy was not just a substitute for virgin wool. Its use provided particular qualities in cloth - notably a fullness of surface finish. Thus manufacturers might use it as a supplementary or complementary raw material.

The extent of the use of recovered wool in the British woollen trade in the late nineteenth century does suggest that a very high proportion of the output of the industry included some shoddy and mungo. The producers of the highest quality cloth in Yorkshire, Scotland and the West of England would have been very loathe to have admitted blending recovered wool. Many, no doubt, shunned it but there is evidence that other high quality producers surreptitiously incorporated small quantities as a strategy to reduce costs, knowing that it was very difficult for customers to identify that it had been used. Evidence of its use might only appear when garments began to lose shape after much wear - by which time, perhaps, the wearer could not necessarily relate the cloth to a particular manufacturer especially as many cloths, and tailored garments, were sold under the name of the merchant rather than the manufacturer.

The temptations to use shoddy and mungo were strong particularly at periods of rising new wool prices, as a salesman for one of the major British woollen manufacturers, the firm of Benjamin Gott, made clear in the 1860s. He forcefully pointed out:

'You must make up your mind to do as the first people in the trade do; put a certain quantity of shoddy in your black cloths up to 11/- a yard, but not so much as will interfere materially with the

strength. This you must do or you cannot compete with good houses . . . I know the use of shoddy is very objectionable to you, but if the spirit of competition drives you to it, you must do it or be driven out of the market . . . I see no other course.'⁸

The range of British woollen goods incorporating shoddy, by the late nineteenth century, was considerable. It included most civil and military uniform cloth; blankets; flannels; travel rugs; shawls; some furnishing and carriage fabrics, men's woollen suitings, trouserings and overcoatings; low and medium quality tweeds; and possibly some quite high quality tweeds as well.

There is no denial that sometimes products were overadulterated, thus giving shoddy the bad name it acquired in some quarters. Some products suffered deterioration of reputation in certain markets but generally there is evidence to show that manufacturers recognized the tight-rope they walked. Their success and reputation depended upon judging a fine balance between price and quality. Finish, in particular, was vital because it was well understood that a cloth would sell if it could be made to look equal to a more expensive article initially, even if its relative weakness and poorer wearing qualities were recognized.

Perhaps also the market was encouraging the use of recovered wool in another way. In the British home market, and perhaps elsewhere where real incomes were rising, and a wider range of attire, including for leisure purposes, was being demanded it may be that consumers were not seeking as long a life for their garments as previously and thus the quality of fibre used in some cloths was becoming less important. The extent of short term fashion change would appear to have been an influence here.

The cost and price advantages to British manufacturers in using recovered wool were significant. The most obvious, and most important, were that, although price relativities between new and recovered wool varied, the latter was always significantly lower. Exact comparisons are not possible because like cannot be compared with like and the range of new wool prices was wide. But a broad comparison for one period will illustrate the point. At the end of the nineteenth century American and Continental manufacturers were turning increasingly to South American cross-bred wools for their low to medium quality woollen cloth. These were amongst the cheapest clothing wools on the world market. Early this century representative shoddy and mungo prices were between two-thirds and one-half the price of South American wools. Bearing in mind the washing, scouring and carbonizing costs of processing these very dirty wools, and the resultant weight loss, the price difference was effectively even greater.⁹

Very roughly fibre content made up from one third to over one half of the overall cost of manufacturing woollen cloth from new wool. The figure obviously differed with the type of cloth. A blend of 50 per cent recovered wool might therefore mean an overall manufacturing cost reduction of between 15 and 25 per cent.

Individual British manufacturers well understood that the blending of different qualities of recovered wool with new wool was critical to their ability to compete on the basis of price and that their blending skill was crucial to quality and profitability. A Canadian manufacturer wrote in 1889:

'In these days of keen competition, manufacturers devise all sorts

of mixtures of stock in order to produce cheap goods, and by skilful manufacture in the blending of the different fibres, endeavour to make them appear of much finer quality than they really are.'¹⁰

A second cost advantage of recovered wool was through its use as a buffer against rises in new wool prices. There was a quite high short term elasticity of supply of recovered wool. Rising new wool prices encouraged more rags on to the market allowing shoddy prices to remain relatively stable in the face of increased demand. Manufacturers could thus make rapid alterations in their blends to stabilize cloth prices. This was clearly a strategy of individual manufacturers and the British industry as a whole. It has been traced in manufacturers' blend books.¹¹ Particularly in the two decades before the First World War, when world wool prices were generally rising quite fast, the use of recovered wool allowed British manufacturers to stabilize cloth export values better than the use of new wool would have permitted. In 1909 a large influx of rags and recovered wool from the U.S.A. permitted British manufacturers to maintain prices and profit margins better than their French and German competitors.

A further cost saving advantage might be described as the 'colour value'. Dyeing was a costly process. Recovered wool could reduce or eliminate dyeing, and subsequent drying, costs. Rags were sorted into hundreds of different qualities and colours by the rag dealers. Manufacturers sought to buy rags and shoddy according to the colour they required. Colour of yarn was determined by a mixture of pre-dyed wool and careful shoddy colour selection.

There were cost savings also in wool washing and scouring. But other costs were increased. Greater care in blending had cost implications. Recovered wool generally required lower spinning and weaving speeds to put less strain on the weaker yarn. As with new wool manufacturers had to balance speed against risk of breakage. But technical innovations, such as the Dobcross loom of the 1880s, improved the weaving of tender yarns.

An overall judgement of the cost reducing implications of the use of recovered wool is difficult to make in the absence of suitable data on the breakdown of the various stages of manufacturing costs. It might be reasonable to estimate the savings of at least 15 - 20 per cent, and possibly much more, could have resulted from substituting recovered wool for half the new wool in a medium quality piece of cloth.

The main advantage of these lower production costs in a highly competitive world market was obviously that the British industry could undercut its competitors on price. But other implications seem possible. Lower costs and prices would seem to have enabled British manufacturers to creep under some tariff barriers and to compete with the protected home products of their traditional markets. There is evidence of this occurring in the highly protected United States market. Shoddy allowed some British goods to remain competitive with American products in spite of the specific and ad valorem tariffs. The difficulties experienced by customs officials in determining fibre content helped, as a member of the Philadelphia Textile School explained in 1903:

'The great success of the English and German manufacturers has been that they knew how to work shoddy better than we did, and even with the tariff their goods had the call, for it was impossible for any customs official or expert to determine what is old and what is new

wool in a fabric.'¹²

Another possible beneficial consequence of recovered wool to the British industry may have been that the relatively low woollen cloth prices that shoddy permitted encouraged some substitution of woollen cloth for cotton and worsted cloth in various markets.

The American market was fraught with difficulties for European woollen cloth manufacturers in the second half of the nineteenth century. They had to contend with a complex tariff regime that was often open to adverse interpretation by customs officials. The regularity of tariff changes hardly allowed market implications to be fully understood before the situation altered again. Non-tariff, or indirect, barriers added further problems. The rapidly growing United States home market was being primarily serviced by the home woollen industry. Trade barriers were effective in severely curtailing European trade to the United States. The value of woollen cloth imports to the United States fluctuated wildly in response to tariff changes but were roughly halved, comparing the first decade of this century with the 1880s.¹³

But of this declining trade the British woollen industry gained a significantly increased share. I am not suggesting that the use of recovered wool was the only factor which explains Britain's relative position; there were clearly other considerations. But I do believe that there is a strong argument to suggest that recovered wool use was the most significant factor. An American journal, Textile Wool Record, certainly thought so in 1903. It wrote:

'Yorkshire knowledge and skill in making woollen, worsted and shoddy goods is one of the factors which makes it impossible for American manufacturers . . . to compete with the Yorkshire product on even terms. Yorkshire woollen workers are more skilful than we are, especially in the art of converting waste woollen products, called shoddy, into useful and serviceable fabrics.'¹⁴

THE USE OF RECOVERED WOOL ON THE CONTINENT OF EUROPE

If the British industry pursued a deliberate and successful strategy of using recovered wool, it is necessary to ask why its main European competitors did not follow its example. European production and exports of wool textiles were dominated by Britain, France and Germany. Before the First World War these three countries still accounted for 85 per cent of European wool textile exports. Most other European countries had a small export trade but none accounted for more than five per cent of the European total.¹⁵

The use of recovered wool in France and Germany is impossible at present to determine accurately. Reliable national statistics do not exist. The industry in France, and individual manufacturers there, were very coy about admitting to using shoddy. Rags were collected in France on a widespread basis and France supplied substantial quantities of rags and shoddy to Britain. Yet the French industry used very little shoddy itself, even though many of its products could have incorporated at least some recovered wool. The major areas of woollen manufacture in Normandy and northern France appear to have largely shunned it. Some smaller centres did make use of it; notably Vienne in the Rhone valley, south of Lyons. It is perhaps significant that the woollen industry survived better in Vienne than in any other French town before the First

World War.¹⁶ Recovered wool was more widely used in Germany but not to the same extent, in relation to woollen cloth output, as in Britain.

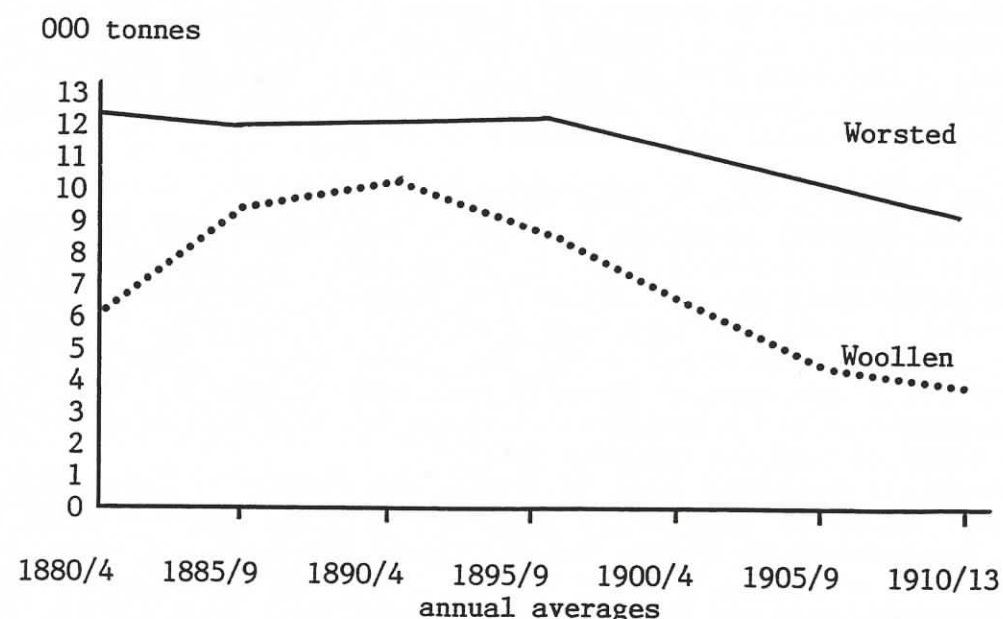
Why then was there this difference between British and Continental manufacturers? The reasons for less recovered wool use on the Continent appear to be a combination of recovered wool supply disadvantages, technical and labour skill contrasts, and alternative strategies in raw material use and product.

Rags were collected throughout the Continent of Europe in huge quantities, each area providing particular types and qualities according to local clothing styles. The long evolved and complex rag trade to Britain was not rivalled in France and Germany and there was no quick and easy means by which the wide range of types and qualities of rags needed to facilitate the use of shoddy could be created in France and Germany at the time when it could have been best used.

Labour skills were perhaps less significant. Much was made at the time of the ability of British woollen spinners to 'spin anything with two ends' and they could clearly cope with very short fibre shoddy, but it is not obvious that Continental manufacturers did not have, or could not have acquired, the blending and spinning skills required. They were well used to blending new wool and spinning short staple new wool. The type of spinning and carding machinery used was however a more significant factor. Much Continental machinery, which had been developed more and more to cope with South American wools, was not ideally suited or adaptable for shoddy.¹⁷

FIGURE 1

FRENCH EXPORTS OF WOOLLEN AND WORSTED CLOTH 1880/4-1910/13



It should also be recognized that Continental manufacturers did employ other strategies to reduce raw material costs - notably the use of skin or slipe wool and cheaper South American wools. But the main explanation would seem to lie in a hesitancy of decision about how to respond to British competition in foreign markets, including the United States. The decision was between maintaining quality of product and

competing on quality, or substantially diluting quality to reduce cost and price. The French industry suffered from indecision. Home market stagnation and improved quality of output in former major markets, notably the United States, created a dilemma. The French solution was an unsatisfactory compromise. Quality of product was reduced through various cost cuts and some inappropriate technical changes, but costs were not reduced sufficiently to compete with Britain. French woollen cloth, as a result, became even more susceptible to competition and to the constraints of foreign tariffs.¹⁸

Germany pursued a different strategy. It did not have old markets to defend, but did have a rapidly growing home market. It was creating new trade. The course it took was to copy the better products of its competitors but to undercut on quality and price. This tactic hurt France more than Britain. Germany made little inroad to the British trade in low price woollen cloth, containing a high proportion of recovered wool. At the same time Germany was actually improving the quality and range of its products instead of competing with very cheap cloths.¹⁹

The use of recovered wool is not the sole explanation for Britain's supremacy in world markets for woollen cloth before World War One. Other relevant factors appear to have been her ability to service sudden and substantial military demand at very competitive prices, helped by the use of shoddy; the size and buoyancy of her home market which enabled a large manufacturing base to be maintained; and arguably an efficient entrepreneurial responsiveness to fashion changes. But recovered wool was the major competitive tool of the British industry and it exploited very efficiently the cost-reducing properties of shoddy and mungo.

As a tailpiece it is relevant to point out that in the twentieth century the most dynamic centre of woollen cloth production in Europe has been Prato in Italy, where success has owed a great deal to the use of recovered wool.

NOTES

- 1 See D.T. Jenkins and K.G. Ponting, The British Wool Textile Industry, 1770-1914, London, 1982, Ch.9.
- 2 *Ibid.*, pp. 265-6.
- 3 See Committee on Industry and Trade, Survey of Textile Industries, London: H.M.S.O., 1928, pp. 173, 243-6.
- 4 *Ibid.*, pp. 247-51.
- 5 Shoddy is the fibre obtained from pulling softer, generally unmilled cloth, although the term is frequently applied to all recovered wool. Mungo is the fibre obtained from harder, generally felted or milled cloth, including tailors' clippings. For details of processing methods see N.C. Gee, Shoddy and Mungo Manufacture, Manchester, England, 1950.
- 6 D.T. Jenkins and J.C. Malin, 'European competition in woollen cloth, 1870-1914: the role of shoddy', Business History, 32, 4, 1990, Table 5.
- 7 Textile Manufacturer, 6 October 1890.
- 8 H. Heaton, 'Benjamin Gott and the industrial revolution in Yorkshire', Economic History Review, III, 1931, p.66.
- 9 For calculations, see Jenkins and Malin.

- 10 Textile Manufacture, 15 April, 1889.
- 11 J.C. Malin, The West Riding Recovered Wool Industry, 1813-1939, unpublished D.Phil. thesis, University of York, England, 1979, p. 440.
- 12 Channing Smith, 'Shoddy: its uses and abuses', Special Annual Report of the Alumni Association of the Philadelphia Textile School, 1903, p. 38.
- 13 A.H. Cole, The American Wool Manufacture, II. Cambridge, Mass., 1926, p. 41. Trade classifications do not allow exact measurement.
- 14 Textile Journal, III, 1, 7 December 1909.
- 15 See Jenkins and Malin, tables 1, 2 & 3.
- 16 J. Levain, J Rougerie et A. Straus, 'Contribution à l'étude des mouvements de "longue durée": la croissance de l'industrie lainière en France au XIXe siècle: ses allures et ses déterminants', .E.R. d'Histoire Pt. I, Bulletin No. 12, Paris, 1983, pp. 70-71; Wool Year Book, Manchester, 1913; C. Chatain, L'Industrie Drapière Viennoise: son état passé et présent, Vienne, France, 1925.
- 17 Wool Record, 18 April 1912.
- 18 Levain, Rougerie et Straus, p. 83.
- 19 Jenkins and Malin.